Access and use of electronic resources by academics and postgraduate students at the University of Venda, South Africa

by

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DISSERTATION

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DECLARATION

I, Alugumi Samuel Ndou declare that the dissertation for the Master's Degree in Information Science in the College of Human Sciences, Department of Information Science, University of South Africa titled *"Access and use of e-resources by academics and postgraduate students at the University of Venda, South Africa"* is my own work and has not been submitted previously for a degree at this university or any other institution. I also declare that all reference sources that I have used have been duly acknowledged.

…………………………………..   09 July 2018 ………..

Ndou A.S (Mr.)   Date

ABSTRACT

Electronic resources (e-resources) have brought many benefits and challenges in the way people access, retrieve and store information. At the University of Venda (UNIVEN), e-resources are there to be accessed and used by the whole university community which is composed of undergraduate and postgraduate students, academics (lecturers) and support staff. In order to provide relevant services to academics and students, academic libraries need to know the extent of e-resources usage, preferences, attitudes, perceptions, usage patterns and challenges faced by their communities in using e-resources. These aspects have not been systematically investigated at UNIVEN. Furthermore, it was not clear whether the available e-resources at UNIVEN were utilised effectively and whether UNIVEN has prerequisite infrastructure and technology required to access e-resources.

This study investigates the use of e-resources by academics and postgraduate students at the University of Venda (UNIVEN), South Africa. The specific objectives of this study were to determine the purpose of using e-resources by academics and postgraduate students at UNIVEN; to establish perceptions of academics and postgraduate students towards access and use of e-resources; and to identify challenges faced by academics and postgraduate students in accessing and using e-resources at UNIVEN.

This quantitative study used survey research design to investigate access and use of e-resources by academics and postgraduate students at UNIVEN. A stratified sampling was used to select 45 academics and 150 postgraduate students. Questionnaires were used to collect data from the respondents. The collected data were analysed using Microsoft Excel spreadsheet and Statistical Package for Social Sciences software (SPSS). The findings of this study revealed that both academics and postgraduate students accessed and used the available e-resources. The findings showed that age and gender had no significant relationship with access and use of e-resources. The academics and postgraduate students used e-resources for academic purposes and they

all had positive perceptions towards e-resources. Accessing and using e-resources while off-campus was a major challenge faced by academics and students.

The study recommends that UNIVEN should provide additional computers for accessing internet by students and increase its internet bandwidth. The university library should ensure that librarians responsible for training on the use of e-resources have adequate skills and should raise awareness of the available e-resources training programmes. In addition, the study recommends that UNIVEN library should modernise its Online Public Access Catalogue (OPAC) and provide a single-point of search which will allow simultaneous searching of multiple resources including print and e-resources to eliminate the need for searching the various databases separately.

Keywords: Academics; electronic resources; Information and communication technology; internet connectivity; postgraduate students; University of Venda.

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DEDICATION

- In memory of my late father, Mr. Mulatedzi Piet Malitsha Ndou. May his soul rest in peace.

- To my dearest mother, Alilali Marandela Tshamano Ndou, for her encouragement and unlimited support, and for taking good care of my sons throughout my studies. Thank you, my mom, you are the best to me.

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LIST OF ACRONYMS AND ABBREVIATIONS

AGORA : Access to Global Online Research in Agriculture

AJOL : African Journals Online

CALICO : Cape Library Consortium

E-book : Electronic book

E-database : Electronic database

E-journal : Electronic journal

E-mail : Electronic email

E-resources : Electronic resources

ETD : Electronic Theses and Dissertations

GAELIC : Gauteng and Environs Library Consortium

HINARI : Health InterNetwork Access to Research Initiative

INASP : International Network for the Availability of Scientific Publications

IP : Internet Protocol

JSTOR : Journal Storage

OARE : Online Access to Research in the Environment

OCLC : Online Computer Library Center

OPAC : Online Public Access Catalogue

MARC : Machine Readable Cataloguing

SADC : South African Development Community

SANLiC : South African National Library and Information Consortium

SPSS : Statistical Package for Social Sciences

SEALS : South East Academic Library Systems

TAM : Technology Acceptance Model

TEEAL : The Essential Electronic Agricultural Library

TCP : Transmission Control Protocol

UK	: United Kingdom
USA	: United States of America
UNISA	: University of South Africa
UNIVEN	: University of Venda
WWW	: World Wide Web

CHAPTER 1
INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Electronic resources (e-resources) are defined as "information stored in electronic format in computers or computer related facilities" (Ani, Ngulube & Onyacha, 2014: 167). These resources mainly consist of electronic books (e-books), electronic journals (e-journals), online public access catalogue (OPAC), electronic newspapers and magazines, e-theses, and online databases. The term e-resources is used interchangeably with other terms such as electronic information resources and online information resources. With e-resources, modern society can get information from everywhere and at any time when needed using internet (Shahapurmath, Medar & Kenchakkanavar, 2015).

According to Hawthorne (2008), e-resources changed the way people accessed library resources in the mid-1960's when the Machine-Readable Cataloguing (MARC) format was developed and with the introduction of World Wide Web (WWW). In addition, e-resources have solved problems for those who really need information because available e-resources in libraries are giving access to information to everyone in modern society (Shahapurmath *et al.*, 2015). Moreover, e-resources have the efficiency and capability of providing right information to the right user at the right time (Bhat & Mudhol, 2014: 28).

E-resources are playing an important role to students because they provide high quality of information service to a full range of learning and teaching resources in various formats (Mcharazo, 2016 as cited in Bhat and Mudhol, 2014: 30). Furthermore, Ani *et al.,* (2015: 01) pointed out that "e-resources provide new platforms for information to support in research conducted by academics".

The development of search engines made e-resources very accessible to users and made it possible for libraries to offer web-based e-resources for 24 hours service to users in remote locations (Patra, Kumar & Pani, 2014). E-resources are used for dissemination of information or collection of data through remote networks (Lee & Boyle, 2004).

E-resources have been heartily welcomed in academic institutions due to their multiple uses ranging from management of resources to teaching and learning without being constrained by spatial borders. Academic libraries play an important role in providing their communities with access to information resources related to study programmes and scientific research.

The printed information resources are no longer seen as the only principal sources of information to academics. Scholars are currently able to get additional online resources at no or low cost, and are more self-confident in accessing online materials (Rasul & Singh, 2010). Academics and students are increasingly using electronic information resources to accomplish their projects (Gakibayo & Ikoja-Odongo, 2013).

In order to provide relevant services to academics and students, academic libraries need to know the needs and preferences of their communities. According to Greenstein and Healy (2002), most academic communities are more comfortable using and retrieving information electronically than printed information. However, there is still low usage of e-resources in African universities as Harle (2010) found. Harle (2010) found that the use of e-resources in African universities is relatively constrained. In order to satisfy the information needs of academics and students, there is a need to examine the specific use of e-resources by these patrons.

This study examined use of e-resources by academics and postgraduate students at UNIVEN. The study investigates the extent of e-resources use, preferences, attitudes and perceptions, used patterns and challenges faced by academics and postgraduate students when using e-resources.

There was a need to examine usefulness of the available e-resources at UNIVEN to academics and postgraduate students as these resources play an important role in providing information for research, teaching and learning.

1.2 CONTEXTUAL SETTING

UNIVEN is situated in Vhembe, one of the rural districts in the Limpopo province of South Africa (SA). UNIVEN was established as a campus of the University of Limpopo, formerly known as University of the North on the 18th of February 1981 (UNIVEN, 2012). Like other historically black universities in SA, it was established to serve black people, particularly Venda speaking people (UNIVEN, 2012; Edwards,

2014). However, under the new political dispensation in SA, in 1997 it was mandated to be a comprehensive university that offers career, academic and vocationally focused programmes that address rural development and poverty alleviation (Nkomo & Sehoole, 2007).   Due to its location and historical background, UNIVEN is categorised as a rural-based university that offers both theoretically and practically oriented courses (Nkomo & Sehoole, 2007; Higher Education South Africa, 2011; UNIVEN, 2012). Other universities that fall under this category include University of Limpopo, University of Zululand, North-West University and Walter Sisulu University (Edwards, 2014). The term rural-based university is defined in detail in section 1.7.6.

In 2016, UNIVEN had 14 768 enrolled students in eight schools that offer qualifications from certificates and undergraduate degrees to postgraduate qualifications. Students enrolled at this university come from all South African provinces, Southern African Development Community (SADC) region, and other parts of African continent such as Nigeria, Ghana, and other Western African countries (UNIVEN, 2012).

According to Department of Quality Assurance, UNIVEN (2016), the total number of academic staff at UNIVEN by the year 2016 was 375, comprising of 80 professors, 97 senior lecturers, 162 lecturers and 36 junior lecturers. The total number of postgraduate students at UNIVEN for the 2016 academic year was 1 262, composed of 145 postgraduate diploma and certificates students, 477 honours students, 454 masters, and 186 doctoral students (Department of Quality Assurance, UNIVEN, 2016).

Emwanta and Nwalo (2013: 29) alluded that one of the primary purposes of university libraries is to support the university's mission and goals. UNIVEN community depends on the library for access to academic information for teaching and learning, and research purposes. The library subscribes to licensed electronic databases through the South African National Library and Information Consortium SANLiC which facilitates affordable access to scholarly electronic information in support of the learning, teaching and research activities of its members (SANLiC, 2015).

The library subscribes to the following electronic databases accessible over the internet: African Journals Online (AJOL), Directory of Open Access Journals (DOAJ), Ebscohost, Emerald, JSTOR, NEXUS, SABINET Online, Science Direct, and Web of Science (UNIVEN, 2015). Some of these databases such as SABINET Online and

Web of Science require a password to access information on and off campus, whereas other databases do not require passwords when accessed on campus while access to these sites will require passwords off campus. UNIVEN community needs well equipped internet infrastructure to access and use these e-resources.

Use of e-resources varies from one institution to another. The fact that some universities are based in urban and some based in rural communities or areas, may lead to differences in the use of e-resources by the universities' communities. Gardiner (2008) argued that good education in South African rural areas will only be achieved when there is major social and economic development in those areas. The social and economic factors affecting educational institutions may have effects on the availability of e-resources used at the rural-based universities in SA.

The assumption is that, little is known about the use of e-resources by academics and postgraduate students in rural-based universities. Socio-economics factors such as race, employment status, income, geographical location, education, high cost of electricity and poor network connection may hinder academics and students' ability to effectively use computers and other internet based resources. Czerniewicz and Brown's (2014) study revealed that internet access in South African rural areas was 4.6% compared to 21.8% in urban areas. In China, Long (2009) indicated that the ratio of internet access was 5.1% in rural areas compared to 21.6% in urban areas.

1.3 STATEMENT OF THE PROBLEM

As UNIVEN is operating within the context of a developing society (rural area), Pearce, (1996: 12) felt that there was a need to investigate whether UNIVEN Library could provide services equivalent to other universities in developed societies. In addition, a study by Maiwashe (2009) indicated that UNIVEN students did not have adequate access to information resources. Maiwashe (2009: 27) also stated that "students did not have adequate access to internet and computers". The study further pointed out that majority of students regarded books as more reliable than the internet but considered the internet as a more effective source of information than print resources because of less effort in accessing information from it.

A lot has changed since Maiwashe's study of 2009. Currently, UNIVEN has facilities such as computers and internet that can be accessed by both academics and students

(UNIVEN, 2012). Therefore, there was a need to investigate the use of e-resources at UNIVEN to determine if challenges raised by Maiwashe (2009), have been solved or still exist. Utilisation of e-resources by academics and students at UNIVEN also needed to be examined. In Pearce's (1996) findings, most academics at UNIVEN stated that library services were not at par to other academic libraries in the developed societies within SA.

UNIVEN library is spending a lot of money in purchasing and subscribing to e-resources. However, considering that the university had 14 768 students and more than 1000 staff, usage and access to these resources by the university community need to be examined. For example, number of searches for Science Direct for the year 2015 and 2014 was less than the population of the university (See Table 1.1), whereas an increase in the number of searches has been noted on Ebschost, Sabinet, and Science Direct databases over the years.

Table 1.1: UNIVEN Usage statistics for Ebscohost, SABINEt, and Science Direct databases: 2013 – 2017

Years	Number of searches		
	Ebscohost	Sabinet	Science Direct
2013	23 958	5 006	00
2014	45 290	18 297	9 515
2015	54 644	103 3336	12 781
2016	404 518	125 662	92 971
2017	211 812 (January – October)	17 446 (January – September)	Not obtained

 (UNIVEN Library Department, 2017)

Understanding preferences on available e-resources and reasons of using preferred e-resources is important as it enables the university to spend money on the e-resources that will be fully utilised by its community. According to Emerald report, access to Emerald database searches by UNIVEN community was 589 for the whole 2014 academic year (Mulaudzi, email, June 2015). UNIVEN Library Department (2016) indicated that e-book collection at the library increased from 3 596 to 27 197 titles between 2013 and 2015 academic years.

In 2015, UNIVEN handed over 13 000 tablets to its students, an investment worth R46 millions, equivalent to a 3.83 million United State Dollars (USD) (UNIVEN, 2015). In its strategic plan 2012 - 2016, UNIVEN planned to review curriculum to integrate e-learning with the implementation and evaluation of the use of learning technologies to be finalised in 2016 academic year.

UNIVEN is intending to upgrade its wireless network to improve its wireless effective range throughout the campus by deploying different technologies to boost and strengthen the signal. While the existing bandwidth of 30 megabits per second will be upgraded to 50 megabits per second to cater for increased need for quicker internet access by both staff and students (Vele, 2011).

Based on the above-mentioned information, there was a need to examine if UNIVEN had prerequisite infrastructure and technology required to access e-resources by its community. The findings of this study will inform the university management on the perceptions of the university community regarding the available ICT technologies. The study will provide feedback on access and use of e-resources by academics and postgraduate students and the challenges they face when accessing e-resources.

1.4 PURPOSE OF THE STUDY

1.4.1 Research aim

The purpose of the study was to investigate the use of e-resources by academics and postgraduate students at UNIVEN.

1.4.2 Research objectives

The specific objectives of the study were:

1.4.2.1 To what extent do academics and postgraduate students use the available e-resources at UNIVEN.

1.4.2.2 To determine the purposes of using e-resources by academics and postgraduate students at UNIVEN.

1.4.2.3 To establish perceptions of the academics and postgraduate students towards e-resources at UNIVEN.

1.4.2.4   To identify challenges faced by the academics and postgraduate students in using e-resources at UNIVEN.

1.4.3 Research questions

Based on the specific research questions, this study was guided by the following research questions:

1.4.3.1   To what extent do the academics and postgraduate students at UNIVEN use e-resources and do they have access to prerequisite infrastructure and technology required to access e-resources?

1.4.3.2   What are the purposes of using e-resources by academics and postgraduate students at UNIVEN?

1.4.3.3   What are the perceptions of the academics and postgraduate students towards e-resources at UNIVEN?

1.4.3.4   What are the challenges faced by the academics and postgraduate students in using e-resources at UNIVEN?

1.5 SIGNIFICANCE AND JUSTIFICATION OF THE STUDY

The significance of the study describes the importance and contribution of the study to knowledge in the area, to policy considerations and to practitioners (Marshall & Rossman, 1989 as cited in Punch, 2006).

The rationale for this study comes from the need to examine the use of e-resources by academics and postgraduate students for their research, teaching and learning. This study is important as it established unknown factors surrounding the use of e-resources by academics and postgraduate students at UNIVEN. The findings of this study can be used to improve utilisation and accessibility of e-resources in other universities with similar socio-economic conditions as UNIVEN.

The findings of this study might give valuable guidelines on the effective use of e-resources by academic libraries. The findings of this study will provide academic libraries with recommendations that might be used to overcome barriers faced by academics and postgraduate students in the use of e-resources.

Various universities' stakeholders may gain from the findings of this study. The universities' top management may use the findings of this study in budgeting for e-

resources. Academics, students, and librarians may play a role in improving access and usage of e-resources on and off-campus.

1.6 DEFINITION OF TERMS

This section provides definitions of terms that have been used in this study.

1.6.1 Academics

Academics are teachers or lecturers who provide lectures to students, guide and supervise students' projects and researches and are employed by universities or other institutions of higher education (Macmillan, 2009). In this study, different ranks in academics as provided for universities in SA were used, these include professors, senior lecturers, lecturers and junior lectures (Higher Education South Africa, 2014).

1.6.2 E-resources

Ani *et al.*, (2014: 167) defined e-resources as "information stored in electronic format in computers or computer related facilities." Examples of e-resources are e-books, e-journals, e-theses, online databases, electronic emails (e-mails), and OPAC.

1.6.3 Electronic journal

E-Journal is electronic version of journal which can be read on computerised devices and can be accessed online via the web, by downloading to standard personal computer or specific devices, and by printing it (Lee & Boyle, 2004). E-Journal is an electronic version of print journal and it is convenient to use than print version (Bothma, Cosijn, Fourie & Penzhorn, 2014).

1.6.4 Internet

Internet is a vast global network of interconnected networks that allows users to find and connect to information on the WWW (Barker & Terry, 2005). As defined by Bothma *et al.*, (2014: 19), "internet is a network of computer networks that operate worldwide through a common set of communication protocols, known as transmission control protocol/internet protocol (TCP/IP)." This means, internet provides communication and information services to people. For example, people use e-mails for communication, and use discussion groups and blogs as information services. Furthermore, Bothma

et al., (2014) stated that "internet had major influence on people's lives and it is regarded as the ultimate information resource by many people".

1.6.5 Postgraduate students

Postgraduate students refer to students who are studying after receiving their first degrees (Macmillan, 2009). In this study, postgraduate students are students who are studying toward honours, masters and doctoral degrees.

1.6.6 Rural-based university

In Indian context, a rural-based university is defined by Dani and Shah (2016) as a university operating in the rural area and as an institution of knowledge and agent of rural transformation. Conversely, Spaights (1980: 369 - 374) observed that "urban-based university is the university that directly responds to the special needs of the students from multicultural backgrounds. Both rural and urban based universities should strive for academic excellence".

Edwards (2014) defined rural-based universities in SA context as universities established by the apartheid government to serve ethnic groups such as Sotho, Tswana, Venda, Xhosa and Zulu speaking people. After the collapse of SA apartheid government, some of the "historically disadvantaged universities were incorporated into or merged with historically white universities which are today multiracial universities predominantly middle class in their students' intake, better equipped and better staffed" (Morrow, [n.d: 264]). However, UNIVEN, University of Zululand, and University of Fort Hare were not incorporated or merged with one of the historically white universities, and these universities are still experiencing the problems they once experienced as historically disadvantaged universities (Morrow, [n.d]).

This study adopts the definition of rural-based university in accordance with the SA context because UNIVEN is based in one of the rural areas in SA. The term rural-based university has been used by various studies done in the South African higher education context. Makura, Skead and Nhundu ([n.d]) reported on learning programmes at rural-based university. Pillay and Ngcobo (2010) investigated sources of stress and support among rural-based first year university students. In addition,

Francis; Kilonzo and Nyamukondiwa (2016) assessed the relevance of a rural-based university to the community it serves.

1.7 CONCEPTUAL FRAMEWORK OF THE STUDY

This study followed Technology Acceptance Model (TAM) which was developed to determine factors that cause people to accept or reject information technology. TAM has perceived usefulness, perceived ease of use, and behavioural intention to use as its primary factors that lead to acceptance of information technology (Davis, 1996). Details of the conceptual framework are covered in chapter two.

1.8 RESEARCH METHODS

This study used quantitative research method with survey as an approach. A survey can provide a researcher with "a quantitative data on trends or opinions of a population by studying a sample of that population, and it includes cross-sectional and longitudinal studies using questionnaire or structured interviews for data collection" (Creswell, 2014: 13). This study used questionnaires to collect information from academic staff, postgraduate students, and library director. Document reviews obtained from the library director were also used to obtain more information on the usage of e-resources at UNIVEN. Chapter three covered more details on research methodology.

1.9 LIMITATIONS OF THE STUDY

E-resources used in universities will always bring new challenges. Therefore, this study needs to be regarded as portrait which was current at the time it was taken. It is expected that some e-resources, facts and figures might become out dated before the study is completed and published. The findings of the study cannot be generalised to all South African universities considering that UNIVEN is situated in rural community. However, the findings of this study can be statistically generalised to other rural-based South African universities having the same characteristics as UNIVEN. Polit and Beck (2010) mentioned that the findings of the study can be statistically generalised to other populations that have common and demarcated characteristics.

1.10 ORGANISATION OF THE DISSERTATION

There are six chapters in this dissertation.

Chapter 1: Introduction and background of the study

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Presentation of data

Chapter 5: Interpretation and discussion of the findings

Chapter 6: Summary, conclusions, and recommendations

1.11 SUMMARY

Important terms are defined in chapter one. This chapter provided the background of the problem, the problem statement, main purpose, objectives and justification of the study.

In chapter two, literature review focused on types of e-resources used in universities, perceptions of using e-resources by academics and students, and barriers faced by academics and students on the use of e-resources. Chapter two also detailed the conceptual framework applied in this study. The methodology used in carrying out this study is detailed in chapter three. Chapter three also covered the research approach, research design, population, sampling procedure, data collection methods, and data analysis.

Analysed data collected from the respondents is presented in chapter four. Chapter five covered the interpretation and discussions of the findings. Summary, conclusions and recommendations of the study are presented in chapter six.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Davies and Hughes (2014) defined literature review as a process of developing research and setting it in the context of existing knowledge and in previous research studies to ensure that the conducted research contributes to the existing knowledge. A literature review is an arrangement method of identifying, evaluating and producing the existing knowledge from other researchers and scholars (Thomas, 2013; Fink, 2014).

De Vos, Strydom, Fouche and Delport (2011) and Monette, Sullivan, DeJong and Hilton (2014) alluded that the process of conducting literature review enables the researcher to assess the current state of research on a particular topic and determine methodologies used in past studies of the similar topics. A systematic literature review of each study is conducted for the studied topics and should be organised in theoretical and conceptual issues; research hypotheses; measurement and the operational definitions; research techniques; sampling strategy; statistical technique; or in findings and conclusions (Monette *et al.*, 2014). In addition, Babbie (2016) stated that the literature review can be organised in key concepts. Du Plooy-Cilliers, Davis and Bezuidenhout (2014) mentioned that in literature review, a researcher should first find relevant information sources related to the topic, and then eliminate irrelevant information sources that do not apply to investigation, and finally decide which information sources are applicable to the investigated study. This study's literature review is organised according to the objectives of the study. In addition, the literature review draws from the findings and conclusions of relevant previous published studies relating to usage of e-resources.

This study reviewed different types of information sources globally, in developed countries, developing countries in Africa, and in South Africa to assess the current state of use of e-resources in universities. Primary and secondary information resources such as standard reference materials; internet; scholarly books; articles in

academic peer reviewed journals; research reports; public documents; newspapers; and radio and television broadcasts can be used in conducting literature review (De Vos *et al.*, 2011). This study used primary information resources such as existing research, scholarly books, internet, journal articles, and theses and dissertations.

Babbie and Mouton (2001) pointed out that the literature review should only put emphasis on studies that have direct relevance to the current study. In this study, literature review focuses on literature related to the study of online e-resources. The literature review covers types of e-resources used in universities, use of e-resources in universities from the various regions of the world, attitudes and perceptions of using e-resources by academics and students, and barriers faced by academics and students on the use of e-resources. In addition, literature review chapter presents theoretical foundation of the study where the widely used TAM was employed to explain attitudes and perceptions of using e-resources by academics and students at UNIVEN.

2.2 TYPES OF E-RESOURCES

According to Shidi and Uganneya in Patra *et al.*, (2014: 04), "e-resources include e-books, e-journals, electronic databases (e-databases), internet, e-mails, online catalogue, and search engines such as Google and Yahoo". They comprise information resources used by researchers and that which need computer to access and provide quick information (Mittal & Bala, 2013). Bajpai, Mal, and Bajpai ([n.d]) pointed out that e-resources are divided into two main types which include online e-resources and offline e-resources. Online e-resources may include e-journals, e-books, e-databases and web sites. The offline e-resources may include CD ROM, diskettes, and other portable computer databases. The sub-sections that follow discuss the various types of e-resources in detail.

2.2.1 Electronic book (E-book)

E-books are electronic versions of print books which can be read on computerized devices and can be accessed online via the web, by downloading to standard personal computer or specific devices (Lee & Boyle, 2004). As pointed out by Polanka (2012: 17) e-books are "usually accessed through an internet connection and either a computer or an e-reader". Soules (2009) concluded that e-books have the benefits of providing information in text, audio, moving images; and users can access e-books through different devices such as computers and iPods.

Rowlands, Nicholas, Jamali and Huntington (2007) indicated types of e-books used by academics and students as fiction, non-fiction, text books, research monographs, and reference books. Soules (2009) explored new types of e-books as print books issued in electronic format; print books available through Uniform Resource Locators (URLs); e-books that enhance text images, audio, and video; e-reference books which are updated continuously; and web sites that contained text for the entire topic. Wu and Chen (2011) mentioned academic monographs, textbooks, and reference tools as types of e-books most often used by students.

Some of the advantages of e-books are accessibility, portability, display, content, navigation, annotations, content-transfer capabilities, and environmental considerations. The disadvantages of e-books are restriction on the use of e-books by library users, and restriction on library circulation and interlibrary loan (Walters, 2014).

Bothma *et al.*, (2014) alluded that e-books were getting more popularity and were about to overtake print books, and by January 2011, Amazon had announced that the sale of e-books was above that of the print version. With the development of new technologies, e-books will never be static as there will be possibilities for future types of e-books (Soules, 2009). Usage of e-books differs by types of information users (Walters, 2014). Therefore, this study refers e-books to all books presented mainly as text and intended for online access.

2.2.2 Electronic journals

Reitz ([n.d]) defined e-journal as a digital version of a print journal made available by means of internet access. There are three types of e-journals, namely: subscription journals; free subscription journals for a limited period; and free open access journals (Bothma *et al.*, 2014). Subscription journals are variety of peer reviewed and acceptable academic quality of e-journals subscribed to by academic libraries (Bothma, *et al.*, 2014). The academic institutions pay the cost of subscription so that their users, mostly academics and students have free access to e-journals. Free subscription journals are e-journals available to users without being a member of a library for free for a limited period (Bothma *et al.,* 2014). Usually they are older issues of journals. The last one, free open-access e-journal refer to "publications where the authors and copyright holders grant free access to a publication on a worldwide basis" (Bothma *et al.*, 2014: 121). This type of journals can be copied, used, distributed, transmitted, and displayed in electronic format for any responsible purpose. Hence, there is a need to acknowledge authorship of the publication.

Some open-access journals can be accessed through online repository maintained by academic institutions, scholarly society, or government agency (Bothma *et al.*, 2014). This means academic and scholarly institutions would be able to self-archive articles and other sources such as dissertation and thesis produced by their own academics and students in institutional repositories, and making them freely available to the users.

2.2.3 Electronic databases

E-databases sometimes called online databases are an organised collection of information of a particular subject or multi-disciplinary subject areas that can be accessed electronically. Users can use e-database to access e-books, e-journals, e-newspapers and other information resources through internet connection.

Yusuf and Farouk (2017) noted that e-databases existence in libraries in the early 1960s are valuable tools for academic purposes. Furthermore, Yusuf and Farouk (2017) alluded that e-databases have many advantages over traditional print-based

databases. "Multiple accesses, speed, richer in content, reuse, timeliness, anywhere access is some of the benefits of using e-databases" (Aina, 2014: 41).

2.2.4 Online public access catalogue (OPAC)

OPAC covers bibliographic information of an information centre and it describes the information source owned by a particular library or information centre (Al-Ansari, 2006: 41). For example, users can search a book or information source using OPAC by title, author, subject, keywords, or international standard book number (ISBN). Through use of web, OPAC can be accessed from anywhere, and at any time. In addition, OPAC can be "adapted to record the relevant information to allow direct link to the resource itself" (Polanka, 2012: 125). This means that e-resources such as e-journal and e-databases can be accessed through use of OPAC.

2.2.5 Worldwide Web

The worldwide web (www) is a collection of documents and services distributed by the internet and linked together by hypertext links (Bothma, Cosijn, Fourie & Penzhorn, 2017). In addition, Bothma *et al.*, (2017) explained corporate websites and personal websites as two of many different types of www. Corporate websites are sites created, funded, and maintained by organisations, institutions, companies to allow users to access their products and services. Whereas personal websites are sites created by individual or small groups to publish personal web pages for variety of reasons, mainly for pleasure (Bothma *et al.*, 2017).

Search engines are tools that provide access to www as an information source, web portals. Search engines such as Google and Yahoo are primary tools that provide users with access to millions of online resources and are regarded as the first port of information on the web by information seekers (Hider, 2012). Search engines provide full text of documents, multiple document types including PDF and Word documents.

Despite the fact that there are thousands of search engines, Google, Yahoo, and Bing are still regarded as the three most used search engines (Bothma, *et al.,* 2014). O' Dochartaigh (2012) refers Google, Yahoo, and Bing as the big three search engines.

Furthermore, O'Dochartaigh (2012) pointed out that Google, Yahoo and Bing could search inside the Worldcat database, and they search word documents; pdf files, PowerPoint; excel files; as well as web pages Worldcat are the "central sources of bibliographic information on academic books"

Google and Google scholar are the most popular and trusted search tools among academics and students in most of disciplines (Nicholas & Clark in Moss, Endicott-Popovsky & Dupuis, 2015). Other search engines mentioned by (Khan, Khan & Bhatti, n.d) include MSN; AltaVista; HotBot; Netscape; Excite; Lycos; and InfoSeek.

2.2.6. Open access resources (OARs)

OARs are a kind of e-resources available in online environment through the internet, without any access barrier, such as annual subscription fee (Hilton III, Wiley, Stein & Johnson, 2010). There are two types of OARs, namely: gold open access and green open access (Rubow, Shen & Schofield, 2015). Gold open access allows authors to contract with open publishers who then peer review and edit the work before making it openly accessible. Whereas in green open access, authors directly archive their work and make that work openly accessible on their own without involving publishers (Rubow, Shen & Schofield, 2015). Directory of Open Access Journals is an example of gold open access resources, and institutional repositories are regarded as green open access resources. Many university libraries globally are using their institutional repositories as OARs to make their research available to external communities.

2.3 AN OVERVIEW OF USE OF E-RESOURCES IN UNIVERSITIES

New subscriptions and purchases of information resources are heavily weighted towards digital as e-resources are added in academic libraries' collections. E-resources are added to libraries' collections because such resources can be accessed from home, office, and any other place without first going to the physical library. The e-resources save library' space and they (e-resources) are relatively easy in maintenance (Tenopir, 2003).

The use of e-resources in universities can be maximised by improving the speed of internet. As Twill cited in Polanka (2012) highlighted that it is possible to expand high

speed of internet access. Ossai (2010) compared the internet usage among countries in the year 2000 and found 75.1% usage in United State of America (USA), 6.8% in SA and 0.3% in Nigeria. However, the Internet World Stats ([n.d]) indicated that usage of internet in Africa is growing, with African countries such as Morocco, SA, and Nigeria having internet usage rate of 64%, 52.6% and 52.0% respectively by the year 2015. This comparison showed that the extent of internet use in Africa was still low compared to USA. Inadequate access to the internet in African continent was caused by lack of bandwidth to reach beyond the communities' borders (Ossai, 2010).

"The internet in the United Kingdom (UK) was overwhelmingly used for learning, where 94% of those who accessed internet daily or weekly used it as a research tool for academic information" (Livingstone & Bober, 2005 cited in Tella, 2007: 169). African communities are still experiencing obstacles to access internet (Guerriero, 2015). This might affect the use of other e-resources such as e-book, e-journal, and e-databases as access to these resources require internet access.

Academic libraries consortia promote sharing of resource in view of the financial challenges faced by academic libraries in their acquisition and provision of information resources (Ndlovu, 2011).   In SA, most of the academic and research institutions subscribe to SANLiC (SANLiC, 2015).   SANLiC was established to meet the information needs of its members with a particular focus on the academics, students, and researchers (Coetsee & Weiner, 2013).   Still within SA, there are regional consortia such as Gauteng and Environs Library Consortium (GAELIC), Cape Library Consortium (CALICO), South East Academic Library Systems (SEALS) among others (Coetsee & Weiner, 2013).   UNIVEN library is a member of SANLiC and GAELIC, therefore its community has privilege of enjoying access to e-resources through sharing with other institutions.

Academic libraries have opportunity to access or share information through consortium. The International Network for the Availability of Scientific Publications (INASP) is one of the programmes that enable the developing countries such as SA to have access to scientific and scholarly information (INASP, 2005). INASP affiliated institutions can access journals databases such as African Journal Online (AJOL), Access to Global Online Research in Agriculture (AGORA), and the Essential

Electronic Agricultural Library (TEEAL). UNIVEN is one of the institutes entitled to join INASP and pay for access to low-cost e-journals (African Institutions Initiative, [n.d]). Habiba and Chowdhury (2012), Zabed-Ahmed (2013a), and Mittal and Bala (2013) mentioned library catalogues, databases, e-books and e-journals as the most used e-resources. Hence, according to Mittal and Bala (2013), most of the respondents of research scholars from colleges and universities in India were not much familiar with electronic theses. In addition, Das and Maharana's (2013) study in Berhampur University, India, found that some of the e-resources such as OPAC and digital library were never accessed by research scholars because research scholars were not aware of these resources. Dongardive (2015) mentioned the internet, online databases, and e-journals as the available e-resources in the College of Dry Land Agriculture and Natural Resources, Mekelle University library.

Lee and Boyle (2004) included search engines such as Google and Yahoo as examples of e-resources. Manda in Rosenberg (2008) stated that Yahoo, Google and other search engines, and e-mail services were used in 19 academic and research institutions in Tanzania. In addition, Online Computer Library Center (OCLC, 2010) indicated that 99% of college students in USA used e-mail, and 93% used search engines. Sahin *et al.*, (2010) revealed that majority of university students in turkey frequently used e-mail in their daily life, hence, they did not use e-mail for academic purposes. Mittal and Bala (2013), and Bhat and Ganaie (2016) mentioned search engines as part of e-resources. Bhat and Ganaie (2016) alluded that search engine was the starting point for searching information by users at Dr Y.S. Parmar University of Horticulture and Forestry, and OCLC (2010) alluded that most students among college students in USA used search engine as starting point for searching information.

Kumar (2016) reported types of e-resources used by medical students of M.M University as: e-journals, e-books, ETDs, videos, e-encyclopaedias, search engines, e-research report, and e-databases. Moreover, OCLC (2010) included library websites as part of e-resources, and further stated that by the year 2010 most (43%) college students indicated that information from the library subscribed e-resources were more trustworthy from search engines compared to 31% of college students in year 2005. Navalur, Balasubramani and Kumar (2012) showed percentage of e-

resources usage at Bharathidasan University by academics and postgraduate students accessed as follows: e-journals 19.01%, e-books 7.04%, e-magazine 5.63%, e-theses 11.27%, search engines 12.68%, e-newspapers 3.52%, e-mails 12.68%, e-research reports 7.04%, bibliographic databases 16.20%, and any other e-resources not mentioned in the study with 4.93%.

Although these studies mentioned more or less the same e-resources, there was a need to find the types of the available e-resources used at UNIVEN as to further investigate the extent to which e-resources are utilised. This study intended to determine types of the available e-resources which were useful among academics and postgraduate students at UNIVEN.

2.3.1 Use of e-resources in selected academic institutions in developed countries

Bill and Melinda Gates Foundation (2007) in Polanka (2014) alluded that it would be impossible for Americans to succeed without computers and internet and that millions of Americans, especially low-income and disadvantaged individuals relied on libraries as their primary access to computers and internet. Therefore, the university community, including academics and students would also need to have access to computers and internet in order to achieve their academic goals. A study in the UK shows that the internet was overwhelmingly used for learning, where 94% of those who accessed internet daily or weekly used it as a research tool for academic information (Livingstone & Bober, 2005 as cited in Tella, 2007:169).

In another study done in the UK, Hewitson (2002) investigated the use and awareness of e-resources services by academics at Leeds Metropolitan University. The study found that majority of academics used the internet to search academic information as they did not prefer some of the "subscription-based" e-databases. Similarly, Wakeham and Garfield (2005) investigated how far e-resources had affected the relationship between learning and research materials at Anglia Polytechnic University in the UK. Wakeham and Garfield (2005) study found that most of the respondents were comfortable in using e-journals, and half of them were likely to use search engines such as Google and Yahoo before accessing the subscribed e-databases.

In addition, Ashcroft and Watts (2004) investigated the provision of e-books in 127 academic libraries in UK. The study showed that many academic libraries provided access to e-books through search engines free of charge with a popular used search engine being www.netlibrary.com. However, the study indicated that there were different viewpoints among students on the use of e-books as some of the students stated that it was not easy to read an e-book as a print version. The study also indicated that majority of users were satisfied with ease of use of e-books.

Appleton (2006) investigated perceptions of e-resources within the UK education sector. The study found that academics had difficulty in keeping up to date with e-resources. However, Appleton's (2006) study showed that students were happy to use e-resources, and they were more confident in doing research activities for themselves through use of e-resources.

In the USA, a study by Heterick (2002) found that academics in humanity sciences find more information resources from computers, and they felt that e-resources were vital and reliable tool for research. More than half of academics in the USA used e-resources (Tenopir, Wilson, Vakkari, Talja & King, 2010). Tenopir *et al.*, (2010) study compared reading of print and e-resources by academics by age groups and indicated the following:

Table 2.1 Comparison of print and e-resources usage by age in USA

Age	Print resource	Electronic resource
Under 30	13%	87%
31 – 40	31%	69%
41 – 50	44%	56%
51 – 60	46%	54%
Over 60	50%	50%

(Tenopir *et al.*, 2010)

Tenopir *et al.*, (2010)'s study showed that the majority (66.2%) of academics in the USA accessed e-resources from their offices or laboratories, 26.8% from home, 1.5% from library, and 4.3% from other places. Subject discipline had effect on the frequency of e-resources usage where academics in the humanities faculty accessed fewer electronic articles than other academics in other faculties (Tenopir *et al.*, 2010). OCLC (2010)'s study compared the usage of ERs by college students in USA between the year 2005 and year 2010, and found that the use of e-resources continued to rise

as college students had quickly adopted to newly introduced e-resources. Contrary, OCLC (2010)'s study showed decline in the use of library websites, e-journals and e-databases in USA caused by decrease usage of among college students aged 25 – 64. Nevertheless, the study indicated that college students among 18 – 24 years showed increase in the usage of library websites from 53% to 58%, the use of e-journal among this age group (18 – 24) slightly decreased from 41% t0 39%., and usage of e-databases remained the same at 30%.   Generally, the percentage of college students' usage of library websites declined from 61% to 57%.   In addition, students were less impressed with e-resources as the access of search engines had dropped from 88% in 2005 to 70% in 2010.

Camacho and Spackman (2011) investigated usage and attitudes towards e-books among business academics at the Brigham Young University in USA, and found that 69% of them had used e-book at least once in a month. However, the study showed that most of those academics were not aware that access to e-book was provided through libraries' licensing effort. Moreover, Wilkin and Underwood (2015) researched on the usage of e-book in academic libraries in the USA and UK between 2004 and 2014. Wilkin and Underwood (2015) revealed that many respondents did not know what an e-book was. The study also observed that preference of using e-book differed from user to users. Furthermore, Wilkin and Underwood (2015) suggested that there was a need to further investigate various aspects of e-book usage.

Monopoli, Nicholas, Georgiou and Korfiati (2002) evaluated the use of e-journals by academics and students at the University of Patras, in Greece. The study showed that despite that majority (61.8%) of those who accessed e-journals were under the age of 35, e-journals were accessed by all age ranges. The study also indicated that 93.2% of male respondents accessed e-journals on a daily, weekly or monthly basis compared to 85.8% of female counterpart. Moreover, Monopoli *et al.*, (2002) showed that 84.1% of respondents accessed e-journals from their offices, 10.6% from the university computer laboratories, 1.2% from the main library, and 1.2% from departmental libraries.

Korobili, Tilikidou and Delistavrou (2006) examined the use of library e-resources by academics of a higher educational institute in Thessaloniki, Greece. The study focused

on revealing factors that influence the effective use of sources for academic purposes. Korobili *et al.*, (2006) revealed that usage of e-resources was higher in the faculty of Business Administration and Economics, and most of those who accessed e-resources were academics with PhD degrees, and younger academics. Korobili *et al.*, (2006) further revealed that those who accessed e-resources were influenced by perceived usefulness of e-resources.

However, Korobili *et al.*, (2006) declared that for teaching and administrative purposes, academics regarded printed information resources as more important to them than electronic format. This might be caused by lack of training and skills on the use of e-resources as Korobili *et al.*, (2006) indicated that academics depended on their colleagues for advice on the use of e-resources instead of approaching librarians. In addition, most of the academics accessed e-resources from their offices and home than in the library (Korbili *et al.*, 2006). In the library, librarians would be always available for assistance.

Togia and Tsigilis (2009) examined the use of e-resources by graduate students at the Aristotle University of Thessaloniki, Greece. The study found that graduate students were incompetent users of OPAC, e-journals, and e-database. Despite that, students were very skilled in accessing web search engines. Furthermore, Togia and Tsigilis (2009)'s study revealed that majority (86%) of respondents had used search engines such as Google for more than 6 times during the last three months.

Atakan, Atilgan, Bayram, and Arslantekin (2008) assessed e-databases usage at Ankara University digital library in Turkey. The study revealed that although not all of faculty members accessed e-databases, many of them accessed e-databases with associate and assistant professors being the most users of e-databases. The study also revealed that the most accessed databases were Web of Science, Science Direct, and Ebscohost. Majority of academics at Ankara University learnt on how to use e-databases through informative booklet and training classes (Atakan *et al.*, 2008).
In addition, Dilek-Kayaoglu (2008) examined the use of e-journals by academics at Istanbul University in Turkey. The study revealed that the daily and weekly frequency of electronic journal access by faculty was 70.8% in Health Sciences, 63.6% in Natural Sciences, 52.5% in Social Sciences, and 51.7% in Human Hciences. The study

showed that 91% of academics accessed e-journals from their offices, 6% of them from the library, and only 3% from home. Furthermore, Sahin, Balta and Ercan (2010) investigated the reliability and accessibility of internet on university students and found that students did copy and paste information from internet to their academic projects. In Australia, a study by Hughes (2009) discovered that 52% of international students used search engines more than e-databases. The study further indicated that 57% of international students accessed OPAC. Hughes (2009) did not reveal the percentage of Australian students who accessed search engines and OPAC. However, Leong (2009) showed that a 2003 study conducted at University of Pennsylvania in Australia indicated that 72% of academics at business faculty guided students to use search engines for their assignments, 12% of academics guided students to use the university's library subscribed e-databases.

Still in Australia, Leong (2009) stated that academics at the University of Pennsylvania acknowledged the quality of information from subscribed to databases. Furthermore, Leong (2009) alluded that college students in Australia used search engines to search for information due to fact that most of the e-databases were searched using Google Scholar and other search engines. Leong (2009) study did not disclose the names of other search engines used by students to access the e-databases. Hence, it is possible to link other search engines such as Yahoo and Bing with e-databases to enable academics and students to have direct access to subscribed databases.

Deng (2010) investigated the extent to which e-resources are utilised in higher education in Australia. The study found that 96% of the respondents accessed e-resources for their work and study, with only 4% who did not access e-resources. The study further showed that 66.9% of respondents accessed e-resources on a sea trip off campus, 59.3% of the respondents accessed e-resources on campus but outside the library, 49.2% within the library, and 12.5% offshore off campus. This indicates that in Australia, internet could be accessed onshore and offshore, hence, access to e-resources could reach 100%.

Carmichael and Farrell (2012) found that 38% students in University of Western Sydney used e-books for their academic assignment. Most of the students (62%) did

not use e-books to accomplish their academic assignments. The study did not show usage of other e-resources such as OPAC, e-journals, and search engines.

2.3.2 Use of e-resources in selected academic institutions in developing countries outside of Africa

Sponsors made it possible for improvement on the availability of e-resources, however, various factors might cause inadequate usage of e-resources (Dulle, 2015). Use of e-resources in selected academic institutions in developing countries outside of Africa is outlined below.

Dhanavandan, Esmail and Nagarajan (2012) examined the use of e-resources at Krishnasamy College of Engineering and Technology library in India and found that the majority of students visited library once a week to access e-resources. Dhanavandan *et al.*, (2012) further stated that 36.4% of students from Computer Science course used e-resources. Dhanavandan *et al.*, (2012) concluded that students are the most users (77%) of e-resources when compared to 23% academics.

Still in India, Navalur, Balasubramani, Kumar (2012) examined the existence of various e-resources in Bharathidan University and found that 43.66% of academic and postgraduate students accessed e-resources on daily basis, 35.21% two to three times in a week, 13.38% occasionally, 6.34% once a week, and 1.41% two to three times a month. Navalur *et al.*, (2012) stated that 28.17% of students and research scholars accessed e-resources at computer laboratories, 22.54% in departments, 16.20% at university hostels, 13.37% at home, 11.27% at any other place, and 8.45% in cyber café.

In another study based in India, Chandran (2013) noted that at Siva Institute of Frontier Technology, the highest frequency of using the e-resources twice a week among students was 53.65%. The study found that the library was the most preferred place to access e-resources. "Most of the respondents spent only one hour to access the e-resources. Only 14.64% among academics and students spent more than two hours in accessing the e-resources" (Chandra, 2013: 97).

Mittal and Bala (2013) investigated the e-resources in colleges and universities in India and found that 54% of the respondents used e-resources, and most of them preferred academic libraries as places of access to the e-resources. Conversely, Bhat and Ganaie (2016) investigated the most popular places used by users to access e-resources at Dr Y.S. Parmar University of Horticulture and Forestry and found that students accessed e-resources in their faculty's computer laboratories 42.31%, hostels 28.85%, home 25.96%, internet café 21.15%, and only 20.19% in library while academics mostly accessed e-resources in their offices. In a study conducted at Berhampur University, research scholars accessed e-resources at the library were 35% of research scholars used the e-resources adequately and 65% not adequately used e-resources (Das & Maharana, 2013).

Dass and Jayaraman (2014) conducted a survey on utilization of e-resources by faculty members and research scholars in management institutions affiliated to Bharathiar University, Coimbatore. The study found that internet connection was always adequate. However, the study also observed that 4% of academics never accessed e-resources, and majority of academics accessed e-resources occasionally. Dass and Jayaraman (2014) further indicated that 31% of academics and research scholars accessed e-resources from their faculty library, while 26% used faculty laboratory, 17% at home, 16% accessed from other centres. In addition, majority of respondents in Kumar's (2016) study indicated the library as the most place of accessing of e-resources. Contrary to indication of 4% of academics who never accessed e-resources, the study stated that 10% of academics and research scholars used other information resources' format instead of e-resources.

Habiba and Chowdhury (2012) analysed the status of e-resources facilities and services provided by Dhaka University Library (DUL) in Bangladesh. The study discovered that 3% of users used internet at work places, 19% at cyber café, 20% at the library, 28% at residential hall, and 30% at home. Furthermore, the study revealed that 44% of the respondents accessed e-resources every day. Majority of internet users accessed web search engines to look for relevant information (Habiba & Chowdhury, 2012).

In addition, Zabed-Ahmed (2013a)'s study analysed the pattern of use of e-resources by faculty members in eight (8) public universities in Bangladesh. The study alluded that additional e-resources were needed in public universities. Also, Zabed-Ahmed (2013a)'s study showed that despite the fact that universities' library had very low numbers of computers, the universities had a good number of computers connected to the internet. Remarkably, Zabed-Ahmed (2013a) further revealed that there was no major difference between male and female academics; and among academic status in terms of overall satisfaction opinions with e-resources.

Amjad, Ahmed and Naeem (2013) showed that the rate of usage of e-resources among masters and doctoral students at the Islamia University of Babawalpur in Pakistan was high. Amjad, *et al.*, (2013) concluded that majority of research scholars in the social sciences faculty regularly used e-resources. In addition, Ahmed and Amjad (2014) measured the researchers' satisfaction with e-resources in two universities in Pakistan. The study concluded that majority of researchers were satisfied with the use of e-resources in their research projects.

Still in Pakistan, Khan, Khan and Bhatti (n.d) investigated the attitudes of students towards learning through the internet at the Islamia University of Bahawalpur. The study found that majority of respondents with 41% accessed internet from their departmental laboratories, 27% from the library, 19% home, 18% university hostel, 3% at internet café, and 1% at friends' homes. The study also showed that majority of respondents used the internet on daily basis, and respondents used other search engines than Google and Yahoo, where 9% of respondents indicated that they used MSN; 5% used Alta Vista; 4% HotBot; 3% Netscape; and 1% among InfoSeek; Lycos; and Excite. Khan *et al.*, (n.d) further showed the e-databases preference by student as follows: Science Direct 25%, Ebscohost 17%, Springerlink 13%, JSTOR 11%, Emerald 7%, and Cambridge journal with 5%.

Abdulla (2005) investigated the development of e-journals in the United Arab Emirates University (UAEU) in United Arab Emirates (UAE). The study confirmed that the introduction of e-journals in the university library enhanced and promoted the university to achieve one of its goals of increasing research activities. Moreover, Abdulla (2015) stated that faculty members accepted the introduction of e-journals as

a tool for communicating their academic activities. The evidence of accepting e-journals was that e-journals were accessed more frequently than print versions (Abdulla, 2005), and Science Direct was the most accessed e-database followed by Blackwell.

Mustafa and Arasan (2014) explored the availability of information resources to ALHOSN University faculty in UAE. The study found that the library did not fully meet users' needs. Users were not satisfied with the services provided by e-resources due to usefulness of those resources (Mustafa & Arasan, 2014). In addition, Mustafa and Arasan (2014) mentioned five available e-databases at ALHOSN University as ebrary; Access Science; Informa World; Gale Virtual Reference Library; and EBSCO- Art Source. The study revealed that 30% of respondents used EBSCO-Art Source.

In Taiwan, Wu and Chen (2011) investigated graduate students' usage of and attitudes towards e-books at National Taiwan University. The study revealed that graduate students used e-books. However, the study showed that students' attitudes towards the use of e-books differed among fields of study. Although more e-books were available at National Taiwan University, students preferred print books over e-books. Furthermore, the study also reported that students indicated searching an e-book was faster than searching a print book.

Wu and Chen (2012) investigated graduate students' perceptions of e-resources, their behaviour, and their usage patterns in a research- oriented university in Taiwan. The study did not reveal the name of the university. Nevertheless, the study showed that students considered e-resources as important tool for their academic studies. Wu and Chen (2012) study further indicated that students in the faculty of humanities were the least users of e-resources compared to usage of e-resources by student in other faculties. All respondents stated that they used e-databases, e-journals, and e-theses and dissertations. However, the study also reported that no student used institutional repository, despite of accessed e-theses and dissertations.

2.3.3 Use of e-resources in selected academic institutions in Africa

Williams, Pitchforth and O'Callaghan (2010) stated that students in African countries were discouraged to use e-resources due to poor download speeds. Williams *et al.*, (2010) further indicated that e-resources were being accessed in African countries, however, there was still a need to improve the usage of e-resources. In addition, Aparicio (n.d) alluded that African countries were experiencing difficulties in accessing e-resources, and access to e-resources in African rural areas was worse compared to African urban areas. This shows that there is a need to investigate usage of e-resources by academics and students within the African continent.

Harle (2009) conducted a study on access and use of e-resources in African universities and highlighted that e-resources available in most African universities were not fully utilised by academics and students. Dulle (2015) alluded that e-resources were less used in developing countries. However, Kebede (2014) examined adoption of Web 2.0 in academic libraries of top African universities and confirmed that usage of internet in Africa had shown significant growth. Oyedapo and Ojo (2013) alluded that there was still lack of e-resources in African universities.

Bashorun, Isah and Adisa (2011) alluded that computer skills and computer literacy among academics had played a role in the use of e-resources at the University of Ilorin (UNILORIN) in Nigeria, and e-journals were the most used e-resources with frequency of 77.8%. Oyedapo and Ojo (2013) discussed the use of e-resources in Hezekia Oluwasnmi Library, Obafemi Awolowo University, Ile-Ife in Nigeria. The study found that e-resources have "dramatically changed the trend in research activities". The study also indicated that e-resources in Obafemi Awolowo University covered 60% of resources needed by researchers and postgraduate students. The usage of e-resources was still low at only 6% of the respondents use e-resources frequently (Oyedapo & Ojo, 2013).

Ani *et al.*, (2014) investigated the effect of accessibility and utilisation of e-resources on productivity of academic staff in selected Nigerian universities. The study highlighted that the use of e-resources in universities for research projects was becoming extensive globally. Increase in accessibility and utilization of e-resources

led to increase in productivity of academics in Nigerian universities (Ani *et al.*, 2014). Furthermore, Ani *et al.*, (2014) recommended a need for individual Nigerian universities to increase level of e-resources for the promotion of "efficiency in research and increase in productivity." In contrast to Ani *et al.,* (2014), one would have asked if shortage or lack of e-resources in academic institutions affect performance of academics.

Asunka (2013) explored Ghanaian students' awareness, experience and perceptions of e-books as replacement of print textbook and revealed that students were aware of what e-book is. Moreover, the study showed that students in the private university acknowledged the benefits of e-books. Although, Asunka's (2013) study focused on students from private university, the study did not reveal the perceptions of students in public universities towards e-books.

Kwafoa, Imoro and Afful-Arthur (2014) investigated faculty's awareness and usage of online academic databases at the University of Cape Coast in Ghana. Kwafoa *et al.*, (2014) found that academics had some level of knowledge and experience in using internet, and the majority (92%) of academics were aware of the existence of e-databases. However, the study stated that academics did not know that the existing e-databases were being subscribed to by the university library. Forty percent of academics at the University of Cape Coast were highly satisfied with the use of e-resources, 47% were satisfied, 11% were neutral, and only 2.0% were dissatisfied. Contrary to these findings, Kwafoa *et al.*, (2014: 10) indicated that majority of academics did not use e-resources.

The University of Cape Coast had subscribed to Emerald, Ebscohost, Jstor, Hinari, Taylor and Francis, SAGE, Cambridge University, Science Direct, African journal online, and BIOONE databases (Kwafoa *et al.*, 2014). The study showed Emerald as the most popular database by 17.97% followed by SAGE journal (12.44%) with the least being BIOONE with 3.24%. Contrary, the study showed that although SAGE journal was second in popularity, it was less accessed compared to Ebscohost database.

Additionally, Kwadzo (2014) conducted a study on the access to library resources by Sandwich diploma students in the University of Ghana and found that the university library provided OPAC via internet. The study further showed that the university had subscribed to open access databases and to AGORA; HINARI; and OARE. However, academics and students at University of Ghana were required to use password to access e-databases off campus.

In Tanzania, Manda (2005) examined access to electronic library resources and services in academic and research institutions. The study observed that all institutions had access to e-resources but the difference between those institutions was in accessing e-journals. "Academic libraries had very small number of computers available for users compared to those available at other locations within the institutions" (Manda, 2005). The study also revealed that some of the academic libraries did not subscribe to some of e-resources due to lack of commitment to the adoption of e-resources, and the limited demand from library users for e-resources. This shows that there is a need for academic institutions to ensure that the available e-resources are fully utilised by their community.

Wema and Manda (2011) conducted a study on the impact of e-resources usage in academic and research institutions in Tanzania, and showed that the use of e-resources varied greatly between institutions and individuals. Generally, the use of e-resources among researchers in Tanzania was low (Shija, 2009). Kebede (2014) also showed that the use of e-resources at the University of Dar es Salaam was low compared to usage of e-resources in other universities in Africa. In addition, Goodluck and George (2014) examined perceived barriers of using internet in Mzumbe University in Morogoro region, Tanzania and found that 66% of respondents had bad experience in using internet. The study revealed that one of the students was scared to use internet for academic activities because he always ends up retrieving irrelevant information; and one of the academics said that difficulty in finding what he needed discouraged him to use internet. Remarkably, the study mentioned age as one of the barriers to using internet.

Tella (2007) determined the frequency of access to the internet and the time spent on the internet by students at the University of Botswana, Gaborone. The finding of the

study showed that majority (66%) of students had access to internet. However, time spent on internet was limited from 1 to 5 hours per week. The study also revealed that most students used the internet for obtaining course related information, and the use of internet improved students' academic performance. In addition, Toteng, Hoskins and Bell (2013) conducted a study on the use of e-databases by law students at the University of Botswana Library and found that 75% of the respondents used most of the subscribed e-databases.

Bhukuvhani, Chiparausha and Zuvalinyenga (2012) investigated the use of e-resources by academics at Bindura University of Science Education in Zimbabwe. The study found that academics had attended training on the use of e-resources provided by the university library. The study also showed that majority (86.7%) of respondents had used one or more of e-resources for academic and research purpose. Furthermore, Bhukuvhani *et al.*, (2012) indicated that 83.3% of academics relied to internet for their research papers.

In addition, Malapela and De Jager (2015) examined the use of available electronic journal by academics and researchers in the faculty of Agriculture at the University of Zimbabwe. The study revealed that there was duplication of journal titles on databases despite that 14.5% of the journals needed by academics and researchers were not available on any database subscribed to by the library. However, the study showed availability of 63% donated journals by AGORA; 47% by ARDI; 51% by HINARI; and 53.5% donated by OARE. However, the study by Malapela and De Jager (2015) did not reveal if there was some of the e-databases which the university subscribed to except the ones donated.

2.3.4 Use of e-resources in selected academic institutions in South Africa

Treptow and James (2011) surveyed the use of e-resources by prominent South African researchers, and the study revealed that researchers favoured e-journals, and did not like e-books. Similarly, Kahn (2013) investigated the current and potential use of e-books at South African university libraries from a user's perspective and found that majority of population did not use e-books. In contrast, Kahn (2013)'s study stated that users were interested in using e-books. Despite of users' choice in the use

of e-resources, universities should consider academics and students' interests when subscribing and purchasing e-resources.

Mgobozi and Ocholla (2002) investigated the use of e-journals for dissemination of scholarly information at the Universities of Natal now known as University of KwaZulu-Natal and Zululand. The findings of the study showed that usage of e-journals differed according to faculties. The study showed that 100% of respondents in faculty of Commerce and Administration at the University of KwaZulu-Natal used e-journals, followed by 93% in faculty of Science and Agriculture at the University of Zululand, and the least usage was 50% in faculty of law at University of Zululand. Hence, reasons for low usage of e-resources by faculty of law at University of Zululand needed to be further investigated. Swan, Grimes and Owens (2013) argued that communities in rural areas have less access to broadband services than those in urban areas. This might be the cause of low usage of e-resources by faculty of law at the University of Zululand. The University of Zululand is based in a rural area (Refer to section 1.7.6 for definition of rural-based University) whereas University of KwaZulu-Natal is in an urban area (Edwards, 215). Mgobozi and Ocholla (2002) further indicated that from the overall respondents, the findings showed that 99% of academics had access to internet, and 100% and 99% of postgraduate students from the Universities of KwaZulu-Natal and Zululand respectively had access to internet.
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Ngulube (2010) investigated the use of internet among students at ST Joseph's Theological Institute in SA. The study found that 52.3% of the students accessed internet while 47.7% did not use internet because of lack of formal training and did not know how to use the internet. The study also showed that students' ability to identify, access and use e-resources influenced them to access internet. However, Ngulube (2010)'s study did not investigate search engines used by most of students at ST Joseph's Theological Institute.

Hadebe and Hoskins (2010) investigated the use of e-resources by masters' students in the faculty of Humanities, Development and Social Sciences in Pietermaritzburg campus. The study showed that the majority (81.3%) of the students accessed e-databases, and experienced number of problems when accessing e-databases. Hadebe and Hoskins (2010) further revealed that the university library offered the

OPAC, and e-databases training to masters' students. The study indicated that 18.7% of the students who did not access e-databases mentioned non-attendance of library orientation sessions as one of the reasons for not using e-databases.

Seventy-seven percent (77%) of students accessed e-databases from the university local area network (LAN), 72.6% in the library, 62.8% from their rooms, and 37.2% accessed e-databases from off-campus (Hadebe & Hoskins, 2010).   The study showed Ebscohost (74.3%), Sabinet (66.4%), ProQuest (49.6%), Science Direct (47.8%), and JSTOR (38.9%) as the top five e-databases accessed by masters' students. In addition, 98.6% of students used Google, 12.2% used Yahoo, 10.1% Google Scholar, 5% Lycos, 2.2% among Wikipedia and Ask, and 0.7% for Clusty, Amazon, Itc Library and Ceramicsdaily respectively (Hadebe & Hoskins, 2010). Hoskins (2012) research based on a masters' dissertation conducted at the University of KwaZulu-Natal, Faculty of Humanities, Development and Social sciences concluded that 93.3% of third-year students used internet for web and search engines; 99.2% for email; 66.7% for social networking; 58.3% for telnet; and 6.3% for file transfer.

Furthermore, Nkosi, Leach and Hoskins (2012) investigated academics expectations of students to the use of library at the University of KwaZulu-Natal, Pietermaritzburg campus. The study found that students were expected to have skills and competencies on the use of OPAC. The study also indicated that only 3.2 % of academics expected students to be able to use e-resources such as OPAC, Ebscohost and Sabinet at their third levels of study. This shows that most of the academics did not encourage their students to access e-resources, and the subscribed e-resources would not be fully utilised by the university community.

Naude, Rensleigh and du Toit (2005) assessed the impact of web information resources on citation patterns of academics in University of South Africa (UNISA). The study exposed that academics had not fully embraced the web as a scholarly resource. This was revealed by low rate of web citations by academics as they (academics) heavily relied on print formats. In addition, Naude *et al.*, (2005)'s study showed that demographic information influenced the usage of e-resources by academics in UNISA.

Swanepoel (2008) conducted a study on citation analysis of theses and dissertations submitted by masters and doctoral students at Tshwane University of Technology between 2004 – 2006 academic years. The study found that masters and doctoral students used print resources far greater than e-resources. Furthermore, Swanepoel (2008) study revealed that use of e-resources differed by the field of study. Despite a slight annual increase in the usage of e-resources, the study showed a huge usage gap between print and e-resources by masters and doctoral students.

This study assumed that in a study conducted by Mgobozi and Ocholla (2002), geographical areas would have played a role on the usage of e-resources between the Universities of KwaZulu-Natal and University of Zululand. The attitude and perceptions of academics and postgraduate students from different faculties need to be investigated.

Based on the reviewed studies, globally e-resources are being accessed and used by academics, researchers, and students. It is revealed from the reviewed studies that internet is the prerequisite for accessing and using e-resources. Moreover, universities are subscribing to e-resources to enable academics, researchers, and students to have access to information required for academic purposes. The reviewed studies revealed that Ebscohost, Science Direct, and Emerald as the most accessed and used e-databases globally. However, in some universities e-resources were not yet fully utilised by the academics, researchers, and students.

2.3.5 Use of e-resources at UNIVEN

Several studies have been conducted to determine access to library resources, ICT facilities and e-resources at UNIVEN. Pearce (1996) assessed the library and information needs and expectations of academic staff at UNIVEN. The study found that academics were not satisfied with the resources provided as there were no sufficient books, periodicals and video cassettes to provide for their information needs. The study did not provide more information on the use of e-resources, of which there is a need to find out what other e-resources are used at UNIVEN except video cassettes.

Maiwashe (2009) solicited the perceptions of UNIVEN students on available information resources used, and the study found that 68% of students did not have internet connection. Contrary to this, Madzhie (2010)'s study examined challenges faced by UNIVEN library in provision of library user education and information literacy, and highlighted that staff and students got information from internet as they are computer literate and that majority of students found internet as reliable resource of information. Further, Nemalili (2014) assessed the effectiveness of the OPAC when used by UNIVEN students, and found that majority of students indicated that they used Google to search information. However, above mentioned studies did not show whether academics and students used other available e-resources such as e-books, e-databases, and e-journals.

The study by Madzhie (2010) did not show any satisfaction or dissatisfaction on internet access by UNIVEN academic staff and students. In contrast, (Madzhie, 2010)'s study recommended that UNIVEN library should allocate wire-less hot spot areas for the users with laptops. Maiwashe (2009) did not show types of e-resources used by academics and students at UNIVEN.

Tugli, Zungu, Ramakuela, Goon and Anyanwu (2013) conducted a study on perceptions of students with disabilities concerning access and support in the learning environment at UNIVEN. Tugli *et al.,* (2013)'s study mentioned many sources of support services to disabled students. However, the study did not mention any support of electronic usage to disabled students by the university library. Disabled students deserve to have special equipment to access e-resources. Therefore, there is a need to find out if the available e-resources at UNIVEN meet the disabled students' information needs.

None of the studies done at UNIVEN covered the attitudes and perceptions of academics and students on the use of e-resources, whether academics and students benefited by using e-resources, and if there were some barriers faced by UNIVEN community on the use of e-resources. Therefore, there was a need to investigate the use of e-resources by UNIVEN community. In support of Wakeham and Garfield (2005) and Hewitson (2002) studies, this study assumed that UNIVEN academics and postgraduate students were using search engines such as Google and Yahoo to

search academic information instead of accessing the e-databases which the university subscribed to. This study also assumed that academics had influence on the use of e-resources by students, reason being that if academics necessitated the latest and updated information resources on students' projects then e-resources would have been the resources to be consulted by students.

To summarise the discussion on use of e-resources in universities from the various regions of the world it shows that the use of e-resources by academics and postgraduate students in rural-based universities has not been adequately investigated. Most existing studies have indicated the extent of use of e-resources and purposes of using e-resources by academics and students in academic institutions (Bassey & Odu, 2015; Edem & Egbe, 2016; Okite- Amughoro, Makgahlela & Bopape, 2014; Thanuskodi, 2012; Kumar & Kumar, 2010). What many of the studies failed to investigate more carefully is the usefulness of the available e-resources and perceptions of academics and students towards e-resources in rural-based universities. In addition, most of the existing studies investigated the use of e-resources by academics and students based on small samples (Ajayi, Shorunke & Aboyade, 2014; Chandran, 2013; Daramola, 2016; Ozoemelem, 2009; Sivathaasan & Velnampy, 2013; Sohail & Ahmad, 2017).

Kodani (2012) alluded to the need to investigate students' perceptions towards the use of e-resources. Furthermore, prerequisite infrastructure for accessing and using internet in rural-based universities has not been examined. Bettran, De Fontenay and De Alameida (2006) indicated that in order for the institutions to provide better internet services to the community, it is important to first understand the internet infrastructures. This study intends to address these gaps by examining academics and postgraduate students' perceptions towards the use of e-resources in a rural-based university based on a large representative sample.

2.4 PERCEPTIONS OF USING E-RESOURCES

OCLC (2010) revealed that trustworthiness, accuracy, speed, convenience, and belief are some of the criteria for determining usage of information resources. The study indicated that, students had perceptions that some sites had better information than others.   In Liu (2006), graduate students indicated negative attitude towards the use of e-resources as 75.9% of respondents stated that they will continue to rely on using print version.   Contrary, Radjagopal and Chinnasamy (2012) found that students' perceptions towards e-resources usage differ according to status of institutions. Radjagopal and Chinnasamy (2012) revealed that students from private colleges and universities showed positive perceptions towards e-resources usage, while students from government colleges and universities showed negative perceptions towards the use of e-resources.   Moreover, academics' perceptions towards e-resources differed by faculties, although academics agreed that e-resources are important tool for research and they will depend on e-resources in future (Heterick, 2002). Academics from different faculties view the library and its role differently. For example, "humanists depend heavily on the library to assist them in seeking research materials while social scientists value the library much less for assistance in seeking research material" (Heterick, 2002: 11).

Falc (2013) assessed college students' perceptions towards using e-books and found that 62% of students liked e-book because of its lower price compared to print format. However, "students who were not completely satisfied with the layout and format of e-books indicated that it was harder to read on the screen" (Falc, 2013: 07). Gakibayo, Ikoja-Odongo and Okello-Obura (2013: 07) alluded that "students who had confidence in themselves used e-resources more than those with low esteem. Hence, those who have confidence in themselves will find it easy to use e-resources, and be better able to face any challenges brought in by e-resources". This study's intention was to determine academics and postgraduate students' perceptions about the use of e-resources at UNIVEN.

2.5 PURPOSES OF USING THE E-RESOURCES BY THE ACADEMICS AND POSTGRADUATE STUDENTS

Thanuskodi (2011) examined the usage of e-resources at Madurai Kamaraj University and revealed that masters and doctoral students use e-resources for purpose of career and general information. Navalur *et al*., (2012) showed that 7.75% of academics and postgraduate students of Bharathidasan University used e-resources for completion of assignments and seminar presentations, 42.25% for research purpose, 16.90% to find relevant information in area of specialization, 11.27% for career development, 8.45% to keep themselves up-to-date on the subjects, 5.63% for routine study, and 7.75% for any other purposes not mentioned in the study. In addition, Wu and Chen (2011) showed that all respondents used e-book for purpose of study and research.

Amjad *et al*., (2013) alluded that postgraduate students in Islamia University of Bahawalpur believed that usage of e-resources improved their research tasks. Amjad *et al*., (2013: 322) indicated that postgraduate study used e-resources for "the purpose of learning, education, research, access up-date knowledge, accomplish assignments, reading articles, writing research proposal, exam preparation, and for discussion". In support of Amjad *et al.,* (2013), Mittal and Bala (2013) observed that majority of the respondents from colleges and universities in India used e-resources mainly for education and research work purposes.

Dass and Jayarama (2014) revealed that 42% of academics and research scholars in management institutions affiliated to Bharathiar University used e-resources. Forty-two percent (42%) of academics and research scholars used e-resources for purpose of academic activities, 24% for general information, 15% for communication, 13% for study, and 6% for other purposes. In addition, Kwafoa, Imoro and Afful-Arthur (2014) stated that 49.56% of academics of academics at the University of Cape Coast used internet for academic purpose, 46.09% for personal purposes, and 4.35% for e-mailing and visiting other social networking sites. Kumar (2016) included patient care, health information, access PubMed, and communication as some of the purposes of using e-resources by medical students.

College students felt that search engines are faster, easier and accurate tool in searching information (OCLC, 2010). In addition, Sahin *et al.,* (2010) found that

students felt that e-resources were up-to-date and free from bias. Togia and Tsigilis (2009) stated reasons for using e-resources by students as: access to current material, the ability to download and print information, and access to wide range of information.

Navalur *et al.,* (2012) stated that academics and postgraduate students used e-resources because e-resources were easier to access information. Reasons mentioned by postgraduate students for using e-resources were: "easy access to documents; ease of use; usefulness, availability; easier searching capability; linkage to additional information; being more informative; browsing; and multiple users for single sources" (Amjad *et al.,* 2013: 322 – 323; Kumar, 2016). Kumar (2016) further showed that postgraduate and undergraduate students indicated less expense in using e-resources as one of the reasons of accessed e-resources. Moreover, Mittal and Bala (2013) stated that respondents from colleges and universities in India they used e-resources because they are helpful for them in their research tasks.

Shukla and Mishra (2011) determined the extent to which research scholars of Institute of Technology, Banaras Hindu University used e-resources. The study showed that majority of research scholars (88%) mainly used e-journals for research purpose, 38% used e-journal for publishing articles, 30% used e-journal for finding relevant information in area of specialization, and 22% used e-journal for keeping up to date with information. Thanuskodi (2011) stated that the use of e-resources was increased due to e-resources' advantages such as copying, storing, and multiple search facilities. Conversely, medical students in M.M. University indicated that it was less expensive to use e-resources whereas Kumar (2016: 15) stated high expense as a reason for students' failure to access e-resources.

2.6 CHALLENGES FACED BY THE ACADEMICS AND STUDENTS ON THE USE OF E-RESOURCES

Thanuskodi (2011), Mittal and Bala (2013), and Toteng, Hoskins and Bell (2013), reported that slow internet connection, insufficient computers, password requirements, difficulty in searching, not certain which databases to choose, printing, none availability of staff as challenges faced by students when accessing the e-resources.
Navalur *et al.,* (2012: 54) stated that "lack of training to users, inadequate infrastructure, lack of subscription of more foreign journals, and lack of expertise help

and support" as challenges faced by academics and postgraduate students in Bharathidasan University. In addition, Mittal and Bala (2013), Okite-Amughoro, Makgahlela and Bopape (2014), Ajayi, Shorunke and Aboyade (2014), and Dulle (2015) indicated power supply problems and a lack of training in the use of e-resources as barriers to use e-resources by postgraduate students. Amjad *et al.,* (2013) included instability of e-resources as one of the challenges faced by postgraduate students, whereas Ozoemelem (2009) in Amjad *et al.*, (2013) included suspension in downloading, expertise in searching, withdrawal of some websites, and reliability issues as major challenges.

In addition, Das and Maharana (2013) included difficulty in finding relevant information, overload of information on internet, and lack of attitudes of library staff as some of the challenges faced by research scholars in Berhampur University. Furthermore, Asunka (2013), and Mittal and Bala (2013) stated incurred costs of using e-resources outside the campus as one of the challenges faced by students. Kwafoa *et al.,* (2014) revealed that 35.92% of academics at the University of Cape Coast experienced slow internet connection, 19.31% experienced lack of proper guidance in using e-resources, 18.31% stated cost to access e-resources, and 8.45% lack of knowledge for searching and retrieving e-resources as the challenges. Dass and Jayaraman (2014) included information scattered in too many sources, required information not available, and information explosion as some of the challenges faced by academics and research scholars.

Makori (2015) suggested that barriers affecting usage of e-resources should be addressed by all stakeholders. UNIVEN is one of the institutions of higher learning and it should as well be involved in addressing barriers affecting usage of e-resources as one of the areas which need investigation. At the moment, challenges faced by UNIVEN staff and students in accessing and using e-resources are not known. This study will identify the challenges and provides recommendations on how these challenges can be addressed.

2.7 THEORETICAL FRAMEWORK OF THE STUDY

Imenda (2014) and Green (2014) defined theoretical framework as a group of related concepts that guide researchers to address a given research problem or to generalise

the findings of the study. Connelly (2014) define theoretical framework as a map of developing research question. Green (2014: 36) highlighted that theoretical framework makes "research findings meaningful and generalisable". Theoretical framework assists the researcher to answer research questions and to develop theoretical concepts.

The theoretical foundation of this study was guided by Technology Acceptance Model (TAM) which was developed by Davis in the year 1986 (Davis, 1996). TAM is generally used by researchers to predict and describe user acceptance of information technology (Davis, 1996).

Ayele and Sreenivasarao (2013) used TAM to assess the acceptance and use of electronic library services in academic libraries of the different universities. The study also used TAM to identify factors that affected the acceptance and use of electronic library services in academic libraries. Also, Wiese and du Plessis (2014) used TAM to determine the perceived usefulness, perceived ease of use, attitude towards use, and behaviour intention of use toward the use of e-books by university students.

Sarasvady and Khatri (n.d) argued that "different behaviours can be identified by variables such as discipline, age and academic positions". This study used TAM to understand UNIVEN's academics and postgraduate students' perceptions of perceived usefulness, perceived ease of use, attitude towards use, and behaviour intention of use of available e-resources.
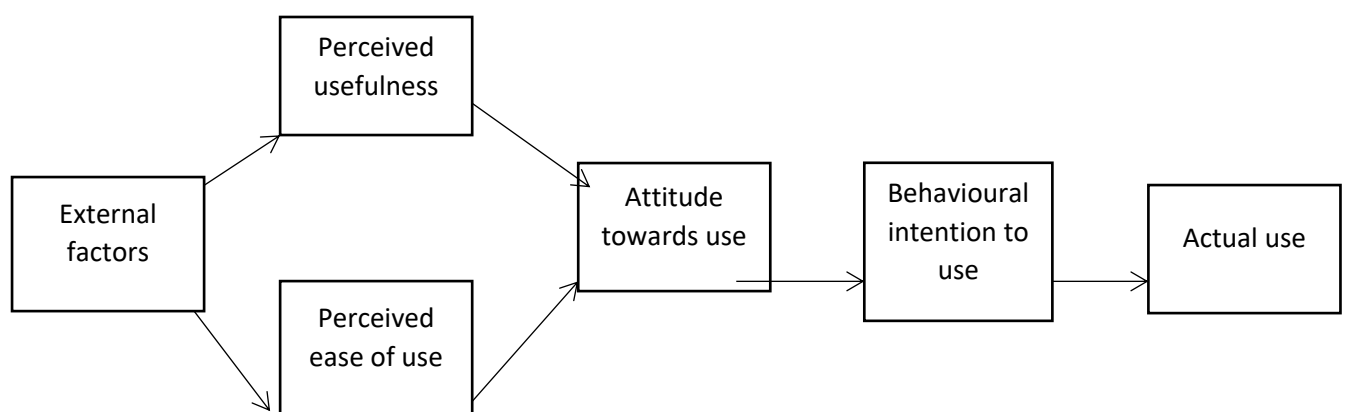
Figure 2:1 Technology Acceptance Model developed by Davis (1986).

This theoretical framework has been widely used in research conducted on usage of online resources in academic institutions. Masrom (2007: 07)'s study used TAM to

investigate individual users' acceptance for the e-learning in universities, and the study found that "perceived ease of use and perceived usefulness inspired users to use e-learning tool".   In addition, Park (2009)'s study used the TAM in understanding university students' behavioural intension to use e-learning and proved that the model was a good theoretical framework to understand users' acceptance of e-learning. Contrary, Shroff, Deneen and Ng (2011) used TAM to investigate individual student's perceptions of usefulness, ease of use, and attitude towards usage of an electronic portfolio system and the findings showed that perceived usefulness did not inspire students to use electronic portfolio system.

TAM has perceived usefulness, perceived ease of use, and behavioural intention to use as its primary factors that prove users' acceptance of information technology, of which in this study refers to e-resources. In this study, perceived usefulness referred to the belief by academics and students that using e-resources would improve their academic performance. Perceived ease of use referred to the belief by academics and students that accessing e-resources would make it easier for them to find information.   The behavioural intention of UNIVEN academics and postgraduate students to use e-resources would be determined by perceived usefulness and perceived ease of use of e-resources.

2.8 SUMMARY

Some of the noticeable research gaps as assumed from the literature review were: the extent to which rural universities were affected by the insufficient availability of e-resources; a gap in respect of attitudes and perceptions of academics and postgraduate students in rural-based universities on the use of e-resources; and barriers faced by academics and postgraduate students in rural-based universities on the use of e-resources. All these gaps needed further investigation in order to find strategies for effectiveness utilisation of e-resources by academic and postgraduate students in rural-based universities. Also, TAM was found to be a good conceptual frame work to be used in analysing usage of e-resources by information users in universities and other research institutions. The next chapter covers the methodology used in this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter justifies the research methodology used to undertake the investigation to address the main aim of the study. According to McMillan and Schumacher (2010); and Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van aardt and Wagner (2014), the research methodology section indicates the research design, subjects, instruments, and procedures to be used. This section also describes the population from which the information was gathered; the techniques used to gather information; and how the study was conducted. This section represents the research design, research methods and analysis tools used to accomplish the problem statement.

3.2 RESEARCH APPROACH

Creswell (2014) and Kumar (2014) mentioned qualitative, quantitative, and mixed approaches as the three types of research approaches that provide specific direction for procedures in social research. Qualitative approach is mainly concerned with assessment of attitudes, opinions and behaviour of the respondents (Kothari & Garg, 2014). Quantitative approach involves the collection of data in a quantitative form such as how many people have a particular opinion (Kothari & Garg, 2014; Kumar, 2014). Mixed method approach is the use of more than one approach in a paradigm (Creswell, 2014; Kumar, 2014). Each research method has its own strengths and weaknesses (Babbie, 2016).

According to Hibberts and Johnson ([n.d]) in Briggs, Coleman and Morrison (2012), in quantitative research approach, findings can be generalised to the population of the study, and it is faster and easier to analyse quantitative data. Quantitative research approach is useful in conducting a study in a large population (Hibberts & Johnson, [n.d] cited in Briggs, Coleman & Morrison, 2012). In qualitative approach, issues and subjects covered can be evaluated in depth and in detail; interviews are not limited to the particular questions as they can be redirected by the researcher at any given time;

and data is usually collected from few respondents (Bless, Higson-Smith & Sithole, 2013).

Self-reported information obtained from questionnaire may be inaccurate or incomplete, and expensive and time consuming and these are some of the weaknesses of quantitative research method (Kumar, 2014). Conversely, the weaknesses of qualitative research methods are lengthy duration to analyse data due to open-ended questions, and difficulty in testing hypothesis (Hibberts & Johnson [n.d] cited in Briggs, Coleman & Morrison, 2012).

This study used quantitative research approach to investigate access and use of e-resources by academics and postgraduate students at UNIVEN. Quantitative research approach was adopted to enable generalisation of the study findings to the university community and other rural based universities with same characteristics as UNIVEN. In addition, large number of the respondents who were randomly selected as a population for the study as well as the numerical data that was collection are consistent with quantitative research approach.

3.3 RESEARCH DESIGN

Research design is defined as an overall plan or blueprint of how a research will be conducted (Kumar, 2014; Kothari & Garg, 2014; Polit & Beck, 2010). According to Kothari and Garg (2014: 12), research design is the conceptual framework which indicates different methods and procedures used during the research process. The research design helps in providing ideas about measurement, sampling, data collection, and data analysis methods that may be used in a particular type of research (Babbie, 2016; Kumar, 2014).

This study used survey research design to investigate the use of e-resources by academics and postgraduate students at UNIVEN. According to Creswell (2014) and (Babbie (2016), survey research is an efficient way to collect information about a large population, and it also provides a flexible medium that can measure attitudes, knowledge and preferences. Attitudes and preferences towards the use of e-resources by academics and students at UNIVEN were determined in this study.

A survey design is able to provide a researcher with" a quantitative of trends or opinions of a population by studying a sample of that population" (Creswell, 2014: 13). Survey research may "include cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection" (Creswell, 2014: 13). Du Plooy-Cilliers, Davis and Bezuidenhout (2014) mentioned cross-sectional survey, before-and-after survey, and longitudinal survey as various types of survey designs. In cross-sectional survey design, data collected from population is done once. Before-and after survey design refers to a pre-test design and data can be collected twice from the population whereas longitudinal survey design collects several data and investigate the changes in the data collected from the population (du Plooy-Cilliers *et al.,* 2014). Survey research is often used in quantitative studies to collect demographic information and data concerning population's attitudes and perceptions in order to generalize the findings of the study (du Plooy-Cilliers *et al.*, 2014). This study established the perceptions of the respondents towards the use of e-resources, and data was collected from the population only once.

According to Creswell (2009) and De Vos *et al.*, (2011), a quantitative research method should include the following components: design, population and sample, instrument, variables, and data analysis and interpretation. This study followed quantitative research paradigm with survey as a research design.

3.4 STUDY POPULATION AND SAMPLING PROCEDURES

A study population is a frame in which a researcher can select few individuals from (Babbie, 2013; Polit & Beck, 2010). The targeted population for this study was the employed academic staff, and enrolled postgraduate students from eight schools at UNIVEN. According to Department of Institutional Planning and Quality Assurance, at UNIVEN (2016), the total number of academic staff at UNIVEN was 375. This included 80 professors, 97 senior lecturers, 162 lecturers, and 36 junior lecturers. The total number of postgraduate students at UNIVEN for the 2016 academic year was 1 262, composed of 145 postgraduate diplomas, 477 honours students, 454 masters and 186 doctoral students (Department of Institutional Planning and Quality Assurance, 2016).

UNIVEN library director also formed part of the population for the purpose of obtaining more information about the usage of available e-resources. The library's view points on the training and usage of e-resources by academics and postgraduate students were required in order to provide proper recommendations. This led to inclusion of UNIVEN library director into the study population.

3.4.1 Sample and sampling method

Sampling is defined as a process of selecting a small group from the population of a study in a way that individuals represent the larger group from which they were selected (Bless *et al.,* 2013; Kumar, 2014). Some of the main advantages of sampling are: less time used in gathering data on a sample; and less expense in gathering data (Bless *et al.,* 2013). According to Babbie (2013), there are two main methods of sampling in research which are probability sampling and non-probability sampling. Furthermore, Davies and Hughes (2014) alluded that selecting a sample method depends on the study because there is no right or wrong method in selecting a sample method as the chosen method has both strengths and weaknesses.

This study used probability sampling to select a sample that was used to conduct the study. Probability sampling is mainly used in quantitative studies and it ensures that each element in a study population stands a chance to be included in the sample, and the expected findings would be the same if the sampling has to be repeated many times (Bryman, 2012; Kothari & Garg, 2014). Therefore, using probability sampling enabled this study to generalise the findings. By applying probability sampling, the total sampling population is represented and interpretations of the findings can be generalised to the study population (Kumar, 2014).

A sample is the small group selected in a population from whom the information or data will be obtained (Bless, Higson-Smith & Sithole, 2013; Kumar, 2014). It is more economical and practical to gather information from the sample rather than from the whole study population (Polit & Beck, 2010). In this study, sample was selected from the total number of academic staff and postgraduate students at UNIVEN. Demography characteristics information such as age, gender, and disability were taken into consideration for purpose of data analysis.

To ensure that all categories of academic staff and postgraduate students were represented in a sample, a stratified random sampling approach was used. According to Dorner, Gorman and Calvert (2015), stratified random sampling enables the researcher to set target numbers for different strata of the population. Stratified random sample is when a target population is divided into smaller groups in which "specific characteristics of individuals are represented in the sample" (Creswell, 2014: 158). Therefore, this study used stratified random sampling to select both academic staff and postgraduate students from all eight faculties by first structuring the population before taking the sample. Postgraduate students had 4 strata composed of postgraduate diploma and certificate students, honours, masters, and doctoral students whereas academics also had 4 strata composed of junior lectures, lecturers, senior lecturers, and professors. UNIVEN library director was on her own stratum used to collect more information about the use of e-resources. Information librarians and other library staff members were not consulted about the e-resources usage reports because all the information needed by this study was acquired through the library director.

3.4.1.1 Sample size

According to Kumar (2014), sample size is the number of respondents chosen from a population to participate in a research. Findings based upon larger samples have more certainty than those based on smaller ones, and the greater the variation in the study population with respect to the characteristics under study for a given sample size the greater will be the uncertainty (Kumar, 2014: 233). The general rule in determining a sample size is to have a larger sample size from the population (Kumar, 2014). It is important to have larger sample size in a quantitative research because the "larger the sample, the smaller the sampling error" (Polit & Beck, 2010: 316). The large sample enables researchers to have more respondents and more accurate findings than in a small sample (De Vos *et al.*, 2011).

The sample size of the study should be determined by the researcher (Polit & Beck, 2010). The sample size for this study was guided by guidelines for sampling shown in Table 3.1 (De Vos, *et al*, 2011:51) on page 50. This study opted for 12% (196) as the sample size of the total population size of 1637 of academics and postgraduate

students at UNIVEN. According to guidelines for sampling (table 1), more than 10% of the sample size is generally acceptable. Engel and Schutt (2013: 117) pointed out that the larger the sample, the more accurate in the reflections of the characteristics of the population. To get the proportional allocation of the sample in various strata of the population, a stratified sample formula which is: *sample size of stratum* divided by *total population size* then multiplied by *number of elements in each stratum* was applied*.*

Strata size = <u>sample size</u>   X   number of element

          Total population size

According to Kumar (2014), this formula provides the number of respondents that have to be included in the population. Therefore, this study applied this formula to get the number of respondents to be included in different categories of academics and postgraduate students. Below is how the stratified formula applied for allocation to strata.

Academics:

Professors = <u>196 (sample size)</u> X 80 (Number of professors)

          1 637 (population

       = **10**

Senior lecturers =<u> 196 </u> X 97

          1 637

         = **12**

Lecturers = <u>196 </u>   X 162

      1 637

     = **19**

Junior lecturers = <u> 196 </u> X 36

         1 637

       = **4**

Postgraduate students:

Doctoral = <u> 196 </u> X   186

       1 637

      = **22**

Masters = $\dfrac{196}{1\ 637}$ X 454

= **54**

Honours = $\dfrac{196}{1\ 637}$ X 477

= **57**

Postgraduate diploma and certificates = $\dfrac{196}{1\ 637}$ X 145

= **17**

Therefore, the strata size of the postgraduate students was proportionally allocated to 17 postgraduate diploma and certificates students, 57 honours students, 54 masters, and 22 doctoral students. Academics strata size was proportionally allocated to 4 junior lecturers, 19 lecturers, 12 senior lecturers, and 10 professors.

Table 3.1: Guidelines for sampling

Population	Percentage suggested	Number of respondents
20	100%	20
30	80%	24
50	64%	32
100	45%	45
200	32%	64
500	20%	100
1 000	14%	140
10 000	4.5%	450
100 000	2%	2 000
200 000	1%	2 000

(De Vos, *et al*, 2011: 51)

3.5 DATA COLLECTION INSTRUMENTS

Du Plooy-Cilliers *et al.,* (2014: 147 - 148) stated that "researchers should consider tools and methods to be used in collecting data because the way data is collected in quantitative study differs from the way data is collected in qualitative study." The purpose of data collection is to acquire adequate information for record keeping, decision making and developing an information pool. This study used questionnaires to collect information from academic staff, postgraduate students and library director at UNIVEN. In addition, the study used document reviews to collect more information about UNIVEN library catalogue and other e-resources.

3.5.1 Questionnaire

Questionnaires are cheaper and quicker to distribute in a large population. According to Kumar (2014), questionnaires are cheaper because they save time, human and financial resources because large amount of data can be collected from a large population in a short period of time and at a low cost. Another advantage of using questionnaires is that they provide "greater anonymity because there is no face to face interaction between respondents and the interviewer" (Kumar, 2014: 181). According to Davies and Hughes (2014: 82), questionnaires are intended to facilitate communication, usually briefly, but always driven by researcher's own agenda and respondents are asked questions of which they reply by writing or ticking a box.

According to Kothari and Garg (2014), a questionnaire is the heart of a research process. Thomas (2013: 207) stated that a "questionnaire can be tightly structured, but can also allow the opportunity for a more open and discursive response if required." This study used structured questionnaire with closed – ended questions and few open-ended questions to collect data from the respondents. Open-ended questions are used to give respondents an opportunity to provide more details of their experience and they minimise possibility of being biased (Kumar, 2014). Closed-ended questions are ideal for quantitative type of research and they have advantages such as being time efficient, responses are easy to code and interpret. Babbie (2016) stated that closed-ended questions allowed respondents to choose answer or answers from among a list provided by the researchers. Some of examples of close ended questions are: two-

point questions (dichotomous questions) which require yes or no, multiple choice questions which respondents have options to choose answers, and likert scaled questions (Thomas, 2013).

There are different channels of administrating the questionnaire. According to Davies and Hughes (2014) questionnaires can be sent through different channels of communication such as mail, e-mail, or hand delivered. Delivery of questionnaires by hand saves time but has high cost and smaller geographical area coverage as limitations (De Vos *et al.,* 2011). For the purpose of this study, questionnaires were hand-on delivered/given to respondents during library trainings, school board meetings and workshops.

The study had three different sets of questionnaires, one aimed at academic staff (Appendix A), one for postgraduate students (Appendix B), and the other one for the library director (Appendix C). The reason for having three sets of questionnaires was because these three groups use the e-resources differently. Apart from using e-resources to access information for their own projects, academics are also responsible for ensuring that students should cite up to the most recent information resources in their projects. Academics were asked to express their views on the use of Google for academic information purpose.

3.5.1.1 Questionnaires for academics and postgraduate students

In this study, dichotomous, multiple choice, and scaled closed ended questions were used for both academics and postgraduate students. Questionnaires were based on structured questions which provided both questions and set of answers from which respondents chose options.

The questionnaires for both academics and postgraduate students consisted of the following four sections:
- Section A was about demographic information such as age, gender, academic years, and nationality.
- Section B was about the use of e-resources by the respondents.
- Section C dealt with the purpose of using e-resources.

- Section D dealt with attitudes and perceptions of respondents toward the use of e-resources.
- The last section (section E) was about the challenges faced by respondents in the use of e-resources.
- All these elements have number of questions constructed to find the usage of e-resources by academics and postgraduate students at UNIVEN.

3.5.1.2 Questionnaire for the library director

The library director is responsible for ensuring that the university has sufficient e-resources, and those resources are available for the university community to use. This study also collected data from UNIVEN library's director on the view of the training of e-resources usage and in finding out if library users were consulted in decision making. The university library is responsible for training the university community on the usage and access of the available e-resources. The questionnaire to the library director was sent by means of e-mail.

3.5.2 Document review

This study also used document reviews to collect more information about UNIVEN library catalogue and other e-resources. According to Henning, van Rensburg and Smit (2010), whether a document is in printed format or electronic format it is a valuable source of collecting data. Bryman *et al.*, (2014) indicated personal documents, public documents, organisational documents, mass media outputs, and visual documents as some of the types of document reviews that should be used in collecting data. For the purpose of this study, the following documents were reviewed: e-databases usage statistics, computer clusters usage statistics, and the library's information resources budget document.

E-databases statistics were reviewed to acquire the total number of academics and postgraduate students who accessed different databases such as Ebscohost, Sabinet, and Science Direct. Computer clusters' statistics were reviewed to discover the percentage of postgraduate students who used library computers to access information. Furthermore, the budget for purchasing and subscription of information

resources provided to the library by the university was reviewed to find out if the library had sufficient budget to subscribe and purchase e-resources for the community it serves.

Document reviews were used to gather information; to determine the implementation of the programmes; to find information to be used in developing other data collection tools; and to collect data to answer questions related to number and types of respondents (Centers for Disease Control and Prevention. Department of Health and Human Services, 2009). This study used document reviews such as UNIVEN website, UNIVEN library information commons' clusters statistics, and minutes of the meetings obtained from the library director.

The university website was used to find out the available e-databases and other e-resources of which the university subscribed to. Library information commons' clusters statistics was used to determine how many academics and postgraduate students used library computers to access internet and other e-resources. Minutes of the meetings were used to determine the future subscription and purchases for e-resources.

Statistics on the usage of e-databases and other e-resources such as usage of OPAC by the university academics and postgraduate students were obtained from the library director. More information about the usage of e-resources at UNIVEN was obtained through document reviews from the library director.

3.6 RESEARCH MATRIX

Table 3.2 Matrix table

Research objective	Research question	Possible source of data
Examine access and use of the available e-resources by academics and postgraduate students at UNIVEN	Which e-resources available were accessed and used by academics and postgraduate students at UNIVEN?	- Questionnaire for academic staff. - Questionnaire for postgraduate students. - Statistics (Document reviews)
Determine the purposes of using e-resources by academics and postgraduate students at UNIVEN.	What are the purposes of using e-resources by the academics and postgraduate students at UNIVEN	- Questionnaire for academic staff. - Questionnaire for postgraduate students.
Establish the perceptions of academics and postgraduate students at UNIVEN.	What are the attitudes and perceptions of academics and postgraduate students towards use of e-resources at UNIVEN?	- Literature - Questionnaire for academic staff. - Questionnaire for postgraduate students. - Questionnaire for library director
Identify challenges faced by academics and postgraduate students in using e-resources at UNIVEN.	What are the challenges affecting the use of e-resources by academics and postgraduate students at UNIVEN?	- Literature - Questionnaire for academic staff. - Questionnaire for postgraduate students. - Questionnaire for library director

3.7 PRESENTATION AND ANALYSIS OF DATA

Data analysis is the process of evaluating the provided data using analytical techniques (du Plooy-Cilliers *et al.*, 2014). Bhattacherjee (2012) included Microsoft Excel spreadsheet as a tool that can be used in analysing data. According to Davies and Hughes (2014: 116), Statistical Package for Social Sciences software (SPSS) is the standard analytical tool for researchers and "it is easy to use at a basic level". The SPSS is an unbiased tool that can be used to analyse data collected in quantitative research method (Bhattacherjee, 2012).

This study used SPSS software to analyse quantitative data arising from close-ended questions in the questionnaire. Nonparametric statistics such as chi-square test and Mann-Whitney test were used to analyse nominal data and ordinal data in SPSS. Graziano and Raulin (2004) articulated that chi-square test and Mann-Whitney test are the most used statistical techniques to analyse nominal data and ordinal data. In addition, Babbie (2010) stated that statistical techniques enable the researchers to analyse data and measure significant relationships between variables. Furthermore, chi-square is mostly used in social sciences where collected data are expressed in frequencies (Babbie, 2010). If the findings of the chi-square test and Mann-Whitney test are less than 0.05 they indicate statistically significant relationship between two variables (Kaassis, Boyer, Dumas, Ponchon, Coumaros, Delcenserie, Canard, Fritsch, Rey & Burtin, 2003). That means that there are 95% chances of relationship between the two variables.

Data can be presented in many ways depending on the audience, purposes, data gathered, and the analysis undertaken. Analysed data are typically presented in figures, tables, and graphs (Assessment Capacities Project, 2012; du Plooy-Cilliers *et al.*, 2014). In this study, analysed data from questionnaires and document reviews was presented in charts, figures, graphs and in tables to allow the analysed data to be presented in an easy way to understand.

3.8 VALIDITY, RELIABILITY ISSUES AND PILOT STUDY

Heale and Twycross (2015) defined validity as the degree to measure the accuracy of the instrument used to collect data in a quantitative study. Golafshani (2003) defined reliability as a tool for measuring the consistency of the data collected using the very same instrument used to collect the data from the same population of the conducted study. Therefore, it is important to consider the validity and reliability of the data in the process of conducting a study.

It is significant to consider validity of the data collection tool in the process of conducting a research (Babbie, 2016; Saldana, 2013; Silverman, 2013; and Yin, 2016). Furthermore, Babbie (2013; 2016; and Heale & Twycross, 2015) mentioned criterion-related validity, construct validity and, content validity as types of validity. This study followed content validity to measure the validity of questionnaire of this study. Three professors at the university were consulted before the distribution of questionnaires to the respondents to ensure the tool covered all the objectives of the study. Heale and Twycross (2015) alluded that content validity referred to whether a data collection tool appears to the recognised experts as a tool to be measuring what it meant for.

In order to ensure reliability in this study, a pre-testing of questionnaires was employed. Quantitative studies depend on pre-test measures as tools for claiming reliability of the data to be collected (Silverman, 2013). Moreover, Babbie (2013) alluded that a data collection instrument should yield the same findings each time it is repeatedly applied to the same population.

De Vos *et al.*, (2011) view pilot study as the dress rehearsal of the main research used to improve the success and usefulness of the investigation. In this study, pilot study was done in order to find if there were errors and difficulties in questions provided to respondents. Criticisms and comments received from the respondents during pilot study were used to review and improve the instrument.

Questionnaire should be first tested to a small scale before distributed to the respondents of the study (Kothari & Garg, 2014; Babbie, 2016). Pilot testing of questionnaire for postgraduate students were distributed to sixteen students, two from

each school. The data collected from pilot testing was not incorporated to the rest of the findings due to the corrections made to the questionnaires using the feedback obtained from pilot testing.

3.9 ETHICAL CONSIDERATIONS

As pointed out by Davies and Hughes (2014), a study needs approval from research ethic committees, respondents should also be given informed consent with clear information about the study provided in the language they easily understand. The approval for involving UNIVEN academic staff and postgraduate students to participate in this study was obtained from UNIVEN management signed by the university vice-chancellor and principal (Appendix F). The designed informed consent form includes the researcher's signature and contact details (Appendix D).

All respondents must be fully informed about the intention of the study, and respondents must be ensured that their privacy and sensitivity will be protected (Henning *et al.,* 2010). In this study, ethical clearance form was used (Appendix E) containing the ethical clearance letter from the UNISA, Department of Information Science Research Ethic Review Committee. The information gathered from respondents was strictly used for the purpose of this study, and information provided by respondents was treated with confidentiality and anonymity.

Questionnaires were delivered without the option of filling personal details to protect the identities of the respondents. The names of all respondents in the study were not disclosed, and information and responses provided by all of respondents was treated with confidentiality. The respondents were given an introduction letter indicating the names and contact details of the researcher.   The research significance and type of information being collected for this study was also explained to the respondents.

3.10 SUMMARY

The broad objective of this study was to investigate the use of electronic information resources by academics and postgraduate students at UNIVEN. Use of electronic information resources was investigated by using questionnaires which were distributed to academics and students. Document reviews such as UNIVEN website; clusters' usage statistics; and e-databases usage statistics were also used to obtain more information needed in this study. In addition, the chapter presented research design and study population and sampling procedures used. The SPSS was used to analyse data. Analysed data was presented in charts, graphs and related tables. Chapter 4 presents the findings.

CHAPTER 4
PRESENTATION AND ANALYSIS OF DATA

4.1 INTRODUCTION

This chapter presents the primary data collected from the respondents during the investigation. Data is presented based on demographic information of the respondents and on each research objectives of this study outlined below:

- To examine access and the use of the available e-resources by the academics and postgraduate students at UNIVEN;
- To determine the purpose of using e-resources by academics and postgraduate students;
- To establish the perceptions of the academics and postgraduate students towards use of e-resources;
- To identify challenges faced by academics and postgraduate students in using e-resources.

This study used three sets of respondents, namely, academics, postgraduate students, and the director of the library. The chapter presents data derived from the academics and postgraduate students. Data collected from the library director was qualitative in nature and is presented in section 4.8 of this chapter. In addition, qualitative data obtained from interview with library director was used to supplement information under the relevant objectives both in chapter in chapter 4 and 5.

4. 2 RESPONSE RATE

The respondents in this study were academics and postgraduate students at UNIVEN. The response rate was 100% as indicated in table 4.1 below.

Table 4.1: Response rate

Respondents	Target numbers	Actual number	Response rate in %
Academics	45	45	100%
Postgraduate students	150	150	100%
Totals	195	195	100%

4.3 DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

Section A of the questionnaires (Appendices A and B), for both academics and postgraduate students sought to establish the background information of the respondents in terms of gender, age, level of education, academic position, and academic field.

4.3.1 Demographic information of academics

In question A.1 to A.4 (Appendices A and B), both academics and postgraduate students were asked to indicate their demographic information. As shown in table 4.2 on page 62, out of the 45 academics, the majority 30 (67%) were males. Most (27%) of academics were between the age of 31 and 40 years, and 19 (42%) were lecturers. Most (18%) of academic respondents were from the School of Education.

Table 4.2: Demographic information – Academics (N=45)

Variable	Respondents	Frequency	Percentage
Gender	Female	15	33%
	Male	30	67%
Age	21 – 30 Years	8	18%
	31 – 40 Years	12	27%
	41 – 50 Years	11	24%
	51 – 60 Years	10	22%
	61 and above	4	9%
Academic positions	Junior lecturer	4	9%
	Lecturer	19	42%
	Senior lecturer	12	27%
	Professor	10	22%
Academic fields	School of Agricultural Sciences	4	9%
	School of Education	8	18%
	School of Environmental Sciences	5	11%
	School of Health Sciences	7	16%
	School of Human and Social Sciences	5	11%
	School of Law	3	6%
	School of Management Sciences	7	16%
	School of Mathematics and Natural Sciences	6	13%

4.3.2 Demographic information of postgraduate students

This study found that out of the 150 postgraduate students, 83 (55%) were females as shown in table 4.3 on page 63 and that all schools were represented. Less than 50 (33%) of the postgraduate students were from the School of Human and Social Sciences. All eight schools in the university were also represented.

Table 4.3: Demographic information – Postgraduate students (N=150)

Variable	Respondents	Frequency	Percentage
Gender	Female	83	55%
	Male	67	45%
Age	21 – 30 Years	106	72%
	31 – 40 Years	30	20%
	41 – 50 Years	10	6%
	51 – 60 Years	1	1%
	61 and above	1	1%
Level of study	Honours	57	38%
	Masters	54	36%
	Doctoral	22	15%
	Postgraduate Certificate in Education	8	5%
	Postgraduate Diploma	7	5%
	Other (not specified)	2	1%
Academic field	School of Agricultural Sciences	16	11%
	School of Education	13	9%
	School of Environmental Sciences	14	9%
	School of Health Sciences	19	13%
	School of Human and Social Sciences	50	33%
	School of Law	14	9%
	School of Management Sciences	13	9%
	School of Mathematics and Natural Sciences	11	7%

4.3.3 Age and gender of the respondents and use of e-resources

Chi-square test was conducted to find if there was significant difference between age, gender and use of e-resources among academics and postgraduate students. The p-value of the chi-square for testing relationship between gender of the respondents and

use of e-resources was 0.094 and 1.047 which is greater than 0.05 for academics and postgraduate students respectively as indicated in table 4.4 below. The p-value of chi-square testing relationship between age of the respondents and use of e-resources was 1.604 and 1.119 which is also greater than .05 for academics and postgraduate students respectively. This shows that there is no statistically significant relationship between age, gender and the use of e-resources.

Table 4.4 Findings of chi-square test in regard of gender, age and use of e-resources among academics and postgraduate students.

		P-value	df	Asymptotic significance (2-sided)
Academics	Pearson chi-square	.94^a	1	.759
	N of valid cases	43		
Postgraduate students	Pearson chi-square	1.047^a	2	.592
	N of valid cases	143		
Academics	Pearson chi-square	1.604^a	4	.808
	Number of valid cases	43		
Postgraduate students	Pearson chi-square	1.119^a	4	8.91
	Number of valid cases	139		

4.4 ACCESS AND USE OF E-RESOURCES

This was the first objective of this study. This objective sought to first establish whether respondents had access to the prerequisite infrastructure and the technology to be able to access the e-resources. Hence the respondents were asked if they had access to regular, reliable and fast internet connectivity. In addition, the respondents were asked whether they had used UNIVEN library website; the library e-databases page and e-resources provided by the library. Lastly, the respondents were asked to indicate their preference of e-resources; devices used to access the available e-resources; and frequency of accessing the available e-resources.

4.4.1 Access to the internet

In question B.1 (Appendices A and B), both academics and postgraduate students were asked if they had regular access to the internet. The majority 43 (96%) of academics and 122 (82%) postgraduate students indicated that they had regular access to the internet. Figure 4.1 represents regular access to internet by both academics and postgraduate students.
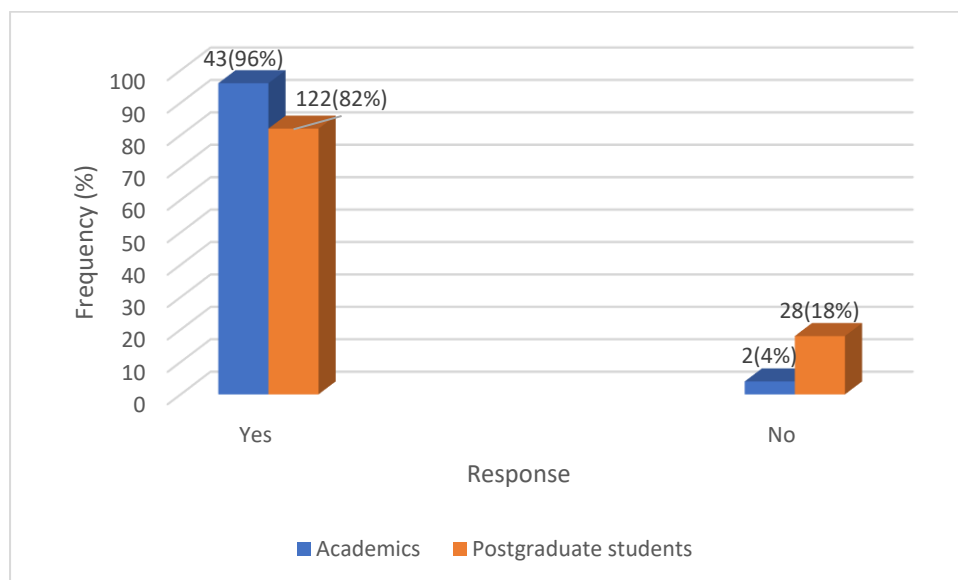
Figure 4.1: Regular access to internet. Academics (N=45) and Postgraduate students (N=150

Chi-square test was conducted using Statistical Package for the Social Sciences (SPSS) to test relationship between the regular access to internet by academics and postgraduate students as indicated in table 4.5 below. Chi-square test findings show a p-value of 0.024 which is less than 0.05. This shows that there was a relationship between the regular access to internet by academics and postgraduate students. This means academics had more regular access to internet than postgraduate students. This might be caused by the availability of internet in academics' offices and the affordability of accessing internet while off-campus by academics.

Table 4.5: Chi-square test findings – regular access to internet

	Chi-square	df*	P-value
Regular access to internet	5.085	1	.024

4.4.2 Preferred location of access

In question B.2 (Appendices A and B), both cademics and postgraduate students were asked to indicate their preferred location to access the internet. Table 4.6 on page 67, shows that the majority 43 (65%) of the academics accessed internet from their offices. However, less than half 99 (42%) of postgraduate students accessed internet from library computers.

Table 4.6: Place of accessing internet by the academics (N=45) and postgraduate students (N=150)

Variables	Response	Frequency	Percentages %
Academics (N=66)	Home	20	30%
	Library	3	5%
	Office	43	65%
	Total	66	100%
Postgraduate students (N=233)	Library computers	99	42%
	Departmental computer laboratory	41	18%
	General computer laboratory	37	16%
	Home	33	14%
	Other	23	10
	Total	233	100%

4.4.3 Internet connectivity

In question B.3 and B.4 (Appendices A and B), both academics and postgraduate students were asked to indicate the kind of internet connectivity they used while on and off campus. This study found that 40 (60%) of academics used cabled internet provided by the university local area network to connect to internet as indicated in table 4.7 on page 68. However, when academics were off campus, this study found that 30 (56%) of academics used cell phone to connect to the internet.

Table 4.7: On and off campus internet connectivity by the academics (N=45)

	Response	Frequency	Percent (%)
Internet connectivity: on campus (N=67)	Cable	40	60%
	Univen Wi-Fi	15	22%
	Cellular	11	16%
	Other (modem)	1	1%
	Total	67	100%
Internet connectivity: off campus (N=54)	Cable	5	9%
	Univen Wi-Fi	14	26%
	Cellular	30	56%
	Other (modem	5	9%
	Total	54	100%

Nearly half 102 (49%) of the postgraduate students indicated that they used Wi-Fi connectivity on campus as indicated in table 4.8 on page 69. However, the majority 117 (74%) of postgraduate students used cellular phones while off campus.

Table 4.8: On and off campus internet connectivity by the postgraduate students (N=150)

	Response	Frequency	Percent (%)
Internet connectivity: on campus (N=208)	Cable	78	38%
	Univen Wi-Fi	102	49%
	Cellular	27	13%
	Other (modem)	1	0%
	Total	208	100%
Internet connectivity: off campus (N=159)	Cable	9	6%
	Univen Wi-Fi	25	16%
	Cellular	117	74%
	Other (modem)	8	5%
	Total	159	100%

4.4.4 Speed of internet connectivity

In question B.5 and B.6 (Appendices A and B), both academics and postgraduate students were asked to rate the speed of internet connectivity on and off-campus. The findings are indicated in figure 4.2 below and figure 4.3 on page 70. Figure 4.2 shows that 23 (51%) of academics rated on campus connectivity as faster than off-campus. However, figure 4.3 shows that 62 (41%) of the responded postgraduate students rated both the speed of internet on campus as fast and off campus as neutral.
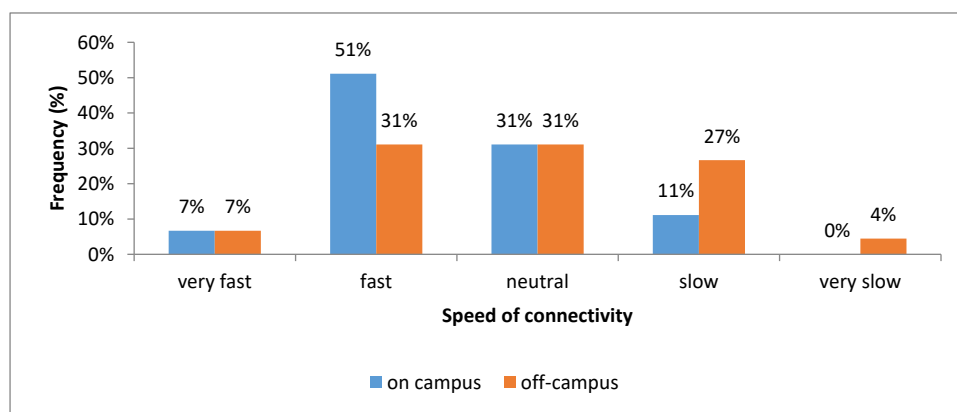
Figure 4.2: Comparison of on and off-campus internet speed by the academics (N=45)
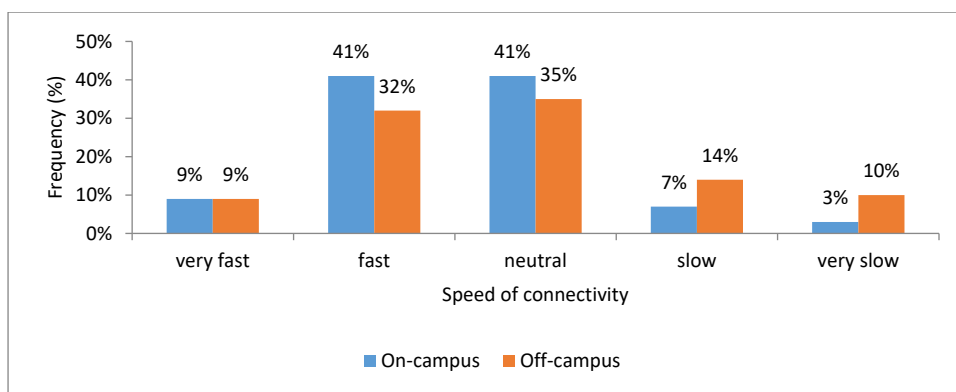
Figure 4.3: Comparison of on and off-campus internet speed by the postgraduate students (N=150)

4.4.5 Devices used to access internet and the available e-resources

In question B.7 (Appendices A and B), both academics and postgraduate students were asked to indicate the device(s) they used to connect to internet. Forty-two (43%) of academics indicated that they used laptops to connect to internet, and 103 (33%) of postgraduate students indicated that they used mobile phones to connect to internet as indicated in table 4.9 below. The respondents were asked to choose as many answers as possible, and that led to frequency of 332 (n=332) which is above the stated sample (n=150) of the postgraduate students as revealed in table 4.9.

Table 4.9: Device/s used to access internet by academics and postgraduate students

Variables	Response	Frequency	Percent %
Device/s used by academics (N=97)	Laptop	42	43%
	Mobile phone	31	32%
	Desktop	14	14%
	Tablet	10	10%
Device/s used by postgraduate students (N=332)	Mobile phone	108	33%
	Laptop	99	30%
	Tablet	70	21%
	Desktop	55	17%

4.4.6 Access to the library website and e-resources page

In question B.8 (Appendices A and B), both academics and postgraduate students were asked if they had accessed the library website. Table 4.10 shows that the majority 41 (91%) of academics and 132 (89%) of postgraduate students accessed the library website as indicated in table 4.10 below.

Table 4.10: Academics and postgraduate students who accessed library website

Variables	Response	Frequency	Percent %
Academics (N=45)	Yes	41	92%
	No	2	4%
	Not sure	2	4%
	Total	45	100%
Postgraduate students (N=149)	Yes	132	89%
	No	13	9%
	Not sure	4	2%
	Total	149	100%

In question B.9 (Appendices A and B), both academics and postgraduate students were asked to indicate if they had accessed e-database page from the library website. Table 4.11 on the next page shows that the majority 38 (84%) of the academic respondents had accessed the e-databases from the library website. The majority 116 (78%) of the postgraduate students affirmed that they had accessed the e-database page.

Table 4.11: Access to library e-database page

Variables	Response	Frequency	Percent %
Academics who accessed library e-database page (N=45)	Yes	38	84%
	No	7	16%
	Total	45	100%
Postgraduate students who accessed library e-database page (N= 148)	Yes	116	78%
	No	32	22%
	Total	148	100%

In question B.10 (Appendices A and B), both academics and postgraduate students were asked to indicate how often they accessed e-resources provided by the library. From figure 4.4 below, 29 (64%) and 67 (45%) of both academics and postgraduate students respectively accessed the e-resources provided by the university "sometimes". In both academics and postgraduate students, the percentage of those who often access provided e-resources was less than 40%.
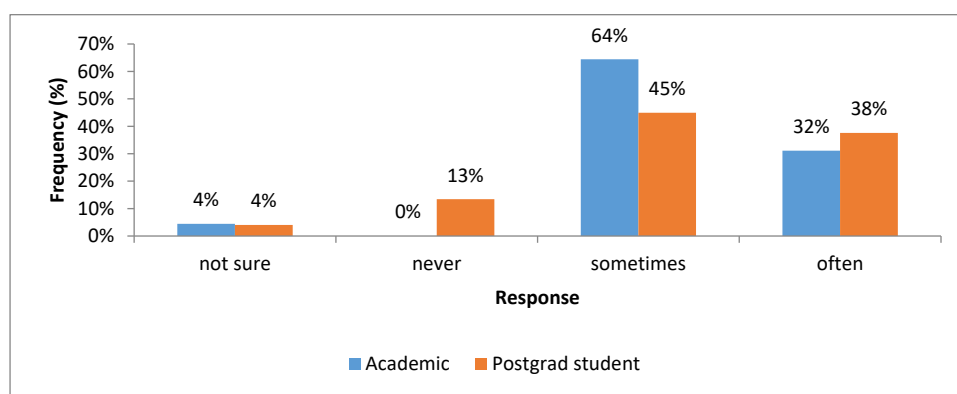
Figure 4.4: Comparison of accessing e-resources. Academics (N=45) and postgraduate students (N=150

4.4.7 Preference of e-resources

In question B.11 (Appendix B), the postgraduate students were asked to choose one of the e-resources they mostly prefer to access. Figure 4.5 shows that the majority of 115 (77%) postgraduate students mostly preferred e-journals.
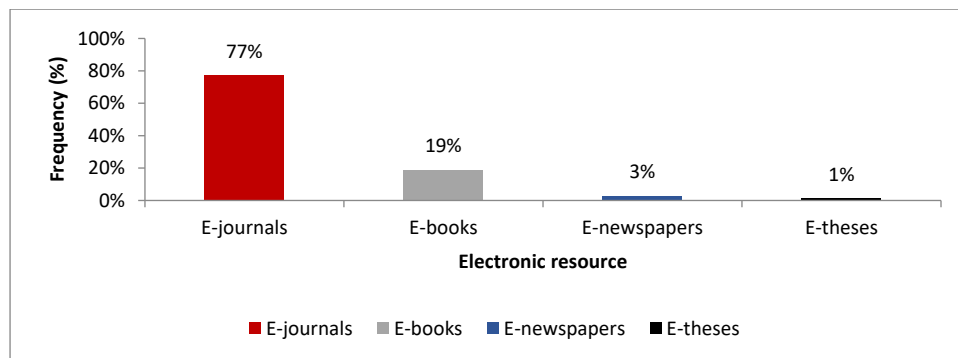
Figure 4.5: Preferred e-resources by the postgraduate students (N=150)

In question B.11 (Appendix A), academics were given a list of fifteen e-databases available through the library website and asked to indicate how often then they accessed each e-database. Figure 4.6 shows that the most commonly accessed e-database by the academics was Science Direct with an average score of 2.13.
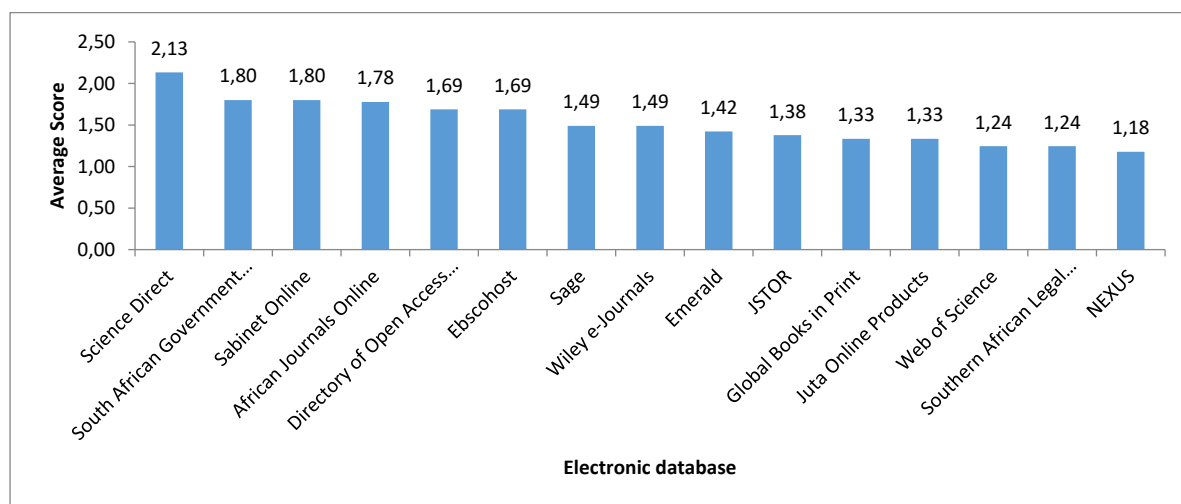
Figure 4.6: Usage of the available e-databases by the academics (N=45)

In question B.12 (Appendix B), the postgraduate students just like academics, were also given a list of fifteen e-databases available through the library website and asked to indicate how often they accessed each database. Figure 4.7 shows that the most commonly accessed e-database by postgraduate students was African Journal online with an average score of 2.13.
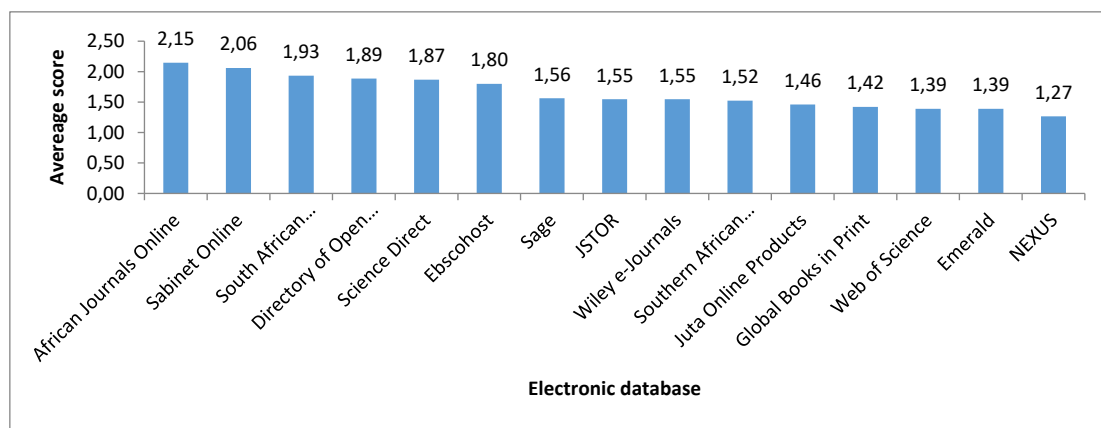
Figure 4.7: Usage of e-databases by the postgraduate students (N=150)

In question B.12 (Appendix A), academics were given a list of all the e-databases available on the library website and asked to indicate five e-databases they mostly prefer students to use. Figure 4.8 shows that 14 (31%) of academics mostly preferred postgraduate students to use Science Direct.
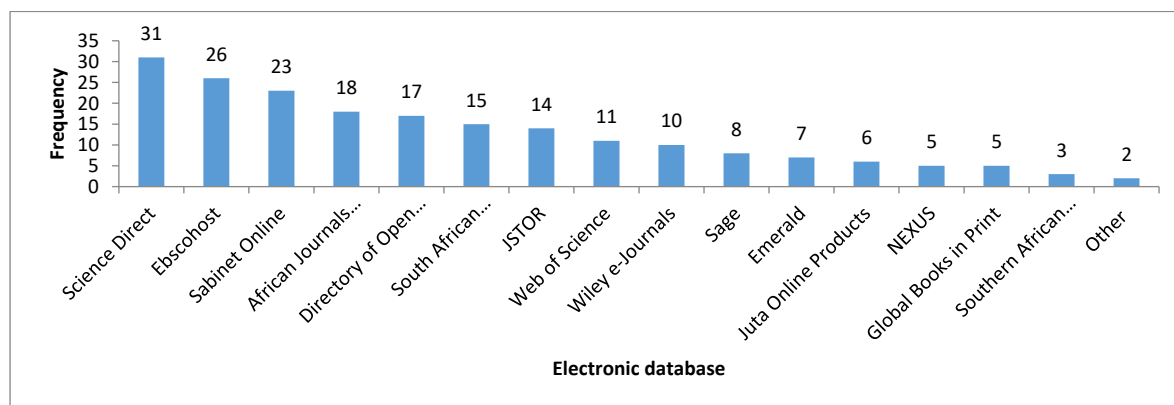
Figure 4.8: Recommended databases by the academics for postgraduate students to use (N=45)

Mann-Whitney test was conducted to measure difference in the preference of e-databases accessed by academics and postgraduate students. The findings of the test show .05 level in Science Direct. This shows significant difference in the preference of Science Direct accessed by academics and postgraduate students. This indicates that academics preferred to access Science Direct more than postgraduate students. However, the findings show no significant difference in the preference of other e-databases accessed by academics and postgraduate students.

4.5 PURPOSE OF USING THE E-RESOURCES

The second objective of the study addressed the purpose of using e-resources by both academics and postgraduate students. This objective also addressed the usefulness of e-resources.

In question C.1 (Appendices A and B), both academics and postgraduate students were asked to indicate the purpose of using the various listed e-resources. Figure 4.9 on page 76, shows that 25 (26%) of academics used e-books, 37 (34%) e-journals, 31 (36%) e-theses, 22 (34%) OPAC, and 36 (32%) Google for research purposes. Twelve (41%) of academics also indicated that they used e-magazines and 19 (54%) used e-newspapers for finding information in their profession. Academics did not specify other additional purpose for using e-resources.
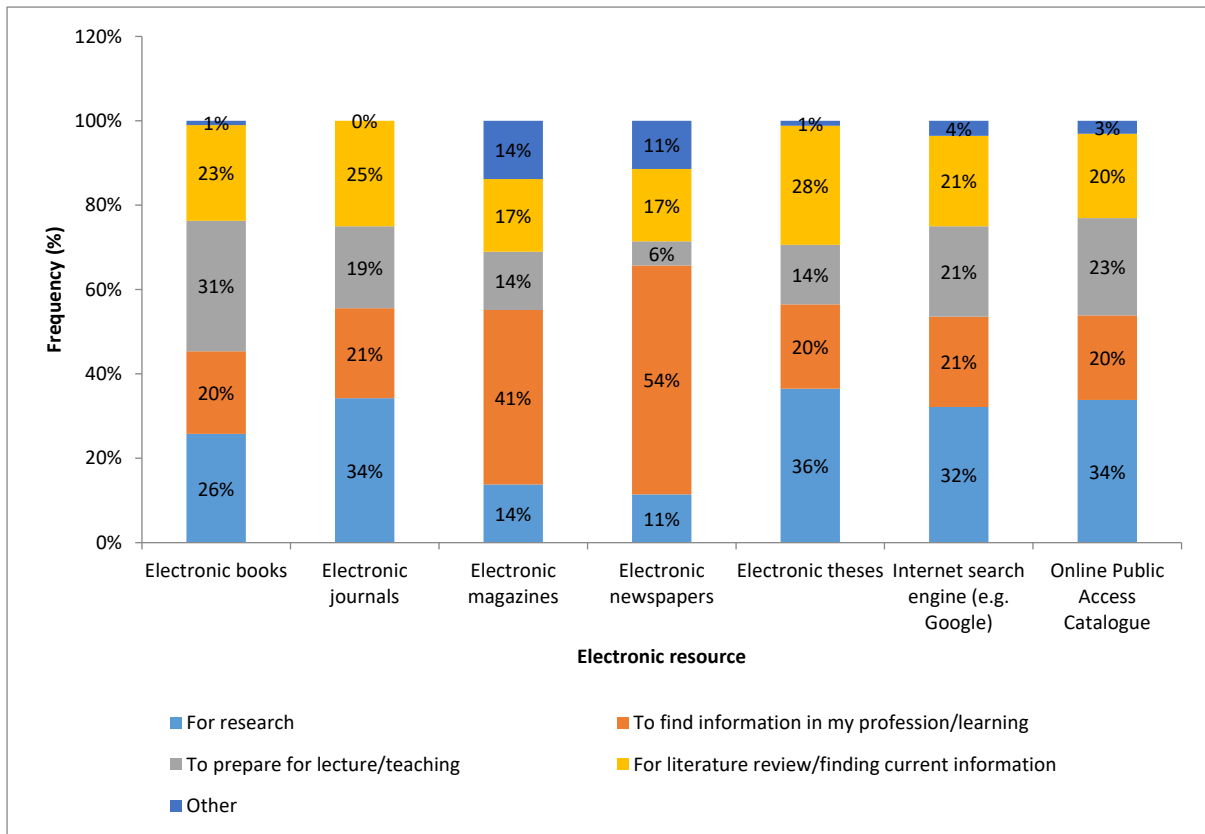
Figure 4.9: Purpose of using e-resources by the academics (N=45)

Figure 4.10 on page 77, shows that 84 (42%) of postgraduate students used e-books, 97 (39%) e-journals, 62 (63%) e-theses, 34 (33%) OPAC, and 109 (37%) Google for research purposes. Twenty-seven (30%) of postgraduate students also used e-magazines and 33 (33%) e-newspapers to find current information. Like academics, Postgraduate students did not specify any other purpose for using e-resources.
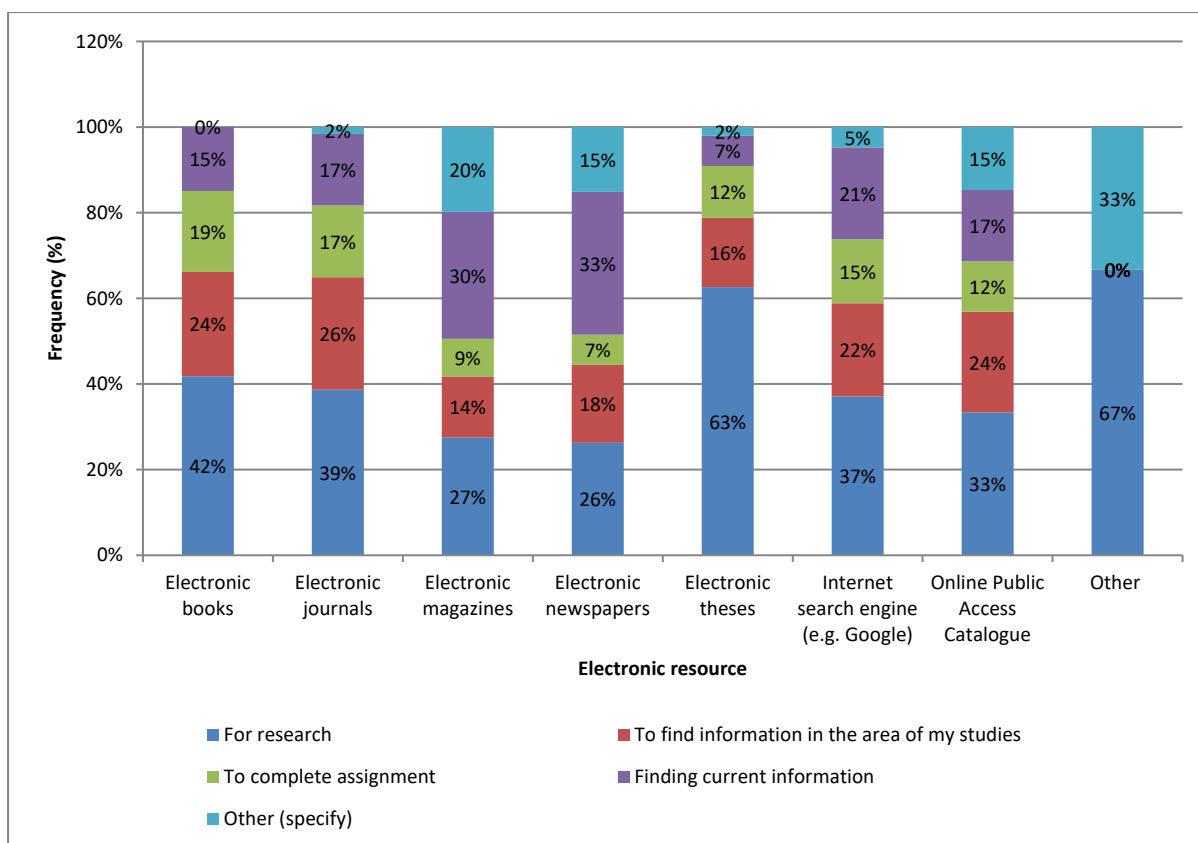
Figure 4.10: Purpose for using e-resources by the postgraduate students (N=150)

In question C.2 (Appendices A and B), both academics and postgraduate students were asked whether the available e-resources were useful in their academic work. Table 4.12 on page 78, shows that the majority of 32 (71%) of academics' respondents agreed that they were achieving their purpose of searching information by using the available e-resources. The majority 92 (62%) of the postgraduate students' respondents agreed to the statement.

Table 4.12: Achieving the purpose of searching information from available e-resources

Variables	Response	Frequency	Percent %
Academics (N=45)	Strongly agree	10	22%
	Agree	32	71%
	Disagree	1	2%
	Strongly disagree	2	4%
	Total	45	100%
Postgraduate students (N=149)	Strongly agree	49	33%
	Agree	92	62%
	Disagree	8	5%
	Strongly disagree	0	0%
	Total	149	100%

4.6 PERCEPTIONS ON THE USE OF E-RESOURCES

This is the third objective of this study. This objective addressed the perceptions on the accessibility of e-resources; satisfaction with the available e-resources; academics referring students to the e-resources; and perceptions regarding use of e-resources.

4.6.1 Ease of use

In question D.1 (Appendices A and B), both academics and postgraduate students were asked to indicate their perceptions regarding the accessibility of the e-resources. The findings are indicated in figure 4.11 and figure 4.12 on page 79. The findings show that the majority 31 (69%) of academics and 97 (65%) of postgraduate students agreed that the e-resources were easy to be accessed. In addition, (39%) of academics and (36%) postgraduate students disagree that they do not know where to access e-resources.
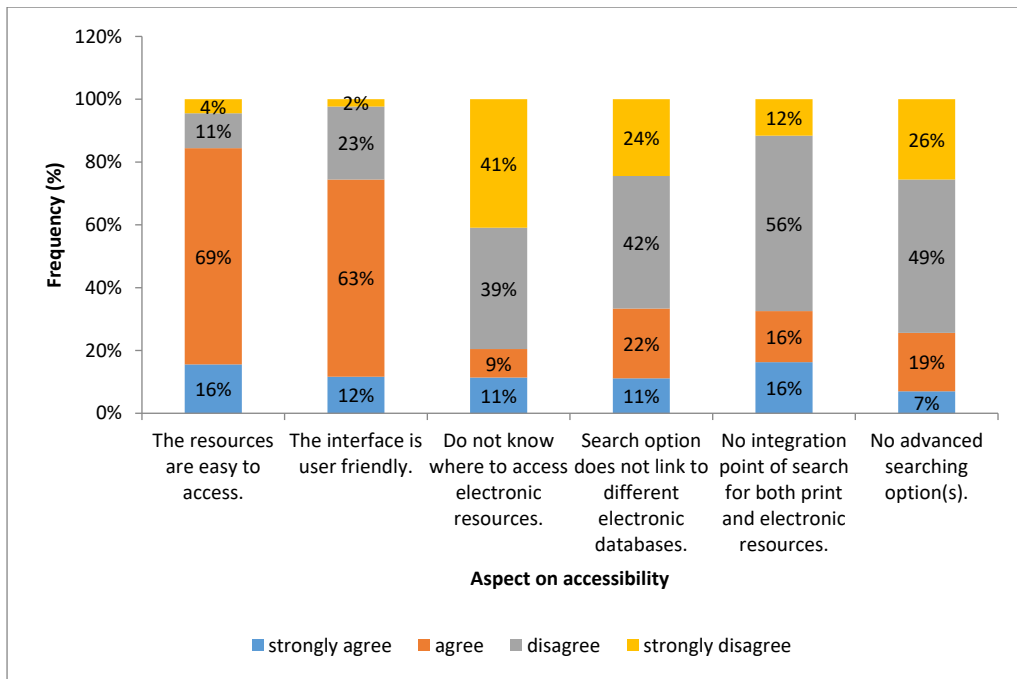
Figure 4.11: Perceptions of academics on accessibility of e-resources (N=45)
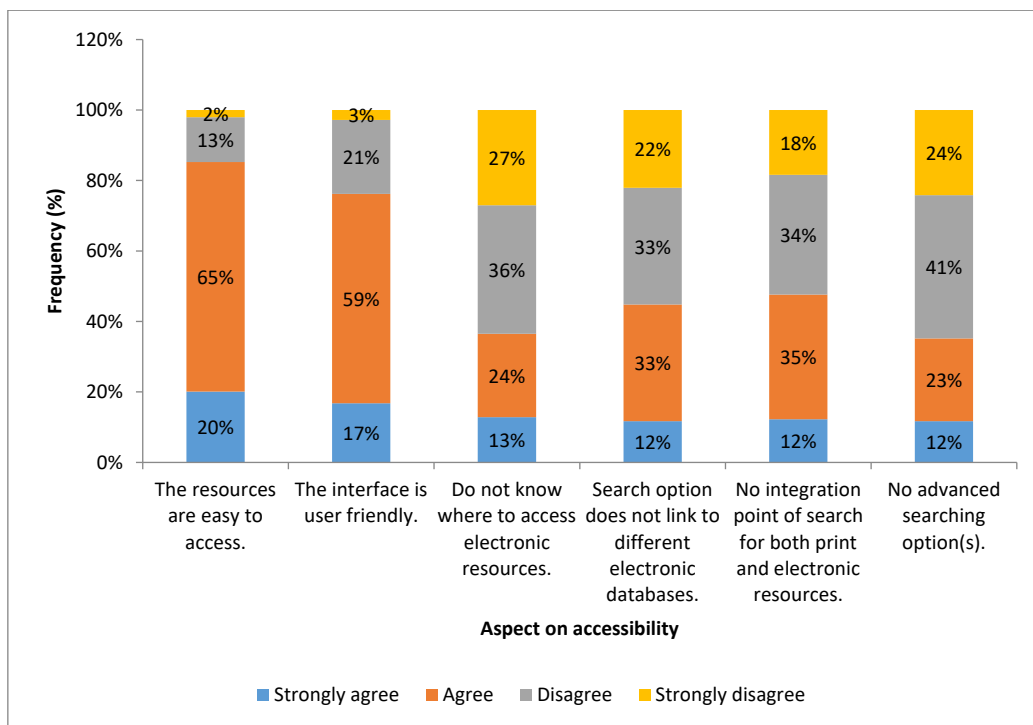
Figure 4.12: Perceptions of the postgraduate students on accessibility of e-resources (N=150)

4.6.2 Satisfaction with the available e-resources

In question D.2 and D.3 (Appendices A and B), both academics and postgraduate students were asked if they were satisfied with the availability of e-resources. Table 4.13 below indicates that more than half 24 (53%) of the academics were moderately satisfied with the e-resources available. Twenty-one (47%) of academics were also moderately satisfied with the usefulness of the available electronic resources.

Table 4.13: Satisfaction and usefulness of the available e-resources to academics (N=45)

	Usefulness of e-resources		Level of satisfaction with the e-resources	
	Frequency	Percent	Frequency	Percent
Not at all satisfied	2	4%	2	4%
Slightly satisfied	4	9%	2	4%
Moderately satisfied	21	47%	24	53%
Very satisfied	16	36%	15	33%
Extremely satisfied	2	4%	2	4%
Total	45	100%	45	100%

Table 4.14 on page 81 shows that 61 (41%) of postgraduate students were moderately satisfied with the usefulness of the e-resources. The findings of this objective also indicated that 69 (46%) of postgraduate students were moderately satisfied with the availability of the resources.

Table 4.14: Satisfaction and usefulness of the available e-resources by the postgraduate students (N=150)

	Satisfaction with usefulness of resources		satisfaction with availability of resources	
	Frequency	Percent	Frequency	Percent
Not at all satisfied	9	6%	7	5%
Slightly satisfied	19	13%	20	13%
Moderately satisfied	61	41%	69	46%
Very satisfied	48	32%	48	32%
Extremely satisfied	13	9%	6	4%
Total	150	100%	150	100%

Furthermore, Mann-Whitney test was applied to test level of satisfaction of the available e-resources among academics and postgraduate students. Figure 4.13 on page 82, shows significant difference between academics and postgraduate students on satisfaction with availability of e-resources as the findings of Mann-Whitney test. Academics are more satisfied by the availability of e-resources than postgraduate students.
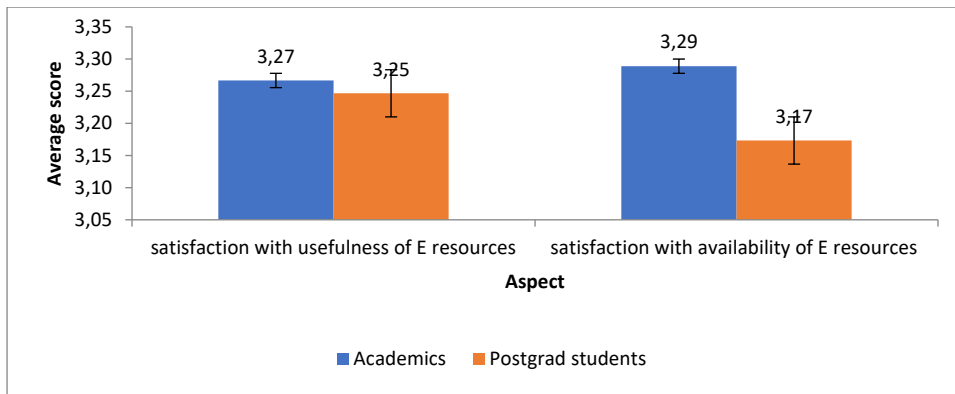
Figure 4.13: Findings of Mann-Whitney Test regarding the respondents' level of satisfaction with e-resources with regard to "status".

4.6.3 Academics referring students to the e-resources

In question D.4 (Appendix B), the postgraduate students were asked if their lecturers or supervisors encouraged them to use or access e-resources for academic tasks. Table 4.15 below shows that 72 (48%) of the postgraduate students were always encouraged by their supervisors or lecturers to use e-resources.

Table 4.15: Encouragement to use e-resources

	Frequency	Percent
Always	72	48%
Very frequently	33	22%
Occasionally	33	22%
Rarely	7	5%
Very rarely	4	3%
Never	1	1%
Total	150	100%

In question D.6 (Appendix A), academics were asked if they encouraged students to use e-resources for academic purposes. Figure 4.14 below shows that overwhelming majority 43 (96%) of academics affirmed that they encouraged students to use the e-resources for the academic purpose.

Figure 4.14: Encouraging students to use e-resources
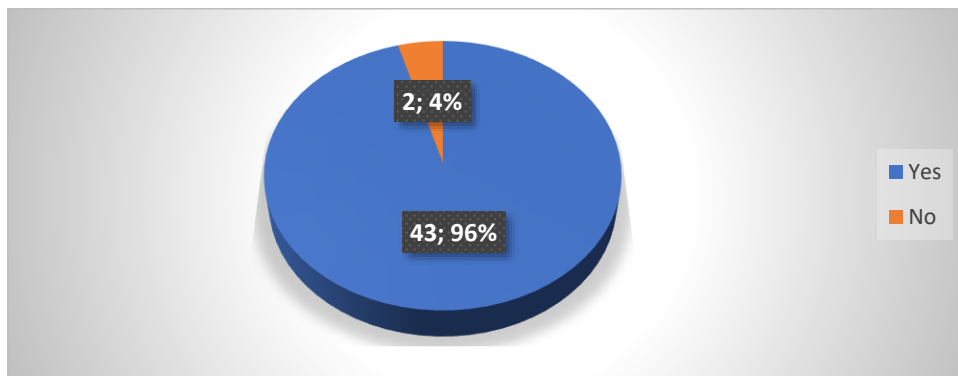
4.6.4 Perceptions regarding use of e-resources

In question D.4 (Appendix A), academics were asked to indicate their perceptions regarding use of e-resources. Figure 4.15 on the next page, summarises the data analysis of the study on the perceptions of the respondents regarding the use of e-resources for academic purposes by postgraduate students. From figure 4.16 below, the majority 29 (64%) of academics affirmed that using e-resources improve students' performance.
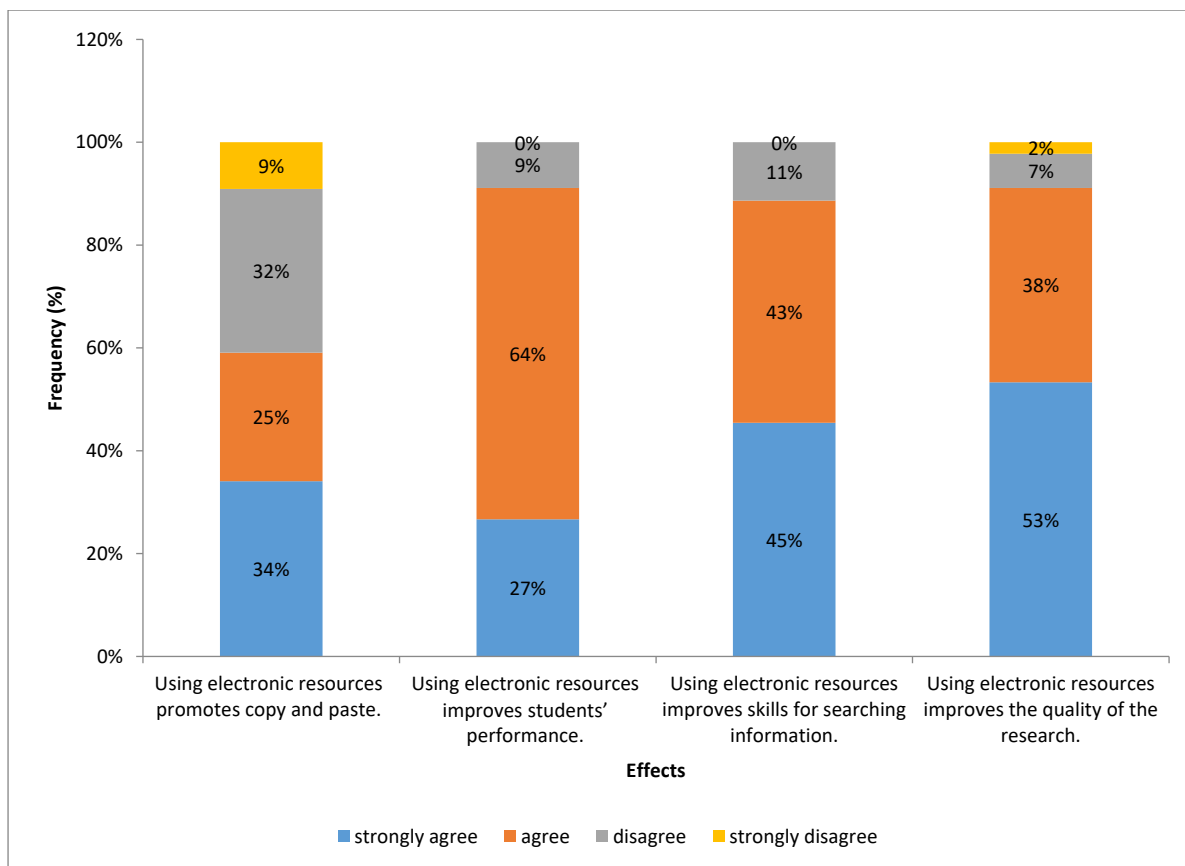
Figure 4.15: Perceptions of academics on the use of e-resources

In, question D.5 (Appendix B), postgraduate students were asked if they agreed or disagreed to a list of statements on perceptions on e-resources. Figure 4.16 on page 85 shows that 85 (58%) of postgraduate students strongly disagree to "I will never recommend the use of e-resources to anyone.
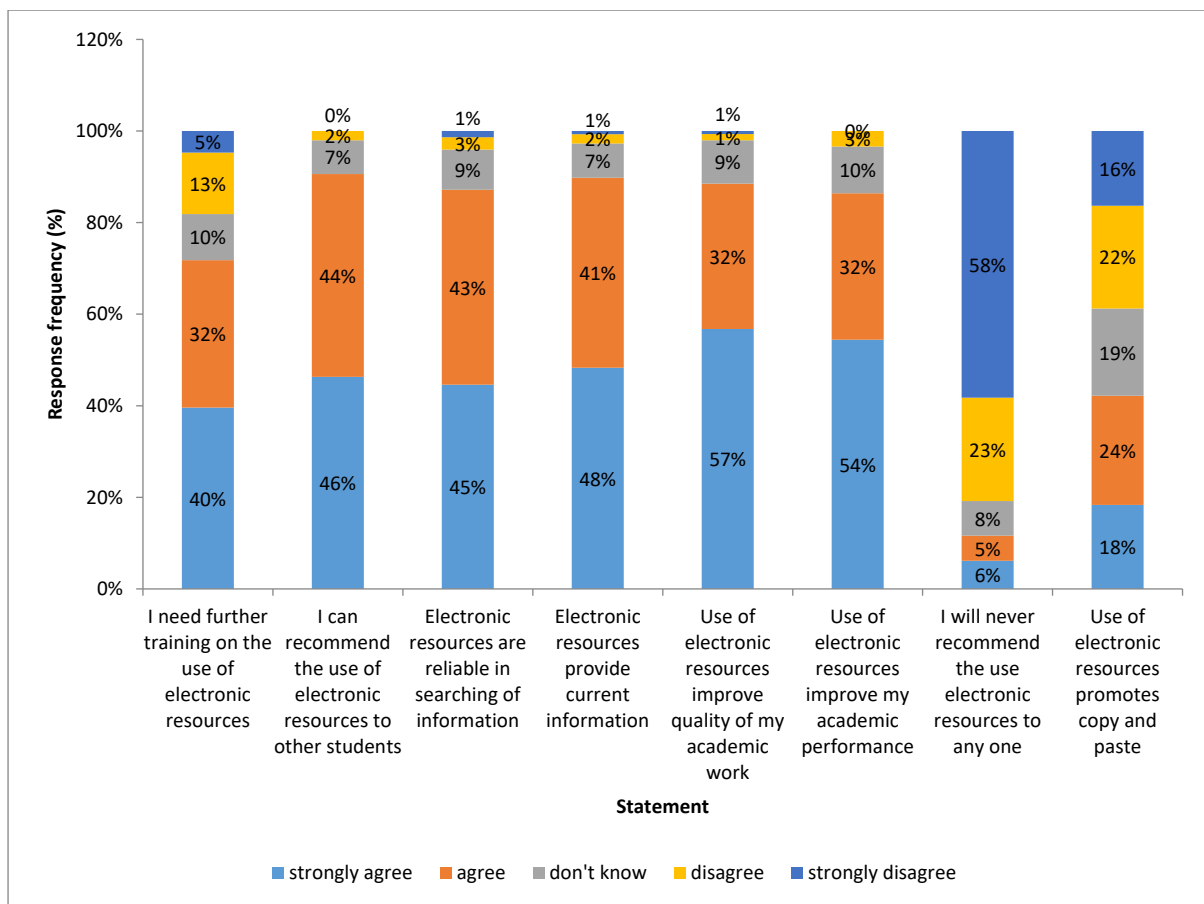
Figure 4.16: Perceptions of the postgraduate students on e-resources

4.7 CHALLENGES IN THE USE OF E-RESOURCES

This is the fourth objective of this study and it addressed challenges experienced in accessing e-resources, training options available on the use of e-resources, and suggestions given by the respondents on how to improve access to e-resources at UNIVEN.

In question E.1 (Appendix A), academics were given a list of thirteen most common challenges related to the use of e-databases and asked to indicate how often they encountered those challenges. Response categories ranged from 1 (never) to 3 (often). Highly rated challenge by 22 (50%) of academics was the requirement to always use a password to log-in as indicated in table 4.16. While unreliable power supply, too many e-resources, and high cost of access were the least rated challenges by academics.

Just like academics, in question E.1 (Appendix B), the postgraduate students were also given a list of thirteen most common challenges related to the use of e-databases and asked to indicate how often they encounter those challenges. Highly rated challenges by 91 (61%) of postgraduate students are access restricted to campus and always required password to log-in also indicated in table 4.16 on the next page. The least rated challenge by 16 (11%) postgraduate students is unreliable power supply.

Table 4.16 Challenges experienced by academics and postgraduate students in the use of e-databases

Challenges experienced in the use of e-databases	Academics' response			Postgraduate students' response		
	Often	Sometimes	Never	Often	Sometimes	Never
Access restricted to campus only.	20 (45%)	14 (32%)	10 (23%)	86 (61%)	29 (21%)	26 (18%)
The library is not subscribing to the e-database(s) I require.	6 (15%)	20 (51%)	13 (33%)	30 (21%)	60 (41%)	56 (38%)
Poor internet connection.	10 (23%)	28 (64%)	6 (14%)	26 (17%)	93 (62%)	31 (21%)
Unreliable power supply.	5 (12%)	21 (49%)	17 (40%)	16 (11%)	52 (36%)	76 (53%)
Always required password to log-in.	22 (50%)	11 (25%)	11 (50%)	91 (61%)	28 (19%)	25 (17%)
No network connectivity off-campus.	11 (33%)	17 (38%)	13 (29%)	86 (58%)	33 (22%)	29 (20%)
Lack of information search skills.	9 (21%)	18 (42%)	16 (37%)	26 (18%)	69 (47%)	53 (36%)
Failure to access full text.	14 (33%)	18 (42%)	16 (37%)	28 (19%)	83 (57%)	35 (24%)
Getting too much information/information overload.	10 (22%)	12 (27%)	23 (51%)	35 (24%)	64 (43%)	49 (33%)
Insufficient relevant e-resources.	8 (19%)	17 (40%)	17 (40%)	25 (17%)	67 (45%)	56 (38%)
There are too many e-resources.	5 (12%)	16 (38%)	21 (50%)	32 (22%)	47 (32%)	69 (47%)
High cost of access.	5 (12%)	15 (36%)	22 (52%)	26 (18%)	31 (21%)	89 (61%)
I have to log-in into each e-databases separately.	15 (33%)	17 (38%)	13 (29%)	55 (38%)	35 (24%)	53 (37%)

Furthermore, Mann-Whitney test was conducted for comparison of challenges faced by both academics and postgraduate students in accessing e-resources. The findings reveal .05 level of significance at no network connectivity off-campus which shows that there is significant difference in network connectivity between academics and postgraduate students while they are off-campus.

4.7.1 Training on the use of e-resources

The researcher wanted to explore training options on the use of e-resources available to the respondents because lack of training is often cited as one reason for low utilisation of e-resources (Mosha & Bea, 2014; Quadri, Adetimirin & Idowu, 2014; and Akussah, Asante & Adu-Sarkodee, 2015).

In question E.2 (Appendices A and B), both academics and postgraduate students were asked to indicate method of training they had received on the use of e-resources. In table 4.17 below, twenty-two (49%) of academics received training on the use of e-resources through group training organised by the library. Sixty-seven (46%) of postgraduate students have learned to use e-resources through trial and error.

Table 4.17: Training methods on the use of e-resources by the academics (N=45) and postgraduate students (N=146).

Training	Frequency: Academics	Percent: Academics	Frequency: Postgraduate students	Percent: Postgraduate students
Trial and error	18	40%	67	46%
Group training organized by library	22	49%	55	38%
Individual training organised by library staff	2	4%	11	7%
Never trained	3	7%	13	9%
Total	45	100%	146	100%

The respondents were also asked to indicate other methods of training they received on the use of e-resources. Two (1%), 1 (1%), and 1(1%) of postgraduate students indicated that they have learnt to use e-resources through course work, group training organised by lecturers, and training from previous universities respectively. Academics did not indicate other methods of training they received on the use of e-resources.

In question E.3 (Appendices A and B), both academics and postgraduate students were asked to indicate how they preferred accessing e-resources. Figure 4.17 below shows that majority 34 (67%) of academics and 99 (65%) of postgraduate students preferred accessing e-resources on their own.
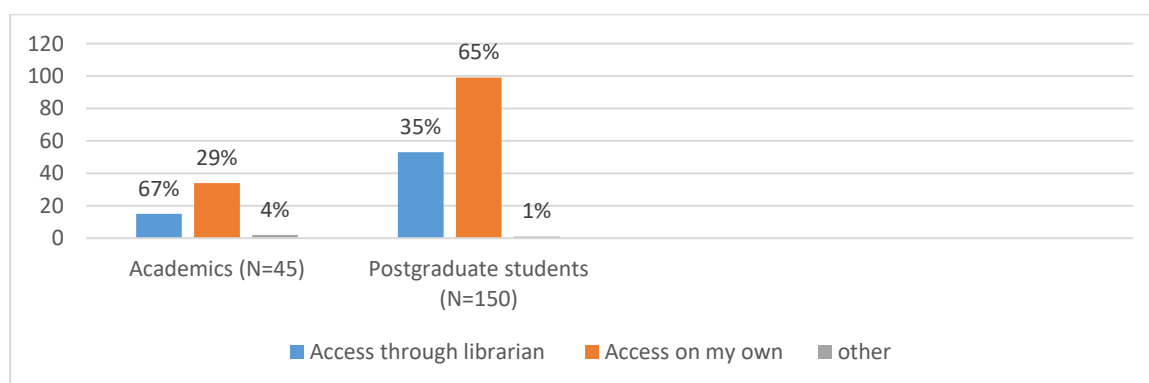
Figure 4.17: Preference on how to access e-resources

4.7.2 Suggestions for improving usage of e-resources

In question E.4 (Appendices A and B), both academics and postgraduate students were given a list of twelve suggestions with the ways to improve usage of e-resources. Data show that majority of both academics and postgraduate students *"agreed"* and *"strongly agreed"* that the following approaches can be used to improve usage of e-resources: improve internet bandwidth; provision of more computers; subscription to more e-databases; raising awareness of e-resources; provision of training on the use of e-resources; provision of each faculty with its own computer laboratory; provision of free laptops to all academics and postgraduate students; provision of interface with search option that links to different e-resources-; provision of OPAC with advanced searching techniques; integration of a single point of search for both print and e-resources; increasing awareness of newly acquired e-resources; and increasing

awareness of training programmes on usage of e-resources. While majority 106 (72%) of postgraduate students were asking for provision of each faculty with its own computer laboratory, majority 34 (79%) of academics were asking for more databases to be provided as indicated in Figure 4.18 and Figure 4.19 next pages respectively.
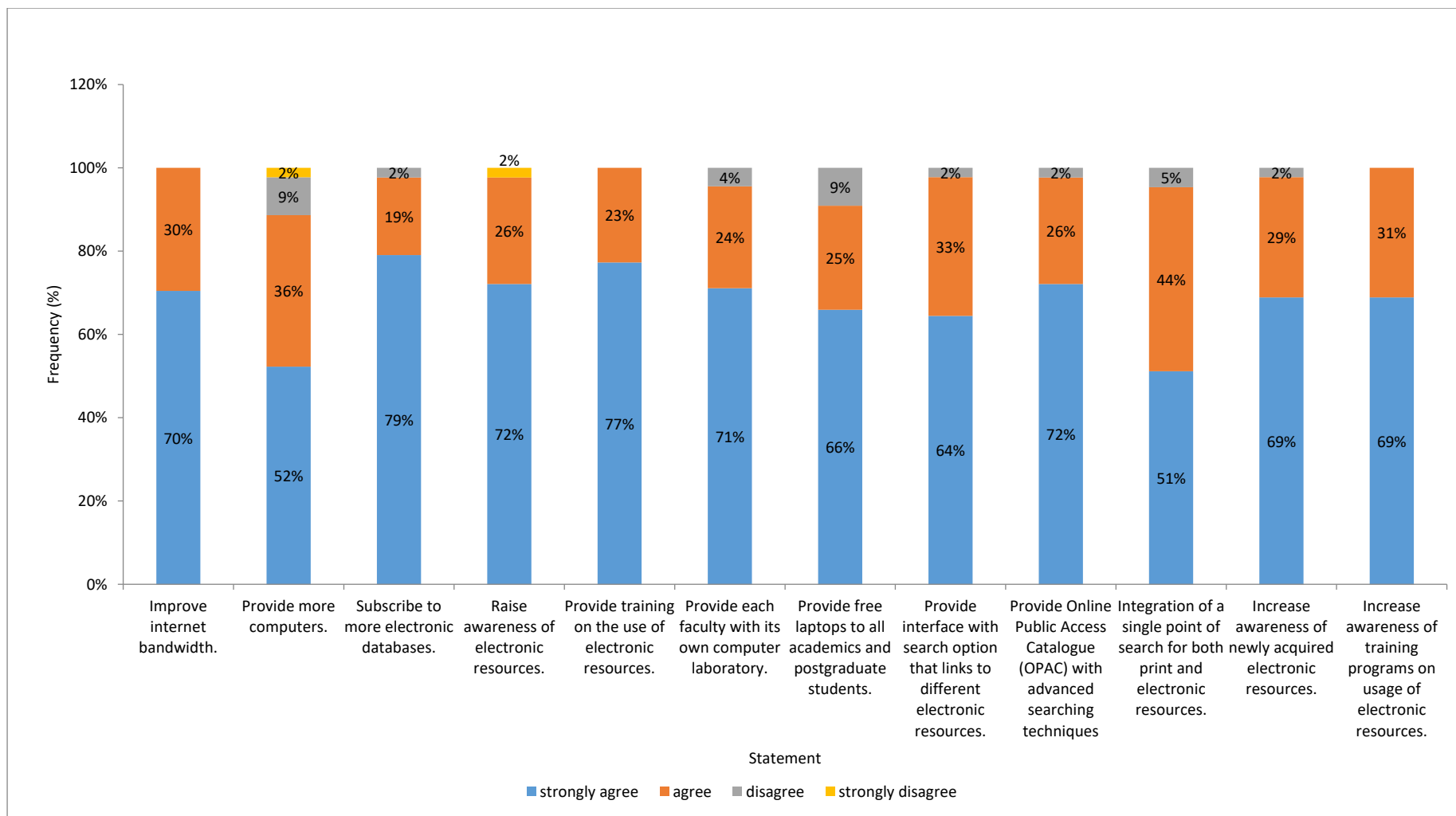
Figure 4.18: Ways to improve usage of e-resource by the academics (N=45)
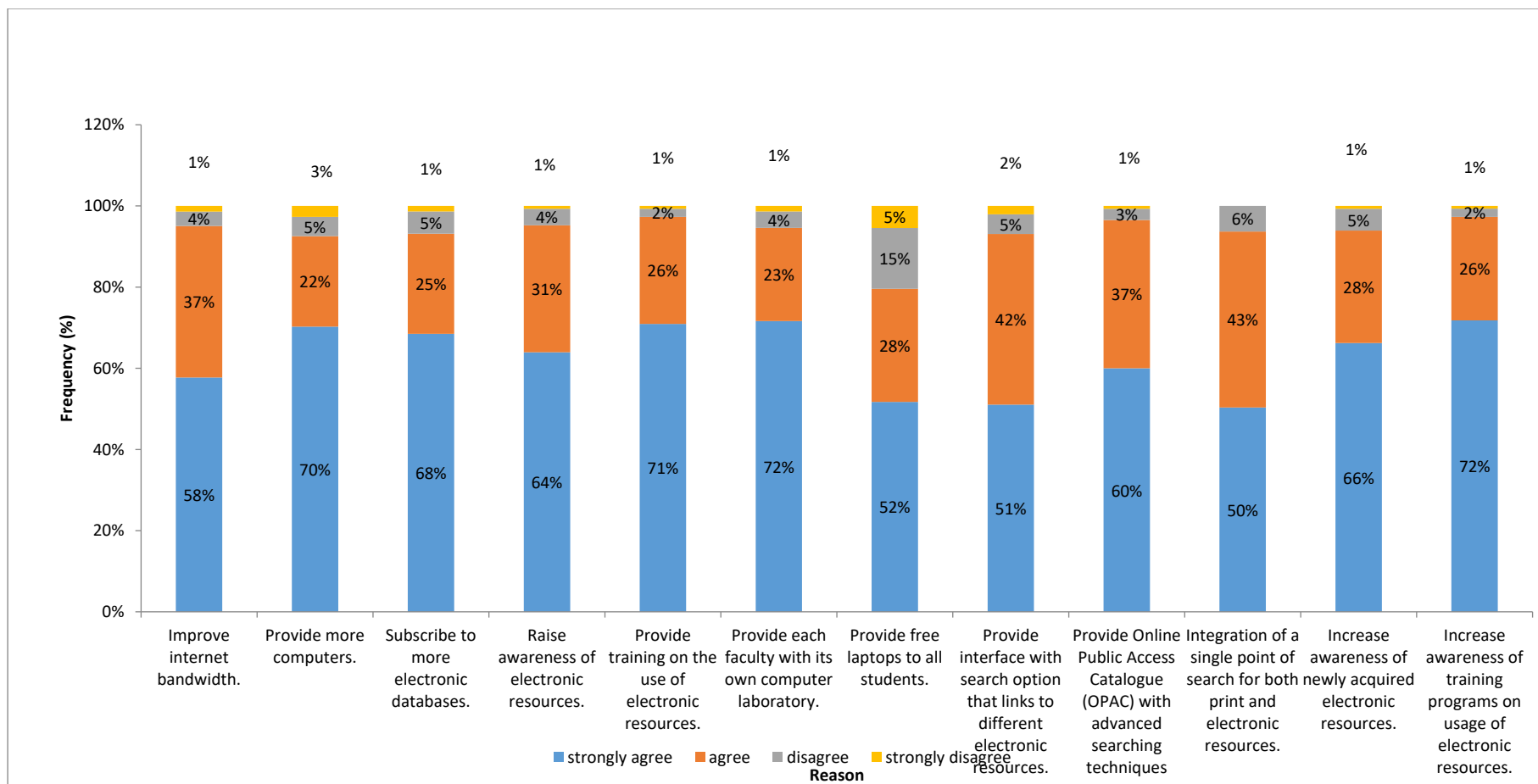
Figure 4.19: Ways to improve usage of e-resource by the postgraduate students (N=150)

4.8 FINDINGS FROM QUALITATIVE DATA COLLECTED FROM THE LIBRARY DIRECTOR

Data was collected from the library director using a questionnaire (Appendix C). The questionnaire sent to the library director sought to collect information on the challenges faced by the library in provision of e-services to academics and the postgraduate students.

The library director was satisfied with the budget allocated for training on the use of e-resources. The library director reported that the allocated budget for training academics and students on the use of e-resources covered trainings through: *orientation for first entering students*; *an integrated comprehensive information literacy course for foundation students*; *product specific training for students and academics*; *research workshops for academics*; *training on databases for undergraduates and postgraduates*; and *presentations at research related events.* However, the library director was not satisfied with the way e-resources were being utilised by the academics and postgraduate students. The library director expected higher usage rate of e-resources by the university community than the current usage rate. In addition, data collected from the library director revealed that the library did not have adequate funds for subscription and purchase of e-resources. Moreover, the library director indicated that there was a need to add more e-databases and expansion of e-books collection.

The library director also indicated that the library did not have all the information resources required by its users. Therefore, UNIVEN library will continue to take part in document delivery services to supplement library holdings. Remarkably, database trials were obtained for only academics to assess the relevance of the resources to UNIVEN needs before subscription. The library director concluded by indicating that off campus access to the university network was still a major challenge for the university community. Users were inconvenienced as they had to use different passwords to access e-resources.

4.9 SUMMARY

This chapter presented data collected from the questionnaires which were distributed to UNIVEN academics and postgraduate students. Data was presented in the form of graphs and tables. Data collected from respondents show the following:

- There was a significant relationship in regular access to internet and access of e-resources between academics and postgraduate students.
- For the purpose of using e-resources, data analysis finds that both academics and postgraduate students mostly used e-resources for the research purpose.
- Perceptions towards use of e-resources showed that academics were more satisfied by the availability of e-resources than postgraduate students as revealed by Mann-Whitney test.
- Data analysis revealed that academics and postgraduate students faced the same challenges in the use of e-resources. However, postgraduate students experienced no network connectivity off-campus more than academics.

Chapter 5 covers interpretation and discussion of the findings.

CHAPTER 5

INTERPRETATION AND DISCUSSION OF THE FINDINGS

5.1 INTRODUCTION

This chapter presents an interpretation and discussion of the findings of the study. The findings of this study were informed by the aim and research objectives. The aim of this study was to investigate the use of e-resources by academics and postgraduate students at UNIVEN. The specific research objectives were:

- To examine access and use of the available e-resources by academics and postgraduate students;
- To determine the purposes of using e-resources by academics and postgraduate students;
- To establish the perceptions of academics and postgraduate students towards use of e-resources;
- To identify challenges faced by academics and students in using e-resources.

The objectives of this study guided the researcher in examining the usefulness of the available e-resources and in proposing strategies for effectiveness utilisation of e-resources by academics and postgraduate students. The findings of this study showed that an increase of bandwidth and availability of computers play a role in improving internet accessibility; e-resources are useful to both academics and postgraduate students; and the need of training on the use of e-resources to academics and postgraduate students at UNIVEN. The main findings of this study were discussed based on the findings of each objective.

5.2 DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

The findings on demographic information of the respondents show there was no statistically significant relationship between gender, age and usage of e-resources among academics and postgraduate students. This finding contrasts with Ahmed (2015); Bassi and Camble (2011); Funmilayo (2013); and Naude, Rensleigh and du Toit (2005) who revealed a statistical difference between gender and usage of e-resources. In addition, Sarasvady and Khatri ([n.d]) and Mbasera (2012) indicated that there was a significant difference on the use of electronic resources by age. Furthermore, Sivathaasan, Achchuthan and Kajananthan (2013) reported that there was a significant difference between usage of e-resources and academics' age and gender in Sri Lanka.

However, findings of this study showed significant difference in internet accessibility among academics and the postgraduate students. Academics had access to internet more than postgraduate students. Significant difference in access of internet among academics and postgraduate students might be caused by economic factors such as ability to purchase or subscribe to bundles or data to access internet while off campus, and having more time to access internet by academics. These economics factors could be referred to external factors contributing to perceived usefulness and perceived ease of use of e-resources in theoretical framework of this study, TAM.

5.3 ACCESS AND USE OF E-RESOURCES

This section interpreted and discussed the findings based on the access and use of e-resources by academics and postgraduate students. It covers prerequisites for accessing e-resources and access to e-resources provided by the library.

5.3.1 Prerequisite for accessing e-resources

Computers and internet are some of the prerequisites for accessing e-resources. Unavailability of computers and internet connectivity could lead to low usage of e-resources (Dulle, 2015). Internet allows users to access e-resources without being restricted to geographical area and time. To access and use e-resources effectively and efficiently, users need to have access to internet (Shija, 2009). Therefore, an academic institution needs to have a well-structured information and communication technology (ICT) infrastructure for its community to access e-resources.

Investigating internet accessibility and availability at UNIVEN campus and outside the campus was important in this study because of the location of the university. Although South Africa's ICT infrastructure is in advanced stage, UNIVEN is located in the rural areas of SA which are mainly characterised by low penetration of internet and other ICT technologies and services (Dalvit, Kromberg & Miya, 2014). It has been reported that South African rural areas are experiencing lack of computers with internet access and high cost of internet access (Ramavhona & Mokwena, 2016). In addition, the historical background of UNIVEN as one of the former historically black disadvantaged universities necessitated the need to understand how the institution is currently faring in terms of internet accessibility and other ICT technologies which are necessary for both academics and students to make fully use of the available e-resources.

Institutions formally categorised as historically disadvantaged universities in SA were generally under-resourced in various aspects including ICT infrastructure. In addition, previous studies such as (Pearce, 1996) and (Maiwashe, 2009) indicated lack of adequate ICT infrastructure at UNIVEN.

5.3.1.1 Access to the internet and other ICTs

Academics had regular access to internet more than postgraduate students. This might be caused by economic factors such as ability to purchase or subscribe to bundles or data to access internet while off campus, and having more time to access internet by

academics while on campus. This study concurred with Naude *et al.*, (2005) and Sarasvady and Khatri ([n.d])'s studies. Demographic information influenced the usage of internet among academics at UNISA (Naude *et al.*, 2005). Sarasvady and Khatri ([n.d]) also argued that variables such as demographic information had influence on internet access.

The findings of this study also revealed that there was an improvement in access to the internet at the university compared to the findings of Maiwashe (2009) which reported that more than sixty percent of students at UNIVEN did not have regular access to internet. Pearce (1996) indicated that before the year 1996 academics at UNIVEN believed that lack of information resources and poor internet accessibility were caused by the geographical location of the university.

The findings of the current study show that there was a significant increase on internet accessibility by the university community within the eight-year span. Possible reasons for this increase could be an increase in number of computers purchased by the university, introduction of hot-spot internet connectivity (WI-FI), and an increase of bandwidth. These improvements show that previously disadvantaged and rural-based universities in SA are catching up with urban based universities in terms of internet accessibility. Similar findings have been reported by previous studies such as Mgobozi and Ocholla (2002) which show that there was no much difference on internet accessibility by students in a rural-based university such as the University of Zululand and urban-based university such as University of KwaZulu-Natal. The findings of Mgobozi and Ocholla (2002) disclosed that 99% of academics had access to internet, and 100% and 99% of postgraduate students from the Universities of KwaZulu-Natal and Zululand respectively had access to internet. High rate of internet access by both academics and postgraduate students for the Universities of KwaZulu-Natal and Zululand could be caused by advancement in technology. Globalization 101 (n.d) revealed that general improvement in accessibility to the internet globally was caused by advancement in technology and reduced cost of internet.

Furthermore, the findings of this study confirmed the findings of Kebede (2014) which indicated that usage of internet in Africa had shown significant growth. With this significant growth on the access to internet as noted in this study, it is possible for a rural -based university to achieve 100% regular internet connection to its community in the near future. With the improved access to the internet in Africa, academics and students will be able to access e-resources both in and off-campus, anywhere and at any time. With regard to internet connectivity, this study noted that not all of academics had network cables in their offices. Some of the academics had used other types of internet connectivity such as Wi-Fi and mobile phones from their offices. The findings also revealed that while off campus, academics used their mobile phones to access internet. Furthermore, the findings of this study also revealed that the speed of internet connection off campus was slow. The speed of internet connection could be caused by external factors such as network traffics and low bandwidth. Ngulube (2010) stated that poor internet speed was caused by the available bandwidth. Inadequate access to the internet in African continent was caused by lack of bandwidth to reach beyond the communities' borders (Ossai, 2010). This implies that academics and postgraduate students were experiencing obstacles to access e-resources while off campus. Mojapelo (2014:182) states that poor telecommunications infrastructure in SA rural areas caused "conventional Internet connectivity impossible in their environment." Furthermore, Guerriero (2015) also observed that African communities were still experiencing obstacles to access internet. This might be caused by poor internet speed.

The findings also noted that Wi-Fi was the most used internet connectivity on campus by postgraduate students. Implying that Wi-Fi connectivity was useful to the postgraduate students. Furthermore, this revealed that the recommendation from Madzhie (2010) was implemented. Madzhie (2010) recommended that UNIVEN should allocate wire-less hot spot areas for the university community as there was no Wi-Fi connectivity by then.

In 2016 academic year, the bandwidth at UNIVEN was 10 gigabits per second (Mbati, 2017). The speed of internet connectivity at the university can therefore be categorised as high. This concedes with Harle (2009) who noted that for internet connectivity speed to be rated high should be in gigabit. Mbasera (2012) showed that at Rhodes University,

the speed of internet was excellent, fast and reliable, however, at the Nelson Mandela Metropolitan University and University of Fort Hare the speed of internet connectivity was adequate and acceptable.

5.3.1.2 Preferred location for accessing Internet

The some of the academics used library computers to access the internet, and most of the academics accessed the internet from their offices. The preferred location for accessing the internet reported by academics in this study is the same as what has been reported in other studies conducted in developed countries. Tenopir, Wilson, Vakkari, Talja and King, (2010) indicated that above sixty percent of academics in the USA accessed e-resources from their offices and few of academics accessed e-resources from libraries. Not having special computer area for academics in the library or better facilities and comfort in the academics' offices might be the cause of academics not to use library computers. UNIVEN had 237 personal computers to access internet and e-resources by the university community (Vele, 2011).

This study discovered that place of internet access by postgraduate students at UNIVEN was similar to other universities in developing and developed countries. Melinda Gates Foundation in Polanka (2014) stated that millions of people especially low-income and disadvantaged individuals rely on libraries as their primary access to computers and internet. Most of the students at UNIVEN were coming from low-income and disadvantaged background and may not afford to have their own computers. Furthermore, Chandran (2013); Mitta and Bala (2013); and Kumar (2016) also find that most of the students accessed internet from the library.

A study conducted by Maiwashe (2009) at UNIVEN indicated that the university had no computers to be accessed by students. However, the findings of this study showed that there were some improvement as postgraduate students indicated that they had access to computers in the library and that provision of laptops to masters and doctoral students closed the gap in shortage of computers. All masters and doctoral students at UNIVEN were provided with tablets and laptops respectively by the university.

5.3.1.3 Devices used to access internet and the available e-resources

Internet access is a pre-condition required for users to be able to use internet based services such as e-resources (Shija, 2009). This study discovered that most of academics used laptops to access internet, while most of postgraduate students used mobile phones to access internet. The findings revealed that tablets provided by the university to students may not be used to access internet as most of the postgraduate students said they relied on the library computers for internet access.

This study also discovered that majority of academics, masters and doctoral students often used laptops to access the available e-resources. From the above findings, academics and postgraduate students were fully supported by the university in provision of internet connectivity and devices used to access internet.

Based on the findings and the discussion in this section it shows that UNIVEN had pre-requisite technologies and resources necessary for adequate utilisation of e-resources. The university had facilities such as desktop computers, laptops and tablets that can be used by the university community to access internet. In addition, the university community can also use Wi-Fi connectivity to access internet and the available e-resources.

5.3.2 Access to e-resources provided by the library

The findings showed that library website was fully utilised by majority of academics and postgraduate students. Perceived ease of use or usefulness of the website might be the cause for fully utilization of the university library website. However, this study did not investigate what influenced academics and postgraduate students to access the library website.

Moreover, this study showed that majority of academics and postgraduate students were aware of the e-database page from the university library website. In addition, this study noted that e-database page was easy to access from the library website. This implies that easy access to e-database page influenced academics and postgraduate students to access the library website.

Academics and postgraduate students accessed the provided e-resources *"sometimes"*. This study revealed a significant association in frequency of access to e-resources with being an academic or a postgraduate student. This study revealed that academics accessed e-resources more frequently than postgraduate students. This might be caused by more exposure to opportunities of internet access by academics. Academics could have used their own finance to access internet while off-campus. The findings of this study also noted a slight improvement on the access of e-resources as compared to the findings of Maiwashe (2009) which indicated that 16% of academic staff at UNIVEN indicated that they have *"never"* accessed the e-resources provided by the library. The findings of this study were supported by the library director. The library director stated that "there has been substantial growth in the use of e-resources but there is potential for more growth".

The library director's view concurred with Dulle (2015); and Patel (2015) reporting that there was a big improvement in the use of e-resources in universities. In addition, Adeyinka (2011); and Ram and Karn (2014) reported that usage of e-resources in universities is increasing although some of the academic communities are still used to print resources.

5.3.2.1 Preference of e-resources

From the findings, most postgraduate students particularly masters and doctoral students at UNIVEN preferred e-journals. Treptow and James (2011) corroborate these findings as they observed that South African researchers preferred e-journals. The findings of this study further revealed very low usage of e-theses among postgraduate students. The study noted that only 1% of postgraduate students preferred to use e-theses due to lack of awareness and visibility of institutional repository to the university community. Review of the UNIVEN library website which was done on the 1st of May 2017 showed that although the university library has an institutional repository, it was difficult to find an option linking users to it from the library website. Users had to access it through Google search engine, where they would be first directed to the new university website which was

not active and could not be directly accessed through the university uniform resource locator (URL).

In addition, the findings revealed that slightly less than 20% of postgraduate students indicated e-books as their preference compared to more than 75% of those who preferred e-journals. This shows that usage of e-books at the university was low. Low usage of e-books has also been reported by other researchers. Kahn and Underwood (2013) indicated that majority of library users in South African universities did not use e-books and users were not expected to be satisfied with e-books collection. This could be caused by the perceptions of students towards e-books. Falc (2013: 07) alluded that students did not use e-book because it was "harder to read on the screen." Furthermore, Posigha (2012) indicated that academics faced challenges in the usage of e-books. Chen and Wu (2011); and Hsu, Lin, Chen, Chang, and Hsieh (2017) showed that users' behaviour determine the usage of e-books. In addition, Wang and Bai (2016) reported that university students were aware and accepted e-books. However, they did not often use academic e-books. Lamothe (2013) discovered that doctoral and masters' students used e-books more than academics and undergraduate students. This shows that expansion and awareness of e-books could influence academics and postgraduate students' preference on the use of e-books.

However, expansion of e-books collection should be done in accordance with comparison of study levels. Findings from the data collected from the library director indicated that the UNIVEN library would like to expand e-books collection if funds were available. It will be important for the library to take note of the factors that leads to low usage of e-books and device innovative ways of raising awareness of the e-books collection before the expansion is undertaken.

In addition, the findings of this study indicate that some of postgraduate students preferred to access e-newspapers. Low rate of preference of accessing e-newspapers by postgraduate students may be caused by the university not subscribing to e-newspapers. However, UNIVEN provides hard copy newspapers to the university community. Njeze (2013) regarded e-newspapers as essential information sources for students.

The analysis of data on the preferred database by both academics and postgraduate students shows that academics mainly used Science Direct, while majority of postgraduate students mainly used African Journal Online (AJOL). These findings are consistent with several other studies that reported Science Direct was the most preferred e-database (Atakan, Atilgan, Bayram & Arslantekin, 2008; Hadebe & Hoskins, 2010; Khan *et al.,* [n.d]). Usage statistics obtained from the library director indicated that Ebscohost and Sabinet Online databases were the most used e-databases. It is indicated in chapter 1, table 1.1 of this study that from the year 2013 to 2017 Ebscohost and SABINET Online were the most used databases at UNIVEN. This shows that preference for accessing e-databases changes over time, from year to year. This finding corroborates with findings of Radjagopal and Chinnasamy (2012) which state that the usage of e-resources changes according to the current status of institutions and the availability of e-resources. Furthermore, it was noted that one of the Southern Africa databases, SABINET Online was among the most used databases by academics and postgraduate students at UNIVEN.

The use of AJOL might be probably caused by students' interests in works of other African researchers. AJOL provides hybrid open access and delayed open access to users because some of its recent published articles take time to be freely accessed. It also promotes access to research information by researchers from developing countries (Manda, 2005). A study by Chauhab (2012: 339) showed that "DOAJ covers all open access scientific and scholarly journals that use an appropriate quality control system." Moreover, as shown by the findings of current and other studies, DOAJ popularity was growing among postgraduate students. Some of the postgraduate students at UNIVEN with an average score of 1.89 accessed DOAJ in a monthly basis. Worldwide Information Services (2016) indicated that the usage of DOAJ increased in academia. In addition, Salau and Gama (2015) noted that academics in selected universities in Nigeria use the available open access e-journals more than the subscribed e-journals. Furthermore, Bjork and Solomon (2012) noted that open access journals were cited often like subscription journals were cited.

NEXUS which covers Law subjects was the least accessed database by both the academics and postgraduate students. Low use of Nexus in both academics and postgraduate students' categories could have been caused by lack of awareness or because of limited postgraduate programmes in the School of Law compared to other schools at UNIVEN. NEXUS covers current and complete research including theses and dissertations which most of the academics and postgraduate students should have been interested to access it.

The findings of this study revealed that majority of academics encouraged postgraduate students to use e-resources. The findings exposed that Science Direct was the most recommended database, followed by Ebscohost and the least recommended database was South African Legal Information Institute (SAFLII) by academics. This shows that postgraduate students had their own preferences when it comes to the usage of e-databases. The most recommended e-database was not the most accessed by postgraduate students. Furthermore, this study showed that less than 50% of postgraduate students were not well introduced to the available e-databases.

Findings from data collected from the library director indicated that UNIVEN would like to add another database specifically for Law if funds were available. Moreover, postgraduate students suggested that the library should add Hein-Online which covers law subjects, International association of Hydrogeologists a database that covers hydrology and geology, and PubMed that covers medicine as additional e-database.

Only one open access e-database, PubMed, which links to full-text content of biomedical and life science from PubMed Central and publisher website for free access online was suggested by some of postgraduate students. Ivwighreghweta and Oyeniran (2013 alluded that Health Sciences academics at the University of Ghana use PubMed to access full text articles. In addition, Bjork and Solom (2012) alluded that articles published in open access journals were basically equal to articles published in subscription journals in terms of accessed and usage.

Findings of Mann-Whitney test regarding usage of e-databases revealed no significant difference in the preferences of e-databases accessed by academics and postgraduate

students. Furthermore, this study revealed that there were no significant differences in the preferences of most e-databases accessed by academics and postgraduate students. However, there was a significant difference in the preference of accessing Science Direct as revealed by Mann-Whitney test regarding usage of e-databases by academics and postgraduate students. This means that academics accessed Science Direct database more than postgraduate students. This study did not investigate significant association on the preference of e-databases according to disciplines.

5.4 PURPOSES OF USING E-RESOURCES

This section interprets and discusses the findings on the purpose of using e-resources, and the usefulness of e-resources. The findings of this study revealed that slightly above thirty percent of the academics used e-books for lecture or teaching. Contrary, less than twenty percent of postgraduate students indicated that they prefer to access e-books. However, further analysis revealed that above forty percent of the postgraduate students who preferred to access e-books used them (e-books) for research purpose. This implies that expanding e-books could contribute to usage of e-resources. Posigha (2011) alludes that usage of e-books would expand in the future. Previous studies revealed that most of the academics and postgraduate students used e-resources for academic purpose (Navalur *et al.,* 2012; Mittal & Bala 2013; Dass & Jayarama 2014; Edem & Egbe, 2016). In addition, Mittal and Bala (2013) revealed that majority of the respondents from colleges and universities in India used e-resources mainly for research work. Majority of research scholar at Institute of Technology, Banaras Hindu University mainly used e-journals for research purposes (Shukla & Mishra, 2011). Furthermore, Edem and Egbe (2016) revealed that above thirty percent of postgraduate students used e-resources for research purposes at the University of Calabar.

From the findings of this study, the use of e-resources could have played a role in the increase of research output that the university experienced. Both academics and postgraduate students were satisfied with the usefulness of the e-resources. In the recent past, the university has experienced an increase in the number of students graduating

with masters and doctoral degrees. The Deputy Vice Chancellor Academic of UNIVEN stated that ten years ago the university used to produce two or three doctoral students but in the year 2016 alone, the university produced 29 doctoral graduates, a new record for the university (Department of Communication and Marketing, UNIVEN, 2017). The increase in number of researchers at the university could be caused by usefulness of the available e-resources. The Deputy Vice Chancellor Academic further stated that UNIVEN has been exponential doing well in the growth of research output (UNIVEN, 2017). Majority of academics and postgraduate students indicated that e-resources were useful in their academic work. Academics and postgraduate students achieved their purpose of searching information because of the usefulness of the available e-resources. Mitta and Bala (2013); Amjad *et al.,* (2013); and Kumar (2016) stated that academics and students used e-resources because e-resources were helpful in their research tasks. This concurs with theoretical framework used in this study, TAM which indicated that usefulness of e-resources has positive impact towards actual use of e-resources by users.

5.5 PERCEPTIONS TOWARDS USE OF E-RESOURCES

This section interprets and discusses the findings on the perceptions towards the use of e-resources based on the ease of use; satisfaction with the available e-resources and; academics referring students to the e-resources. TAM showed that perceptions of users towards e-resources can determine the behaviour of users to use e-resources. Therefore, it is important to understand the perceptions of academics and postgraduate students towards use of e-resources.

5.5.1 Ease of use

The findings showed that majority of academics and postgraduate students agreed that it was easy to access the available e-resources, however, for few of academics and postgraduate students it was not easy. The findings show that there was a need to improve the accessibility of the available e-resources. Training and awareness to the university community could be used to improve the accessibility of the available resources (Gohain, Saikia & Hazarika, 2014; Padmavathi, Ningaiah & Kavita, 2017). Furthermore,

Navalur *et al.,* (2012) stated that academics and postgraduate students used e-resources because e-resources were easier to access information. In addition, studies showed that postgraduate students used e-resources because of e-resources availability; easier searching capability; linkage to additional information; and multiple users for single sources (Amjad *et al.,* 2013; Kumar, 2016). Easy access to the available e-resources would improve the intention to use the available e-resources among both academics and students. TAM used in this study revealed that ease of use of e-resources inspired academics and postgraduate students to use the available e-resources.

5.5.2 Satisfaction with the available e-resources

The findings revealed that both academics and postgraduate were not fully satisfied with the available e-resources. This could be caused by lack of participation of academics and postgraduate students in subscription process of e-resources. Lack of current awareness of the available e-resources could be another factor for dissatisfaction with the available e-resources by academics and postgraduate students. Similar, findings were reported at Banaras Hindu University were majority of academics and postgraduate students were moderately satisfied with the available e-resources (Sonkar, Singh & Kumar, 2014). The findings of this study also showed that both academics and postgraduate students achieved their purpose of searching information from the available e-resources.

Furthermore, the findings of this study revealed that academics were more satisfied with the available e-resources than postgraduate students. This could be caused by exposure of the available e-resources to the academics before subscription. The library director stated that trial versions of the databases were normally provided to academics to assess the relevance of the resources to UNIVEN needs before subscription. However, the study also noted that there were no statistically significant differences between academics and postgraduate students on the level of usefulness of e-resources when tested using a Mann-Whitney test. The available e-resources were useful to both academics and postgraduate students. This shows that perceptions of both academics and postgraduate students on the usefulness of the available e-resources were the same.

5.5.3 Academics' referring students to the e-resources

The findings revealed that academics were encouraging postgraduate students to use e-resources. Encouraging the postgraduate students to use e-resources shows positive perceptions towards e-resources by academics. This could mean that an improvement on the usage of e-resources could have been caused by encouragement from academics. Academics should refer students to use the available e-resources so that they become familiar with e-resources and use them. Zabed-Ahmed (2013b:8) reported that academics can "play a crucial role in encouraging and promoting the use of e-resources by students by indicating availability of e-resources in the course packs." In addition, Gakibayo, Ikoja-Odongo and Okello-Obura (2013: 18) alluded that "students need to be encouraged by their lecturers to use e-resources for references to enable students to use and locate these resources." Shaqour and Daher (2010) found that academics had great influence for students to use e-resources. Therefore, academics should also collaborate with librarians in promoting usage of e-resources.

Referring students to access and use e-resources may increase the number of students in acquiring the necessary information retrieval skills. Leeder and Shah (2016) alluded that students with necessary information retrieval skills search effectively and complete their task better than most of those who do not have information retrieval skills.

Studies done elsewhere discovered that academics refer students to e-resources (Dugdale, 1999; Williams, 2004; & Mbasera, 2012). Majority of academics assigned students to use e-resources for academic activities (Williams, 2004). Slightly more than 50% of academics from three universities in the Eastern Cape encouraged the use of e-resources in conducting research (Mbasera, 2012). This implies that generally, academics regard access and use of e-resources as useful for academic purposes.

5.5.4 Use of e-resources and quality of learning and research

This study revealed that academics believed that usage of e-resources improves students' performance and the quality of research. It also improves the skills for searching information. Furthermore, postgraduate students believed that usage of e-resources

improved quality of their academic works. Access to current and quality information, and the speed of the availability of e-resources improved quality of academic work (Akussah, Asante & Adu-Sarkodee, 2015). This shows that students could cite latest and more sources in their academic work, and be up to date with the development in their academic fields. Studies showed that the use of e-resources improved students' performance (Amjad *et al.,* 2013; Ivwighreghweta & Oyeniran, 2013; Ani *et al.,* 2014). "Use of e-resources increased productivity of work, learning, teaching and research" (Ivwighreghweta & Oyeniran, 2013: 773).

5.5.5 Use of e-resources and academics dishonest and plagiarism

The findings of this study also revealed that other academics believe that the use of e-resources increases cases on cutting and pasting. Studies showed that the use of e-resources may promote cut and paste (Noreh, 2009; Jones, 2011; Singh & Remenyi, 2016) because it is easy to copy and paste using e-resources than when using print resources. Noreh (2009) stated that usage of e-resources promotes copy and paste. E-resources has significant role in cutting and pasting (Singh & Remenyi, 2016). However, the electronic environment makes it easy to detect cases of plagiarism. Plagiarism detection technologies are available for use to analyse document (Ison, 2014).

However, postgraduate students did not believe that usage of e-resources promote cut and paste. Students should not be discouraged to use e-resources due to cut and paste effect, instead UNIVEN should establish measures to curb plagiarism and ensure students know how to quote and cite other people work. UNIVEN uses an anti-plagiarism software, Turnitin, which could be accessed by both academics and students. Singh and Remenyi (2016) stated that anti-plagiarism software could be used by institutions to fight against plagiarism.

5.6 CHALLENGES IN THE USE OF E-RESOURCES

This section discusses the findings on challenges experienced by respondents in accessing e-resources. Studies show that academics and students face various challenges when accessing e-resources such as insufficient e-databases, difficulty in finding relevant information and lack of information retrieval skills, poor internet connectivity, cost of access to internet, lack of relevant e-resources (Thanuskodi, 2011; Mitta & Bala, 2013; Toteng, Hoskins & Bell, 2013; Oyedapo & Ojo, 2013; Ajay, Shorunke & Aboyade, 2014). In addition, Dass and Jayaraman (2014) included information explosion as one of the challenges faced by academics and research scholars.

This study revealed that challenges in accessing e-resources by academics and postgraduate students at UNIVEN include password requirements, off-campus access to e-resources, inadequate information retrieval skills and training, and inadequate knowledge of inter-library loan and other services provided by the library.

5.6.1 Password requirements

Academics and postgraduate students indicated that they were inconvenienced as they had to use different password to access e-resources. Some of the academics and postgraduate students indicated that they were often required to log-in into each e-database separately. In addition, academics and postgraduate students indicated that they were often required passwords to access e-resources. Users should understand that password facilitates usage analysis and minimises unauthorized access to e-resources. This study discovered that users were not required passwords to access e-databases while on campus. While on campus, users can access their preferred e-databases without password requirements. Users were required to use password while on campus for managing their personal e-databases accounts, not for accessing e-databases. It should be known that users can create their personal account to manage information searched from e-databases. This should not be confused with password requirements for accessing e-databases. Data collected from the library director revealed that some of the academics

and students confuse passwords required for managing their e-databases accounts with passwords required for accessing e-databases.

Chilimo (2014) pointed that a single point of entry catalogue provides a single search option that searches all the available information and materials including full text of e-resources to which an institution subscribes. With the use of a single search option, users will not have to log-in in each database separately to access e-resources. In addition, Marshal (2007) indicated that a single point of entry catalogue has search features that search printed and e-resources to which the library subscribe to. Introduction of a single point of entry catalogue will surely allow UNIVEN users to simultaneously search information in all subscribed e-databases.

5.6.2 Off-campus access to e-resources

Another major challenge among academics and postgraduate students was access confined to campus only because the library did not have mechanism to provide off campus access. This study discovered that some of the academics and postgraduate students experienced access of the resources restricted to campus only. Habiba and Chowdhury (2012) also discovered that users at Dhaka University Library failed to access e-resources from home.

This shows that both academics and postgraduate students face the same challenges in accessing e-databases while off-campus. Punchihewa, Kumar and Kiriella (2013) noted that majority of postgraduate students spent most of their time off-campus which causes low usage of e-resources. This implies that most of the students need remote access to e-resources. Remote access to e-resources allows off-campus access to the available library resources including e-databases which the university subscribed to. To provide remote access, universities use Light Directory Access Protocol (LDAP) which allows authentic users to regularly access e-resources while off-campus. With the use of LDAP, academics and students can log-in their users' credentials to have access to the available

e-resources (Punchihewa *et al.,* 2013). UNISA is one of the universities which use LDAP to allow its users to have access e-resources while off-campus.

However, the challenges faced by academics and postgraduate at UNIVEN were not different from challenges faced by academics and postgraduate students from other universities in developing countries. Thanuskodi (2011); Mitta and Bala (2013); and Toteng, Hoskins and Bell (2013), reported that password requirements were one of the challenges faced by students in accessing e-resources. Mitta and Bala (2013) further stated incurred costs of using e-resources outside the campus as one of the challenges faced by students. Cost of using e-resources outside the campus could be referred to as one of the external factors from theoretical framework of this study. It is indicated in TAM that external factors could influence the use of e-resources by users.

5.6.3 Inadequate information retrieval skills and training

This study also noted that academics and postgraduate students need information retrieval skills and training. In addition, this study noted that some of the academics and postgraduates used trial and error as a training method on the use of e-resources. This shows that those who used trial and error methods might still have lack of information search skills, and library should improve strategies of offering training on the use of e-resources. Furthermore, this study revealed that both academics and postgraduate students were retrieving too much information when searching information using e-resources. This implies that both academics and postgraduate students lack information retrieval skills and training. Studies show lack of training in the use of e-resources as challenges faced by users (Amughoro, Makgahlela & Bopape, 2014; Ajayi, Shorunke & Aboyade, 2014; Dulle, 2015). Furthermore, Amjad *et al.,* (2013); Oyedapo and Ojo (2013); and Mtega, Dulle, Malekani and Chailla (2014) reiterate lack of information retrieval skills as a challenge.

This study noted that less than 50% of the academics receive training on the use of e-resources through group trainings organised by the library. In addition, it was noted that above 50% of postgraduate students have not received training provided by the library

on the use of e-resources. It was also noted that the library provided training to individual academics and students. Some of the academics and postgraduate students indicated that they received individual training provided by the library. Furthermore, the findings of this study revealed the following training programmes provided by the library: orientation for first entering students; an integrated comprehensive information literacy course for foundation students; product specific training for students and academics; research workshops for academics; training on databases for undergraduates and postgraduates; presentations at research related events.

The findings of this study showed that training programmes reported by the director of the library on the usage of e-resources were not efficiently implemented, or the university community was not fully aware of the available training programmes. This was indicated by most of the postgraduate students, above 50% who were not trained by the library. In addition, some of the academics indicated lack of effective training and follow up sessions on the use of e-resources as one of the challenges. Wozar and Worona (2003: 216) stated that users "will use e-resources if they are introduced to them and trained on how to access them." Furthermore, Gowda and Shivalingaiah (2009) indicated that it is important to provide users with effective training on how to use e-resources.

This study discovered that 40% of academics and 45% postgraduate students learned how to use e-resources by trial and error. Ahmad and Panda (2013) also discovered that academics in Indian institutes in Dubai had learned how to use e-resources by trial and error. Peiris and Peiris (2012) also discovered that 26.4% of postgraduate students at the University of Peradeniya also learned to use e-resources by trial and error. This could be avoided if the library implemented comprehensive training on the use of e-resources. In addition, it was noted that few academics arranged training on the use of e-resources for postgraduate students. Only few of the postgraduate students indicated that they received training on the use of e-resources through training arranged by academics.

This study noted that the library also offered integrated comprehensive information literacy course. However, only 1% of the postgraduate student indicated receiving use of

e-resources through course work. Buchholz (2011: 155) and Hikmany (2014) stated that "information literacy course includes bibliographic instruction, instruction in on-line searching and education in media and computer literacy, and training courses which help library users to use the library more effectively." Furthermore, this study revealed that some of the universities were providing training on the use of e-resources. Some of the postgraduate students indicated receiving training from previous university.

The findings of this study revealed that above 20% of the academics and slightly more than 30% postgraduate students indicated that they preferred to get information about e-resources through the librarians' assistance. In addition, some of the academics and postgraduate indicated that they sometimes got too much information. This might be caused by lack of skills on how to access and search information from e-resources. This may imply that academics and postgraduate students who prefer to get information through librarians were not willing or had not yet developed information searching skills to be able to search on their own. Though the academics and postgraduate students have always regarded librarians as mediators in information search, the information specialists (Tan & Maggio, 2013; Pham & Tanner, 2015). It is important that librarians ensure that library users have adequate information searching skills to be able to search for information materials on their own. Makgahlela and Bopape (2014) show that many postgraduate students do not know how to search and obtain articles from e-databases.

5.6.4 Insufficient relevant e-resources

This study observed that some of the academics and postgraduate students often experienced insufficient relevant e-resources. Habiba and Chowdhury (2012) observed that limited number of e-resources was a problem of using e-resources among users at Dhaka University library. In addition, Thanuskodi (2012) and Daramolo (2016) revealed that insufficient relevant e-resources was a challenge for users to access and use e-resources. Full utilisation of e-resources could be reached by providing access to all the needed information resources (Kantharaj, Deepak-Kumar & Prasanna-Kumari, 2012). Asking for more relevant e-resources might be caused by users not knowing which e-

resources to access for the relevant information. Gakibayo *et al.,* (2013) pointed that sometimes users do not know appropriate information sources for their needs.

5.6.5 Too many e-resources

This study noted that few of the academics and postgraduate students often experienced too many e-resources available at the university. Dolo-Ndlwana (2013) and Mtega, Dulle, Malekani and Chailla (2014) also noted that it was difficult for users to find relevant information because of too many e-resources. Users with information searching skills will be able to search relevant information within too much e-resources. The library should train academics and postgraduate students on how to avoid information explosion. This can be achieved by providing information literacy skills training to different study levels.

5.6.6 High cost of access

The findings of this study also discovered that few of the academics and postgraduate students indicated that the cost of accessing e-resources was high. This shows that postgraduate students experienced high cost of internet access while off-campus. Ani, Ani, Ugwu, Nwachukwu and Obianuko (2016) also discovered that high cost of accessing e-resource was one of the barriers in usage of e-resources, and indicated that postgraduate students strongly agreed that cost of accessing e-resources should be subsidised by the universities. Furthermore, Buchholz (2011) indicated that the cost of e-resources was one of the major challenges in usage of e-resources in Southern Africa universities. However, the cost of internet access in SA is determined by the Independent Communications Authority of SA (ICASA) (Theron & Boshoff, 2016). UNIVEN could not determine the cost of accessing e-resources for academics and postgraduate students while they are off-campus. Currently, UNIVEN does not provide free or subsidised internet access to academics and students while off-campus.

5.6.7 Unreliable power supply

This study also discovered that power supply at UNIVEN was sometimes interrupted. Some of the academics and postgraduate students stated that sometimes power supply was not reliable. In addition, few of the academics and postgraduate students often experience unreliable power supply. This finding is in congruence with that of Oyedapo & Ojo (2013); Ajayi, Shorunke & Aboyade (2014) and Nkoyo & Nsanta (2016) who reported that unreliable power supply was one of the major challenges faced in usage of e-resources. This implies that smooth and reliable access to e-resources and other means of uninterrupted power supply to the university could increase usage of e-resources by academics and postgraduate students. Provision of other means of uninterrupted power supply will assist the university not to only rely on power supplied by the external institutions. Power supplied by external institutions can be regarded as external factors that contributed to perceived useful and perceived ease of use of e-resources as indicated by theoretical framework of this study.

5.6.8 Library not subscribing to e-databases required

Although the library subscribed to almost 15 e-databases, some of the academics and postgraduate students indicated that e-databases they required were not subscribed to by the library. Nazir (2015) and Amusa and Atinmo (2016) also reported that non-availability of e-resources required by academics was one of the major challenges in usage of e-resources. However, it is too expensive for the library to subscribe to all e-databases required by users. The director of the library reported that the library was satisfied with the available e-resources. Furthermore, the director of the library reported that "no library can have all the information resources required by all of its users, and the library will therefore continue to take part in document delivery services to supplement holdings." This shows that both academics and students should not have complained about lack of e-databases because the library had alternative methods of providing them with information through document delivery services.

5.6.9 No network connectivity off-campus

This study noted that 33% of academics and 58% postgraduate students at UNIVEN often experienced no network connectivity off-campus. This shows that students were more affected by no network connectivity off-campus than academics. This might be due to students who reside in deep rural area away from the university. In SA, Telkom, Vodacom, Cell C and MTN are the main network providers (Theron & Boshoff, 2016). Therefore, UNIVEN has no control on the availability of off-campus network connectivity.

5.6.10 Poor internet connectivity

This study discovered that, UNIVEN community sometimes received poor internet connectivity. The findings of this study showed that 23% of academics and 17% indicated that they often experienced poor internet connectivity. This finding noted that academics had experienced less poor internet connectivity than postgraduate students. However, this study noted that the bandwidth at UNIVEN was 10 gigabits per second which is rated high in internet connectivity speed. Dolo-Ndlwana (2013) also discovered that 28.3% of academics and postgraduate students at CPUT experienced poor internet connectivity. This shows that other universities in urban areas also experienced poor internet connectivity. Habiba and Chowdhury (2012); Ajayi, Shorunke and Aboyade (2014); and Daramola (2016) observed that poor internet connectivity was one of the challenges hindering effective use of e-resources.

5.6.11 Failure to access full text

This study revealed that some of the academics and postgraduate students often failed to access full text while accessing e-resources. The findings of this study concur with Mtega *et al.,* (2014: 59) findings that reported that users were failing to "access full texts when downloading e-resources." This study discovered that although users at UNIVEN had access to Wiley e-journal which covers multi-disciplinary, they only had access to abstracts as shown by table 5.1 below.

Table 5.1: The UNIVEN's Wiley Journals e-database access

Wiley Journals	Multi-disciplinary (abstracts)	http://www.wileyonlinelibrary.com

Source: UNIVEN library databases page

Table 5.1 shows that academics and students at UNIVEN were failing to access full text articles from Wiley-e-journal. This information is coming from UNIVEN library databases page. In addition, below is another evidence that users at UNIVEN were restricted of access to full text in Wiley Journals as indicated by figure 5.1 below.

Figure 5.1: Search findings of Wiley Online Library

Source: Wiley Online Library

The information from figure 5.1 shows restriction by Wiley Online Journal to access full text article to UNIVEN librarians. The screen shot was obtained after one of UNIVEN's librarian attempted to access article from Wiley Online Journal through UNIVEN library databases page.

5.6.12 Inadequate knowledge of inter-library loan and other services provided by the library

From open ended questions, academics mentioned lack of provision of avenue to access unavailable journals from other university libraries as one of the challenges. In addition, from open questions, this study noted that some of the academics were not aware of the inter-library loan services provided by the library. However, the director of the library reported that the library will continue to take part in document delivery services to supplement library information resources. UNIVEN library has inter-library loan services available for academics and postgraduate students for free. Academics and postgraduate students were allowed to request information resources such as books, chapters of books, journal articles, and theses and dissertations which are not available at UNIVEN (UNIVEN, 2017). This study did not investigate how the information regarding inter-library loan services was disseminated.

Postgraduate students mentioned restriction from viewing You-tube using library computers as another challenge they faced. You-tube is accessed through internet and students can use You-tube for academic gain, for example law students can learn more on cross examination by prosecutors through You-tube.

5.7 SUGGESTIONS FOR IMPROVING USAGE OF E-RESOURCES

Both academics and postgraduate students "agreed" and "strongly agreed" that the following suggestions improve usage of e-resources:

Increase internet bandwidth; provision of more computers; subscription to more e-databases; awareness of e-resources; provision of training on the use of e-resources;

provision of each faculty with its own computer laboratory; provision of free laptops to all academics and postgraduate students; provision of interface with search option that links to different e-resources; provision of OPAC with advanced searching techniques; integration of single point of search for both print and e-resources; awareness of newly acquired e-resources; awareness of training programmes on the usage of e-resources. The suggested ways to improve the usage of e-resources concur with the studies of Zabed-Ahmed (2013b); Hikmany (2014); Rukwaro and Otike (2014); Nazir (2015); and Daramola (2016). Suggestions given by the respondents are discussed in detail in the subsequent subsections.

5.7.1 Increase internet bandwidth

The findings of this study revealed that majority of the academics and most of the postgraduate students strongly agreed that the university should improve internet bandwidth to increase usage of e-resources. The findings of this findings concur with the study of Hikmany (2014) that revealed that respondents agreed that upgrading internet speed could improve access and usage of e-resources. It is believed that low bandwidth makes it difficult to access internet. However, this study discovered that bandwidth at UNIVEN was 10 gigabits per second which is considered to be high in internet connectivity speed. This shows that UNIVEN still has to upgrade its bandwidth to another higher level.

5.7.2 Provision of more computers

This study noted that most of the academics and majority of postgraduate students strongly agreed that the library should provide more computers to increase usage of e-resources. Remarkably, this study also indicated that academics and postgraduate students were provided with laptops and tablets by the university. The findings of this study concur with Kantharaj *et al.,* (2013) that reported that libraries should be an infrastructure with more computers to be accessed by users. Ngulube (2010) and Nkoyo and Nsanta (2016) suggested that provision of more computers to students could improve usage of e-resources. In addition, Shaqour and Daher (2010) reported that provision of facilities is another factor that influenced students to use e-resources. Juma, Wamukoya

and Wekullo (2014) alluded that African universities should provide appropriate ICT to improve dissemination of knowledge. This shows that provision of more computers and other ICT facilities would increase usage of e-resources as well as enhancing disseminating knowledge among academics and students.

5.7.3 Subscription to more e-databases

This study noted that majority the academics and postgraduate students strongly agreed that the library should subscribe to more e-resources. Daramola (2016) also noted that students agreed that provision of more e-resources could be helpful in improving usage of e-resources. Hart and Kleinveldt (2011) reported that the library' s role is to provide collection and resources that support users' needs and users should be provided with more resources. Hart and Kleinveldt (2011) further revealed that academics and researchers at Cape Peninsula University of Technology asked for more information resources. This shows that users should not be limited to access e-resources. It is also implying that the library should subscribe to as many as e-resources as possible.

5.7.4 Awareness of e-resources

The findings of this study also revealed that majority of academics and postgraduate students strongly agreed that the library should increase awareness of e-resources to improve usage of e-resources. Nazir (2015) reported that research scholars and students believed that awareness of e-resources could have improve their usage of e-resources. The findings of this study corroborate and complements the findings of Mulholland and Bates (2014) and Dulle (2015) that reported that awareness is one of the key fundamentals for effective access and use of e-resources. In addition, Rukwaro and Otike (2014) alluded that marketing strategies on the benefits of e-resources should be used to market the use of e-resources.

5.7.5 Provision of training on the use of e-resources

This study showed that majority of academics and postgraduate students strongly agreed that the library should improve training on the use of e-resources. Zabed-Ahmed (2013b)

also alluded that universities should invest time, librarians and resources to ensure that training and practise on the use of e-resources are provided on a regular basis. This implies that universities should train the trainers. It is important to equip librarians with necessary training skills, training resources such as ICT facilities, and enough time for training academics and students on the use of e-resources. Zhang, Ye, Liu and Rao (2011) alluded that it is very important for the libraries to strive to improve training on retrieval of information in order to meet users' requests. In addition, Rukwaro & Otike (2014: 138) reported that "the need for provision of users' education on e-resources was necessary" to both academics and students. Furthermore, Mulholland and Bates (2014: 492) alluded that "better targeted instruction and training at academics" could enhance usage of e-resources. UNIVEN library can also target academics and postgraduate students for e-resources training during faculty workshops, faculty board meetings, inductions, research open days, and campus committees.

5.7.6 Provision of each faculty with its own computer laboratory

From the findings of this study, majority of academics and postgraduate students strongly agreed that the university should provide each faculty with its own computer laboratory to improve the usage of e-resources. This finding concurs with Zabed-Ahmed (2013b) who stated that the use of e-resources can be improved by provision of improvement of infrastructure in terms of providing more computers, printers and improving internet connectivity in universities libraries, computer laboratories, and student halls. This shows that having computers and internet connectivity available for academics and students in different locations within the university could increase access and usage of e-resources. Faculty computer laboratories should be equipped with the necessary ICT infrastructure which could be used to access e-resources.

5.7.7 Provision of free laptops

This study showed that most of the academics and postgraduate students strongly agreed that academics and postgraduate students should be provided with laptops. Ani, Ani, Ugwu, Nwachukwu and Obianuko (2016) also noted that postgraduate students in Nigeria universities suggested that provision of laptops to postgraduate students could have

improved usage of e-resources. However, Ani *et al.,* (2016) further indicated that suggested laptops were supposed to be subsidized. Doctoral students at UNIVEN were provided with free laptops. This implies that postgraduate students were suggesting free laptops to all postgraduate students, from postgraduate diploma up to doctoral level. Provision of free laptops to all postgraduate students could be too much expensive

5.7.8 OPAC with advanced searching techniques and Integration of single point of search

This study revealed that majority of academics and postgraduate students strongly agreed that an OPAC with advanced searching techniques could improve usage of e-resources. This shows that academics and postgraduate students believed that the next-generation catalogue will improve usage of e-resources. Chilimo (2014: 87) detailed description of next-generation catalogues as an online catalogue with "a single point of entry, state-of-the art web interface, enriched content, faceted navigation, simple keyword search, 'did you mean…?', related materials, relevancy, and user contribution." At UNIVEN, users can search library catalogue by title, author, subject, call number, ISBN/ISSN, and journal title search options. UNIVEN library catalogue also has some advanced search options such as search by keyword, course and lecturer as indicated by figure 5.2 on the next page. However, the library catalogue still needs to be upgraded or acquired with more discovery tools to meet the requirements of next-generation catalogue.
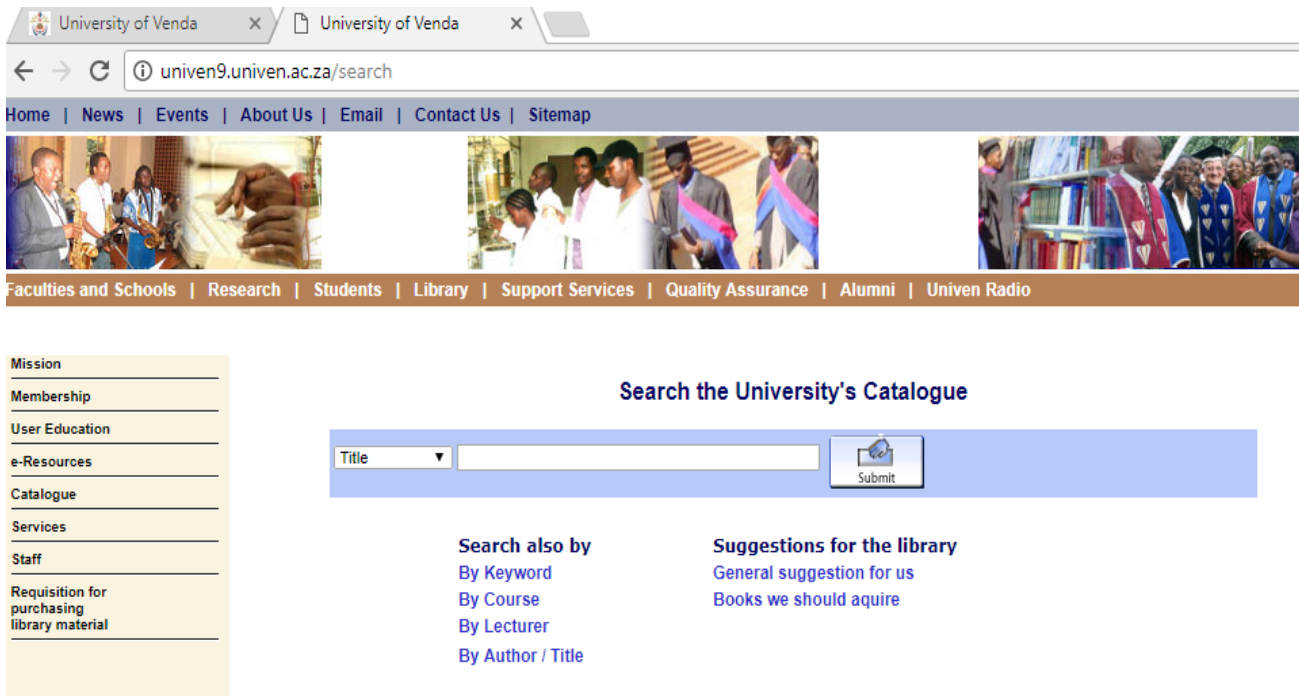
Figure 5.2: UNIVEN Library Online Public Catalogue

Source: UNIVEN library catalogue page

Figure 5.2 shows UNIVEN library catalogue and it was obtained from UNIVEN library catalogue page.

In addition, this study revealed that half of the academics and postgraduate students strongly agreed that integration of single point of search for both print and e-resources could improve usage of e-resources.   This further shows that academics and postgraduate students need a catalogue which can allow them to concurrently search multiple searchable resources such as printed books, full-text journal articles, e-books, and e-theses.   Furthermore, this study revealed that most of the academics and half of postgraduate students believed that provision of library website with interface with search option that links to different e-resources could increase usage of e-resources.

5.7.9 Awareness of newly acquired e-resources

The findings of this study also showed that majority of academics and postgraduate students strongly agreed that the library should increase awareness of newly acquired e-resources to improve usage of e-resources. Nkoyo and Nsanta (2016) maintain that awareness of the available e-resources could improve usage of e-resources. In addition, Aina (2014) noted that inadequate awareness of the available e-resources among academics contributed to underutilization of e-resources. This simply implies that awareness of the newly acquired e-resources will improve usage of e-resources to the entire university community. This shows that libraries should make it a priority to use different channels of communication such as e-mails, posters and social networks such as Facebook and Twitter for the awareness of the newly acquired e-resources. Dulle (2015) alluded that social media tools should be used to increase the awareness of the available library resources in promotion of e-resources usage.

5.7.10 Awareness of training programmes

This study also noted that majority of academics and postgraduate students strongly agreed that the library should increase awareness of training programmes on usage of e-resources to improve usage of e-resources. This concurs with the findings of (Amusa & Atinmo, 2016) that reported that regular awareness of training programmes will increase attendance to the programmes and eventually increase usage of e-resources. Padmavathi *et al.,* (2017: 120) also reported that libraries were lacking awareness of training programmes on the use of e-resources. This implies that academics and postgraduate students at UNIVEN were not aware of the awareness programmes and training on the use of e-resources.

5.7.11 Introduction of e-resources at first year level and other suggestions

From open ended questions, this study also noted that academics and postgraduate students believed that the introduction of e-resources to students as early as first year level can improve usage of e-resources at the university. Mtega, Dulle, Malekani and

Chailla (2014) stated that information literacy modules could improve effective access and use of e-resources. This implies that compulsory information literacy modules to all first-year level students could play a role in increasing usage of e-resources. The director of the library reported that the library offers an integrated comprehensive information literacy course at a foundation level. This shows that the library has a starting point to be used as a platform to introduce information literacy course as a compulsory module to all first-year students. In addition, academics and postgraduate students suggested the following as ways to improve usage of e-resources at the university: provision of more accessibility of e-resources; provision of a librarian in each school who help with e-resources, Wi-Fi access in all cubicles; integration of training programmes in course modules; and conducive environment for training with more resources.

5.8 SUMMARY

This chapter interpreted and discussed access and use of e-resources; purposes of using e-resources; perceptions towards the use of e-resources; challenges in use of e-resources; and suggestions for improving usage of e-resources. The findings were organised based on the findings of each objectives.

Academics and postgraduate students at UNIVEN have access to desktops, laptops, tablets and high speed of internet connectivity for accessing e-resources. Academics and postgraduate students mostly use e-resources for research purposes. Furthermore, this study shows that academics and postgraduate students have positive perceptions towards the use of e-resources. However, like other universities, required password while off-campus is one of major challenges faced by both academics and students. The next chapter will cover summary, conclusions and recommendations of this study.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The purpose of this chapter is to concludes the findings on the use of e-resources by academics and postgraduate students at UNIVEN. This chapter summarises the major findings, provided conclusions and recommendations in relations to the findings of this study.

6.2 SUMMARY ON RESEARCH FINDINGS BASED ON RESEARCH OBJECTIVES

This section presents a summary of the research findings based on the objectives of the study.

6.2.1 Summary on the demographic of the respondent and use of e-resources

On the relationship between access to internet and other e-resources between academics and postgraduate students, the findings of this study show that:
academics had access to internet and other e-resources more than postgraduate students.

- There was no significant difference in the preference of e-databases between academics and postgraduate students.
- On the relationship between academics and postgraduate students on satisfaction with the available e-resources the findings show that academics were more satisfied with the available e-resources more than postgraduate students.
- There was no significant difference with off-campus network connectivity between academics and postgraduate students.
- There was no significant difference between age, gender and usage of e-resources among academics and postgraduate students.

6.2.2 Summary on access and use of e-resources by the academics and postgraduate students

- The majority (96%) of academics and postgraduate students (82%) had regular access to internet.
- The majority (65%) of academics accessed internet from their offices, and 42% of postgraduate students accessed internet from the university library.
- The speed of internet connectivity at the university was high.
- Laptop was the most used device by academics and postgraduate students to access internet.
- The majority (91%) of academics and postgraduate students (89%) accessed the library website.
- The majority (84%) of academics and postgraduate students (78%) accessed e-databases page.
- The majority (89%) of academics and postgraduate students (93%) often used internet search engines such as Google.
- E-journals were the most preferred accessed electronic resources by postgraduate students (77%).
- Science Direct database was the most accessed database by academics with average score of 2.13, and African Journal Online database was the most accessed database by postgraduate students with average score of 2.15.

6.2.3 Summary on purposes of using e-resources by academic and postgraduate students

- This study finds that both academics and postgraduate students used e-resources for the purposes of research projects, to find information in their profession, to prepare for teaching, and for literature review
- The majority (71%) of academics and (62%) of postgraduate students agreed that they achieved their purpose of using e-resources.

- The majority (71%) of academics and (62%) postgraduate students indicated that the available e-resources were useful for their academic work.

6.2.4 Summary on Perceptions of academics and postgraduate students towards use of e-resources

This study finds that both academics and postgraduate students had positive and negative attitudes towards the use of e-resources.

6.2.4.1 Positive perceptions towards use of e-resources

- The majority (65%) of academics and postgraduate students (65%) indicated that the available e-resources were easy to use.
- The most (53%) of academics and less than 50% postgraduate students were moderately satisfied with the e-resources at UNIVEN.
- The majority (96%) of academics encouraged postgraduate students to use e-resources for academic tasks.
- Majority of 64% of academics and (54%) postgraduate students indicated that the use of e-resources improves students' performance and the quality of research.

6.2.4.2 Negative perceptions towards use of e-resources

- The most recommended e-database by academics was not the most accessed database by postgraduate students.
- Academics believed that the use of e-resources promotes cut and paste.

6.2.5 Summary on challenges faced by academics and postgraduate students in using e-resources

The major challenges often faced by academics and postgraduate students at UNIVEN in using e-resources discovered by this study were:

- Both academics and postgraduate students were often faced with access restricted to campus only as a major challenge.
- Both academics and postgraduate students were always required to use password to log-in to access e-resources.
- More than half of postgraduate students experienced no network connectivity off campus.
- Other challenges experienced by postgraduate students in accessing e-resources include: restrictions from viewing you tube, failure to access full text, high cost of accessing e-resources, and library not subscribed to the e-databases.

6.3 CONCLUSIONS DRAWN FROM THE STUDY

The conclusions presented in this section are drawn from the data gathered, and are guided by the research objectives of this study.

6.3.1 Conclusion on respondents' demographic information and use of e-resources

This study concluded there was no statistically significant relationship between gender, age and usage of e-resources among academics and postgraduate students at UNIVEN. In addition, this study concluded that academics at UNIVEN had access to internet and other e-resources more than postgraduate. Furthermore, academics' satisfaction level on the available e-resources was higher than postgraduate students' satisfaction level.

6.3.2 Conclusion on access and use of e-resources by academics and postgraduate students

This study concluded that UNIVEN had access to the prerequisite infrastructure and technology for accessing e-resources.

In addition, this study concluded that although academics and postgraduate students at UNIVEN were provided with laptops, academics offices' computers (desktops) and university library computers were mostly used to access the internet and other e-resources by academics and postgraduate students.

6.3.3 Conclusion on purpose of using e-resources

This study concluded that academics and postgraduate students at UNIVEN used e-resources for the research purposes. This led to increase of research output. This study also concluded that e-resources were useful in the preparation of learning and teaching.

6.3.4 Conclusion on perceptions of academics and postgraduate students towards use of e-resources

This study concluded that academics at had positive perception towards the use of e-resources. They encouraged postgraduate students to use e-resources. However, some of the academics believed that the use of e-resources promotes cut and paste.

6.3.5 Conclusion on challenges faced by academics and postgraduate students in using e-resources

This study concluded that awareness programmes on the training and use of e-resources were not effectively implemented by the library. Most of the academics and postgraduate students were not aware that while they were on campus, e-databases required password

for managing users' accounts, not for login for accessing e-databases. However, this study concluded that password required to access e-resources while off campus was a major challenge to both academics and postgraduate students.

6.4. RECOMMENDATIONS

Recommendations were made in line with the research questions of this study, findings from reviewed literature, and from the findings of this study. The recommendations of this study are based on the objective of the study.

6.4.1 Recommendations on respondents' characteristics and use of e-resources

- UNIVEN should ensure that postgraduate students are provided with more opportunity to access internet and other e-resources in order to improve usage of e-resources.

6.4.2 Recommendations on access and use of the available e-resources

- This study recommended that the library needs to acquire more computers to access e-resources by postgraduate students; improve awareness of e-resources usage; provision of training on the use of e-resources; and provision of each faculty with its own computer laboratory.

6.4.3 Recommendations on the purposes of using e-resources by academics and postgraduate students

- This study recommended that the university should encourage academics and postgraduate students to fully utilise e-resources by providing efficient and effective trainings on the use of e-resources for the university to increase the research output.

6.4.4 Recommendations on the perceptions of academics and postgraduate students towards use of e-resources

- The university library should change academics' perceptions on cut and paste by ensuring that all academics and students are introduced to software and trainings about plagiarism such as Turnitin.
- In addition, academics and librarians should collaborate in training students on how to write academically in order to avoid cut and paste.
- The library should improve its service on the provision of e-resources so that the academics and postgraduate students are extremely satisfied with the availability and usefulness of the available e-resources.
- Consultation with academics and postgraduate students before purchasing and subscription to e-resources could play a role in improving the perceptions of academics and postgraduate students towards the use of e-resources such as e-databases and e-books.

6.4.5 Recommendation on the challenges faced by academics and students in using e-resources

- The university library should ensure that librarians who are responsible for training on the use of e-resources are fully equipped with training skills that will equip the academics and students with skills to access and use e-resources on their own. Therefore, the recommendation of this study to the university library is to benchmark with other universities so that ways of providing efficient and effective trainings on the use of e-resources could be implemented.
- The university should ensure that training on the use of e-resources is compulsory to all first-year students and all postgraduate students.
- This study also recommended that the university library should involve e-databases vendors to sort out the challenge of password required to log-in.

- This study further recommends that the university should increase and improve on the methods used for awareness of e-resources, and provide more trainings on the use of e-resources as ways to overcome the challenges faced by the university community on the usage of e-resources

- In addition, this study recommended that the university should increase internet bandwidth. The university library should provide OPAC with interface search options that provide links to different e-resources, and with integration of a single point of search for both print and e-resources.

6. 5 RECOMMENDATIONS FOR FURTHER STUDIES

This study suggested the following recommendations for further studies:

- This study recommends investigation on the access and use of UNIVEN library computers by masters and doctoral students. This will assist the university in provision of research commons for masters and doctoral students as well as for academics.

- This study recommends further investigation on the access and use of e-books by the UNIVEN community before the library expands its e-books collection.

- Further investigation is required to establish causes of off campus poor internet speed connectivity experienced by the students.

- Furthermore, this study recommends investigation to establish whether the use and access to e-resources played a role in increased numbers of masters and doctoral graduates at UNIVEN.

- Further research is required to establish how and for what purpose the tablets are provided by the university used for.

LIST OF REFERENCE

Abdulla, AD. 2005. The development of electronic journals in the United Arab Emirates University (UAEU). *Collection building* 24(2): 48 -55. http://dx.doi.org/10.1108/01604950510592652 (Accessed 21 March 2016).

Adeyinka, SH. 2011. Emergence of electronic library resources: A threat to librarians? *International Journal of Library and Information Science* 3(2): 29 – 33. http://www.academicjournals.org/ijlis (Accessed 19 August 2017).

African Institutions Initiative (AII) eligibility to INASP'S resources. [n.d]. http://www.africaninstitutionsinitiative.com/sites/default/files/images/FINAL%20Institutions%20list%20(annotated%20with%20INASP%20access%20to%20journals).pdf (Accessed 21 July 2016).

Ahmad, M & Panda, KC. 2013. Awareness and use of electronic information resources by the faculty members of Indian institutes in Dubai international academic city (diac): A survey. *International Research Journal of Computer Science and Information Systems (IRJCSIS)* 2(1): 8 – 17. http://www.interesjournals.org/IRJCSIS (Accessed 13 August 2017).

Ahmed, HM. 2015. Gender differences in students' utilization of electronic information resources in Ramat libray, University of Maiduguri, Nigeria. *Journal of Information and Knowledge Management* 6(1): 61 – 71. https://www.ajol.info/index.php/iijikm/article/view/144595/134232 (Accessed 13 October 2017).

Ahmed, S & Amjad, A. 2014. Evaluation of researchers' satisfaction with electronic resources in two universities of Pakistan. *Library Hi Tech News* 31(7): 20 – 25. www.emeraldinsight.com (Accessed 30 April 2015).

Aina, RF. 2014. Awareness, accessibility and use of electronic databases among academic staff of Babcock University Business School. *Kuwait chapter of Arabian journal of Business and Management Review* 3(6): 40 - 47 http://www.arabianjbmr.com/pdfs/KD_VOL__6/4.pdf (Accessed 15 February 2017).

Ajayi, S.A, Shorunke, O.A & Aboyade, M.A. 2014. The influence of electronic resources use on students' reading culture in Nigerian universities: a case study of Adeleke University Ede, Osun State. *Library Philosophy and Practice.* http://digitalcommons.unl.ed/libphilprac/1182 (Accessed 20 April 2015).

Akussah, M, Asante E & Adu-Sarkodee, R. 2015. Impact of electronic resources and usage in academic libraries in Ghana: evidence from Koforidua Polytechnic & All Nations University College, Ghana. *Journal of Education and Practice* 6 (33): 33 – 38. www.iiste.org (Accessed 02 August 2017).

Al-Ansari, H. 2006. Internet use by the faculty members of Kuwait University. *The Electronic Library* 24(6): 791-803. https://doi.org/10.1108/02640470610714224 (Accessed 11 March 2016).

Amjad, A, Ahmed, S & Naeem, SB. 2013. Use of electronic resources among research scholars in the Islamia University of Bahawalpur, Pakistan. *New review of academic librarianship* 19: 316 – 328. http://web.b.ebscohost.com (Accessed 11 March 2016).

Amusa, OI & Atinmo, M. 2016. Availability, level of use and constraints to use of electronic resources by law lecturers in public universities in Nigeria. *Journals of Library and Information Science* 7(3): 160 – 169. https://www.jlis.it/article/download/11955/1106 (Accessed 14 August 2017).

Ani, OE, Ngulube, P & Onyancha, B. 2014. Effect of accessibility and utilization of electronic information resources on productivity of academic staff in selected Nigerian universities. *Science Research* 2(6): 166 – 171. http://www.sciencepublishinggroup.com/j/sr (Accessed 20 April 2015).

Ani, OE, Ngulube, P & Onyancha, B. 2015. Perceived effect of accessibility and utilization of electronic information resources on productivity of academic staff in selected Nigerian universities. *SAGE Open*: 1 – 7. https://us.sagepub.com/en-us/nam/open-access-at-sage. (Accessed 18 February 2016).

Ani, VA, Ani, EO, Ugwu, CO, Nwachukwu, AI & Obianuko, JC. 2016. Strategies for enhancing the utilization of informarion and communication technology (ICT)-based library resources in research. *Library Philosophy and Practice (e-journal)*. http://digitalcommons.unl.edu/libphilprac/1310 (Accessed 14 August 2017).

Aparicio, MAM. ([n.d]). Access to the Electronic publishing in African Countries: some reflections. http://elpub.scix.net/data/works/att/0312.content.pdf (Accessed 20 July 2016).

Appleton, L. 2006. Perceptions of electronic library resources in future education. *The electronic library* 24(5): 619 – 634. http://dx.doi.org/10.1108/02640470610707231 (Accessed 21 March 2016).

Ashcroft, L & Watts, C. 2004. Change implications related to electronic educational resources. *Online information review* 28(4): 284 – 291. http://dx.doi.org/10.1108/14684520410553778 (Accessed 21 March 2016).

Assessment Capacities Project (ACAPS). 2012. *Qualitative and quantitative research techniques for humanitarian needs assessment: an introductory brief*. www.acaps.org/sites/acaps/files/resources/files/qualitative_and_quantitative_research_techniques_for_humanitarian_needs_assessment-an_introductory_brief_may_2012.pdf (Accessed 24 May 2016).

Asunka, S. 2013. The viability of e-textbooks in developing countries: Ghanaian university students' perceptions. *Open learning* 28(1): 36 - 50. http://dx.doi.org/10.1080/02680513.2013.796285 (Accessed 11 March 2016).

Atakan, C, Atilgan, D, Bayram, O, & Arslantekin, S. 2008. An evaluation of the second survey on electronic databases usage at Ankara University digital library. *The electronic library* 26(2): 249 – 259. http://dx.doi.org/10.1108/02640470810864136 (Accessed 21 March 2016).

Ayele, AA and Sreenivasarao, V. 2013. A case study of acceptance and use of electronic library services in universities based on SO-UTAUT model. *International journal of innovative research in computer and communication engineering* 1(4): 903 – 916. www.ijircce.co (Accessed 24 March 2016).

Babbie, E & Mouton, J. 2001. *The practice of social research*: South African edition. Cape Town: Oxford University Press.

Babbie, E. 2013. *The practice of social research*. 13th Ed. International edition. Wadsworth: Cengage Learning.

Babbie, E. 2010. The practice of social research. 12th Ed. International edition. Wadsworth: Cengage learning.

Babbie, E. 2016. *The practice of social research*. 4th Ed. Boston: Cengage Learning.

Bajpai, RP, Mal, BK & Bajpai, G. n.d. Use of electronic resources through consortia: a boon to users of Indian universities libraries. http://crl.du.ac.in/ical09/papers/index_files/ica-85_83_195_2_RV.pdf (Accessed 01 March 2016).

Barker, D.I & Terry, C.D. 2005. *Internet research*. 2nd Ed. Illustrated series. Boston: Thomson Learning.

Bashorun, MT, Isah, A & Adisa, MY. 2011. User perception of electronic resources in the university of Ilorin, Nigeria (UNILORIN). *Journal of emerging trends in computing and information sciences* 2(11): 554 – 562. http://www.cisjournal.org (Accessed 01 March 2016).

Bassi, MD & Camble, E. 2011. Gender Differences in Use of Electronic Resources in University Libraries of Adamawa State, Nigeria. *Library Philosophy and Practice*. http://unllib.unl.edu/LPP/ (Accessed 13 October 2017).

Bassey, RS & Odu, JO. 2015. Evaluation of the extent of utilization of electronic library resources and services by undergraduate students in University of Calabar Library, Calabar –Nigeria. *Education Journal* 4(2): 82 – 89. http://article.sciencepublishinggroup.com/html/10.11648.j.edu.20150402.15.html (Accessed 06 November 2017).

Bettran, F, De Fontenay, A & De Alameida, MW. 2006. Internet as a critical infrastructure: lessons from the backbone experience in South America. *Commons & Strategies* 58(2): 1 – 34. https://researchspace.auckland.ac.nz/bitstream/handle/2292/233/9.pdf?sequence=1 (Accessed 10 November 2017).

Bhat, I & Mudhol, MV. 2014. Use of e-resources by faculty members and students of Sher-E-Kashmir Institute of Medical Science (SKIMS). *DESIDOC journal of library & information technology* 34(1): 28 – 34. http://publications.drdo.gov.in/ojs/index.php/dj/it/article/view/5943/3080. (Accessed 17 February 2016).

Bhat, NA & Ganaie, SA. 2016. E-resources: use and search strategies adopted by users of Dr Y.S. Parmar University of Horticulture and Forestry. *Collection building* 35(1): 16 – 21. http://dx.doi.org/10.1108/CB-08-2015-0015 (Accessed 10 March 2016).

Bhattacherjee, A. 2012. Social science research: principles, methods, and practices. *Textbook collection book 3.* http://scholarcommons.usf.edu/oa_textbooks/3 (Accessed 24 May 2016).

Bhukuvhani, C, Chiparausha, B & Zuvalinyenga, D. 2012. Effects of electronic information resources skills training for lecturers on pedagogical practices and research productivity. *International journal of education and development using information and communication technology* 8(1): 16 – 28. http://researchdatabase.ac.zw/188/1/EDICT-2011-1383.pdf (Accessed 15 March 2016).

Bjork, B & Solomon, D. 2012. Open access versus subscription journals: a comparison of scientific impact. *BMC Medicine* 10(73): 1 – 11. http://www.biomedcengtral.com/1741-7015/10/73 (Accessed 17 August 2017).

Bless, C, Higson-Smith, C & Sithole, SL. 2013. *Fundamentals of social research methods*: an African perspective. 5th Ed. Cape Town: Juta & Company Ltd.

Bothma, T, Cosijn, E, Fourie, I & Penzhorn, C. 2014. *Navigating information literacy: your information society survival toolkit*. 4th Ed. Cape Town: Pearson

Bothma, T, Cosijn, E, Fourie, I & Penzhorn, C. 2017. *Navigating information literacy: your information society survival toolkit*. 5th Ed. Cape Town: Pearson

Briggs, AN, Coleman, M & Morrison, M. (ed). 2012. *Research methods in educational leadership and management.* 3rd ed. London: SAGE publications Ltd.

Bryman, A, Bell, E, Hirschsohn, P, dos santos, A, du Toit, J, Masenge, A, Van aardt, I & Wagner, C. 2014. *Research methodology: business and management contexts*. Cape Town: Oxford University Press.

Bryman, A. 2012. *Social research methods*. 4th ed. Cape Town: Oxford University Press.

Buchholz, IM. 2011. Provision of access to information in academic libraries in Southern Africa: two case studies. Thesis, University of South Africa, Pretoria.

Camacho, L & Spackman, A. 2011. Transitioning to e-book: usage and attitudes among business faculty. *Journal of business & finance librarianship* 16: 33 – 45. www.tandfonline.com/doi/abs/10.1080/08963568.2011 (Accessed 02 March 2016).

Carmichael, E & Farrell, H. 2012. Evaluation of the effectiveness of online resources in developing student critical thinking: review of literature and case study of a critical thinking online site. *Journal of university teaching & learning practice* 9(1). http://ro.uow.edu.au/jutlp (Accessed 21 March 2016).

Centers for Disease Control and Prevention, Department of Health and Human Services. 2009. Data collection methods for evaluation: document review. *Evaluation Briefs* 18: 1 – 2. https://www.cdc.gov/healthyyouth/evaluation/pdf/brief18.pdf (Accessed 15 September 2015.

Chandran, V. 2013. Use and user perception of electronic information resources: a case study of Siva Institute of Frontier Technology, India. *Chinese librarianship: an international electronic journal* 36. www.iclc.us/cliej/c136chandran.pdf (Accessed 01 March 2016).

Chauhan, K. 2012. Selected free e-journals in library and information science in Directory of Open Access Journals. *Journals of Library & Information Technology* 32(4): 339 – 346.   http://publications.drdo.gov.in/ojs/index.php/djlit/article/view/2529/1309 (Accessed 09 November 2017).

Chen, S & Wu M. 2011. Graduate students' usage of and attitudes towards e-books: experiences from Taiwan. *Electronic library and information systems* 45(3): 294 – 307. http://dox.doi.org/10.1108/00330331111151601 (Accessed 31 May 2017).

Chilimo, W. 2014. Next-generation catalogues: How are the academic libraries in Kenya faring? *Mousaion* 32(3): 93 – 118.

Coetsee, T & Weiner, S.A. 2013. Key professional principles for South African academic librarians. *Unisa Press ISSN 0027-2639 Mousaion* 31(3): 110 – 126.

Connelly, LM. 2014. Use of theoretical frameworks in research. *MEDSURG nursing* 23(3): 187 – 188. www.ebscohost.com (Accessed 21 July 2016).

Creswell, JW. 2009. *Research design: qualitative, quantitative, and mixed methods approaches.* 3rd ed. London: SAGE.

Creswell, JW. 2014. *Research design: qualitative, quantitative, and mixed methods approaches.* 4th ed. London: SAGE.

Czerniewicz, L & Brown, C. 2014. The habitus and technological practices of rural students: a case study. *South African journal of education* 34(1): 1 – 14. http://www.sajournalofeducation.co.za (Accessed 26 March 2016).

Dalvit, L., Kromberg, S., & Miya, M. 2014. The data divide in a South African rural community: A survey of mobile phone use in Keiskammahoek. *Proceedings of the e-Skills for Knowledge Production and Innovation Conference 2014, Cape Town, South Africa,* 87-100. http://proceedings.e-skillsconference.org/2014/eskills087-100Dalvit842.pdf (Accessed 27 September 2017).

Dani, S & Shah, S. 2016. Call and definition of rural university. *IOSR journal of economics and finance (IOSR-JEF)* 7(1): 64 – 66. www.iosrjornals.org (Accessed 28 March 2017).

Daramola, CF. 2016. Perception and utilization of electronic resources by undergraduate students: the case of Federal University of Technology Library, Akure. *American Journal of Education Research* 4(5): 366 – 370. http://pubs.sciepub.com/education/4/5/1 (Accessed 14 August 2017).

Das, P & Maharana, RK. 2013. Access, awareness & use of electronic information resources by research scholars of Berhampur University: a case study. *American international journal of research in humanities, arts and social sciences.* http://www.iasir.net (Accessed 10 March 2016).

Dass, NK & Jayaraman, S. 2014. Utilization of e resources by faculty members and research scholars in management institutions affiliated to Bharathiar University, Coimbatore: a study. *PARIPEX - Indian journal of research* 3(7). http://worldwidejournals.com/paripex/file (Accessed 02 March 2016).

Davis, FD. 1996. A critical assessment of potential measurement biases in the Technology Acceptance Model: three experiments. *International Journal of human-computer studies* 45: 19 – 45. http://www.vvenkatesh.com/Downloads/Papers/fulltext/pdf/1996_IJHCS_Venkatesh_Davis.pdf (Accessed 06 November 2015).

Davies, M & Hughes, N. 2014. *Doing a successful research project: using qualitative or quantitative methods*. 2nd ed. London: Macmillan.

De Vos, AS, Strydom, H, Fouche, CB & Delport, CSL. 2011. *Research at grass roots: for the social sciences and human service professions*. 4th ed. Pretoria: Van Schaik Publishers.

Deng, H. 2010. Emerging patterns and trends in utilizing electronic resources in a higher education environment. *New library world* 111(3/4): 87 – 103. http://dx.doi.org/10.1108/03074801011027600 (Accessed 21 March 2016).

Department of Institutional Planning and Quality Assurance, University of Venda. Selolo, M. 2015. E-mail, 25 August 2015. Morongwa.selolo@univen.ac.za (Accessed 25 August 2015).

Department of Institutional Planning and Quality Assurance, University of Venda. Selolo, M. 2016. E-mail, 12 April 2016. Morongwa.selolo@univen.ac.za

Dhanavandan, S, Esmail, SM & Nagarajan, M. 2012. Use of electronic resources at Krishnasamy College of Engineering & Technology library, Cuddalore. *Library philosophy and practice*. http://unllib.unl.edu/LPP/ (Accessed 01 March 2016).

Dilek-Kayaoglu, H. 2008. Use of electronic journal by faculty at Istanbul University,Turkey: the results of a survey. *The journal of academic librarianship* 34(3): 239 247. http://doi.10.1016/j.acalib.2008.03.0 (Accessed 21 March 2106).

Dobreva, M, O'Dwyer, A & Feliciati, P. 2012. *User studies for digital library development*. London: Facet Publishing.

Dolo-Ndlwana, N. 2013. Use and value of library's electronic resources by academics and postgraduate students at Cape Peninsula University of Technology (CPUT). Dissertation, University of Cape Town, Cape Town.

Dongardive, P. 2015. Use of electronic information resources at College of Dry Land Agriculture and Natural Resources, Mekelle University, Ethiopia. *International Journal of Library and Information Science* 7(3): 55 – 68. http://www.academicjournals.org/IJLIS. (Accessed 20 April 2015).

Dorner, DG, Gorman, GE & Calvert, PJ. 2015. *Information Needs Analysis: Principles and Practice in Information Organizations.* London: Facet Publishing.

Du Plooy-Cilliers, F, Davis, C & Bezuidenhout, R. 2014. *Research matters.* Claremont: Juta.

Dugdale, C. 1999. Actively encouraging the use of electronic resources at a UK academic library. *Libr* 49: 203 – 211. www.citeseex.ist.psu.edu (Accessed 14 February 2017).

Dule, FW. 2015. Online information resources availability and accessibility: a developing countries' scenario. *African Journal of Library, Archive and Information Science* 25(1): 45 – 57. http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=1&sid=6a196b0e-4501-473f-b3ca-1930733c3c04%40sessionmgr103 (Accessed 11 March 2016).

Edem, NB & Egbe, N. 2016. Availability and Utilization of Electronic Resources by Postgraduate Students in a Nigerian university Library: a case study of University of Calabar, Nigeria. *Information and knowledge management* 6(2): 60 - 69. http://www.iiste.org/Journals/index.php/IKM/article/download/28714/29476 (Accessed date 13 February 2017).

Edwards, SD. 2014. The role of rural universities in developing psychology in South Africa. *South African Journal of Psychology* 45(1): 50–59. http://journals.co.za/docserver/fulltext/sapsyc/45/1/sapsyc_v45_n1_a4.pdf?expires=1510556062&id=id&accname=58027&checksum=575B040E5793D79FAE28A4B9661CD507 (Accessed 12 November 2017).

Elsevier. 2018. Open access journals. https://www.elsevier.com/about/open-science/open-access/open-access-journals (Accessed: 15 May 2018).

Emwanta, M & Nwalo, KIN. 2013. Influence of computer literacy and subject background on use of electronic resources by undergraduate students in universities in South-western Nigeria. *International journal of library and information science* 5(2): 29 – 42. http://www.academicjournals.org/IJLS. (Accessed 18 February 2016).

Falc, EO. 2013. An assessment of college students' attitudes towards using an online e-textbook. *Interdisciplinary journal of e-learning and learning objects* 9: 1 – 12. http://www.ijello.org/volume9/IJELLOv9p001-012Falc831.pdf (Accessed 15 March 2016).

Fink, A. 2014. *Conducting research literature reviews: from the internet to paper*. Los Angeles: SAGE publications.

Francis, J, Kilonzo, B & Nyamukondiwa, P. 2016. Student-perceived criteria for assessing university relevance in community development. *South African Journal of Science* 112(11/12): 1 – 7. http://www.sajs.co.za (Accessed 15 November 2017).

Funmilayo, DC. 2013. Gender differences in the use of academic resources: the case of FUTA library. *International Journal of Library and Information Science* 5(8): 256 – 261. http://www.academicjournals.org/IJLIS (Accessed 13 October 2017).

Gakibayo, A & Ikoja-Odongo, JR. 2013. Electronic information resources utilization by students in Mbarara University library. *Library Philosophy and Practice*. http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2055&context=libphilprac (Accessed 06 November 2015).

Gakibayo, A, Ikoja-Odongo, JR & Okello-Obura, C. 2013. Electronic information resources utilization by students in Mbarara University library. *Library philosophy and practice.* http://digitalcommons.unl.edu/libphilprac/869 (Accessed 06 March 2016).

Gardiner, M. 2008. *Education in rural areas. Issues in education policy number 4.* Johannesburg: Centre for Education Policy Development.

Globalization 101. [n.d]. Technology and Globalization. http://www.globalization101.org (Accessed 27 September 2017).

Gohain, A, Saikia, M & Hazarika, N. 2014. Awareness and use of IT based library and information services among B.Tech students of School of Engineering of Tezpur University: a survey. *International Journal of Information Dissemination and Technology* 4(4): 268 – 274

Golafshani, N. 2003. Understanding reliability and validity in qualitative research. *The Qualitative Report* 8(4): 597-606. http://nsuworks.nova.edu/tqr/vol8/iss4/6 (Accessed 15 November 2017).

Goodluck, M & George, B. 2014. Barriers of using internet resources in higher learning institutions: a case of Mzumbe University in Morogoro region in Tanzania. *Information and knowledge management* 4(8): 64 – 70. www.iiste.org (Accessed 10 March 2016).

Gowda, V & Shivalingaiah, D. 2009. Attitude of research scholars towards usage of electronic information resources: a survey of university libraries in Karnataka. *Annals of library and information studies* 56(1): 184 – 191. http://nopr.niscair.res.in/handle/123456789/6566 (Accessed 10 March 2016).

Graziano, AM & Raulin, ML. 2004. *Research methods: a process of inquiry.* 5th ed. Boston: Pearson Education Group.

Green, H. 2014. Use of theoretical and conceptual frameworks in qualitative research. *Nurse researcher* 21(6): 34 – 38. www.ebscohost.com (Accessed 21 July 2016).

Greenstein D & Healy LW. 2002. Print and electronic information: Shedding new light on campus use. *Educause.* http://educause.edu/ir/library (Accessed 10 August 2014).

Guerriero, M. 2015. The impact of Internet connectivity on economic development in Sub-Saharan Africa. http://r4d.dfid.gov.uk/pdf/outputs/EPS/The-impact-of-internet-connectivity-on-economic-development-in-Sub-Saharan-Africa.pdf (Accessed 21 July 2016).

Habiba, U & Chowdhury, S. 2012. Use of electronic resources and its impact: a study of Dhaka University library users. *The Eastern librarian* 23(1): 74 – 90. http://www.banglajol.info/index.php/EI. (Accessed 20 April 2015).

Hadebe, T & Hoskins, R. 2010. Information seeking behaviour of master's students using library electronic databases in the faculty of humanities, development and social sciences of the University of KwaZulu-Natal. http://reference.sabinet.co.za/webx/access/electronic_journals/innovation (Accessed 22 March 2016).

Harle, J. 2009. Digital resources for research: a review of access and use in African universities. https://www.acu.ac.uk/focus-areas/digital-resources-for-research (Accessed 20 April 2015).

Harle, J. 2010. Growing knowledge: accessed to research in east and southern African universities. *London: The Association of Commonwealth Universities.* www.acu.ac.uk (Accessed 01 August 2015).

Hart, G & Kleinveldt, L. 2011. The role of an academic library in research: researchers' perspectives at a South African university of technology. *South African Journal of Library and Information Science* 77(1): 37 – 53. http://sajlis.org.ac.za (Accessed 14 August 2017).

Hawthorne, D. 2008. History of electronic resources. http://www.irma-international.org/viewtitle (Accessed 20 January 2015).

Heale, R & Twycross, A. 2015. Validity and reliability in quantitative studies. *Evidence Based Nursing* 18(3): 66 – 67. https://www.researchgate.net/profile/Alison_Twycross2/publication/280840011_Validity_and_reliability_in_quantitative_research/links/55c8e88c08aea2d9bdc92052/Validity-and-reliability-in-quantitative-research.pdf (Accessed 08 November 2017).

Henning, E, Van Rensburg, W & Smit, B. 2004. *Finding your way in qualitative research*. Pretoria: Van Schaik publishers.

Heterick, B. 2002. Faculty attitudes towards electronic resources. *Educause.* http://www.educause.edu/ (Accessed 02 March 2016).

Hewitson, A. 2002. Use and awareness of electronic information services by academic staff at Leeds Metropolitan University: a qualitative study. *Journal of Librarianship and Information Science* 34(1): 43 – 52. http://www.lis.sagepub.com (Accessed 30 July 2015).

Hider, P. 2012. *Information resources description: creating and managing metadata.* London: Facet publishing.

Higher Education South Africa. 2011. *Insight* 3:1 – 27. http://www.usaf.ac.za/wp-content/uploads/2016/09/HESA-Insight-No-3_September-2011.pdf (Accessed 1 – 27).

Higher Education South Africa. 2014. Remuneration of academic staff at South African universities: a summary report of the HESA statistical study of academic remuneration. http://www.justice.gov.za/commissions/FeesHET/docs/2014-HESA-SummaryReport-RemunerationOfAcademicStaff.pdf (Accessed 05 November 2017).

Hikmany, SR. 2014. Accessibility and use of electronic resources in library services in Tanzania: the case of the Bank of Tanzania. Thesis, Open University of Tanzania, Dar es Salaam. http://repository.out.ac.tz/486/1/seif_Hikmany_Try.pdf (Accessed 14 August 2017).

Hilton III, J, Wiley, D, Stein, J & Johnson, A. 2010. The four 'R's of openness and ALMS analysis: frameworks for open educational resources. *Open Learning* 25 (1): 37–44. https://www.tandfonline.com/action/journalInformation?journalCode=copl20 (Accessed: 15 May 2018).

Hoskins. R. 2012. Use of the internet by undergraduate third-year students at a South African university. *Mousalon* 30(1): 120 – 141.

Hsu, C, Lin, Y, Chen, M, Chang, K & Hsieh, A. 2017. Investigating the determinants of e-book adoption. *Program* 51(1): 2 – 16. http://dx.doi.org/10.1108/PROG-04-2014-0022 (Accessed 31 May 2017).

Hughes, H. 2009. International students using online information resources to learn. Thesis, Queensland University of Technology, Australia. https://core.ac.uk (Accessed 21 March 2016).

Imenda, S. 2014. Is there a conceptual difference between theoretical and conceptual frameworks. *Journal of social sciences* 38(2): 185 – 195. https://www.researchgate.net/file (Accessed 21 July 2016).

International Network for the Availability of Scientific Publications (INASP). 2005. *Newsletter* 29. http://r4d.dfid.gov.uk/pdf/Outputs/Peri/No-29-newsletter.pdf. (Accessed 01 August 2015)

Internet World Stats. ([n.d]). Usage and population statistics. http://www.internetworldstats.com/ (Accessed 21 July 2016).

Ison, DC. 2014. Does the online environment promote plagiarism? A comparative study of dissertations from Brick-and-Mortar versus Online Institutions. *Journal of Online Learning and Teaching* 10(2): 272 – 282. http://jolt.merlot.org/vol10no2/ison_0614.pdf (Accessed 09 August 2017).

Ivwighreghweta, O & Oyeniran, KG. 2013. Usage and Awareness of E-Resources by Lecturers in Two Selected Nigerian Universities. Journal of Library & Information Science vol 3(4). http://irjlis.com/wp-content/uploads/2013/12/14_IR169.pdf (Accessed 14 February 2017).

Jones, DLR. 2011. Academic dishonesty: are more students cheating? *Business communication quarterly* 74(2): 141 – 150. www.debdavis.pbworks.com (Accessed 14 February 2017.

Juma, IW, Wamukoya, J & Wekullo, C. 2014. The role of digital libraries in bridging the knowledge gap in Africa. *Mousaion* 32(1): 64 – 83. https://journals.co.za/content/mousaion/32/1/EJC155877 (Accessed 19 August 2017).

Kahn, M & Underwood, PG. 2013. Issues related to the adoption of e-books in academic libraries: a literature review. *South African Journal of Library and Information Science* 79(2): 10 – 17. http://sajlis.journals.ac.za (Accessed 27 September 2017).

Kantharaj, CT, Deepak-Kumar, MR & Prasanna-kumari, NV. 2012. Effective usage of e-resources. *Trends in Developing and Managing e-Resources in Libraries*. http://hdl.handle.net/10760/19960 (Accessed 17 August 2017).

Kaassis, M, Boyer, J, Dumas, R, Ponchon, T, Coumaros, D, Delcenserie, R, Canard, J, Fritsch, J, Rey, J & Burtin, R. 2003. Plastic or metal stents for malignant stricture of the common bile duct? Results of a randomized prospective study. *Gastrointestinal Endoscopy* 57 (2): 178 – 182. https://www.giejournal.org/article/S0016-5107(03)80063-9/pdf (Accessed: 16 May 2018).

Kebede, HW. 2014. Adoption of web 2.0 in academic libraries of top African universities. *The Electronic Library* 32(2): 262 – 277. www.emeraldinsight.com/0264-0473.htm. (Accessed 30 April 2015).

Khan, SA, Khan, AA & Bhatti, R. [n.d]. Internet access, use and gratification among university students: a case study of the Islamia University of Bahawalpur, Pakistan. *Chinese librarianship: an international electronic journal* 32. http://www.iclc.us/cliej/cl32KKB.pdf (Accessed 15 March 2016).

Kodani, L. 2012. Information literacy for electronic resources. http://scholarspace.manoa.hawaii.edu/bitstream/handle/10125/22483/Kodani_TCC_Paper.pdf (Accessed 10 November 2017).

Korobili, S, Tilikidou, I & Delistavrou, A. 2006. Factors that influence the use of library resources by faculty members. *Library review* 55(2): 91 – 105. http://dx.doi.org/10.1108/00242530610649594 (Accessed 21 March 2016).

Kothari, CR & Garg, G. 2014. *Research methodology: methods and techniques*. New Delhi: New Age International Publishers.

Kumar, R. 2014. *Research methodology: a step-by-step guide for beginners*. 4th ed. London: SAGE.

Kumar, R. 2016. Use of e-resources by the medical students of M.M. University, Ambala: a case study. *DESIDOC journal of library & information technology* 36(1): 10 - 16. www.journaltoc.ac.uk/index.php (Accessed 10 March 2016).

Kumar, S. 2012. Use of computer, internet, and library OPACs among rural and urban postgraduate in Indiaa universities: OCLC systems and services. *International digital library perspectives* 28(3): 144 – 163. https://doi.org/10.1108/10650751211262137 (Accessed 17 June 2017).

Kwadzo, G. 2014. Access to library resources by Sandwich diploma students in the University of Ghana. Academic research journals 2(4): 36 – 45. http://www.academicresearchjournals.org/IJALIS/Index.thm (Accessed 10 March 2016).

Kwafoa, PNY, Imoro, O & Afful-Arthur, P. 2014. Assessment of the use of electronic resources among administrators and faculty in the University of Cape Coast. *Library philosophy and practice*. http://digitalcommons.unl.edu/libphilprac/1094 (Accessed 07 March 2016).

Lamothe, AR. 2013. Factors influencing the usage of an electronic book collection: size of the e-book collection, the student population, and the faculty population. *College & Research Libraries* 74(1): 39 – 59. http://crl.acrl.org/index.php/crl/article/view/16277 (Accessed 17 august 2017).

Lee, S.D & Boyle, F. 2004. *Building electronic resources collection: a practical guide*. 2nd Ed. London: Facet publishing.

Leeder, C & Shah, C. 2016. Practicing critical evaluation of online sources improves students search behaviour. *The Journal of Academic Librarianship* 42: 459 – 468. http://dx.doi.org/10.1016/j.acalib.2016.04.001 (Accessed 16 August 2017).

Leong, J. 2009. Marketing electronic resources to distance students: a multipronged approach. *Routledge* 71 – 86. https://researchbank.rmit.edu.au (Accessed 21 March 2016).

Library Department. Matodzi, T.A. 2017. E-mail, 11 October 2017. Annah.matodzi@univen.ac.za

Library Department. Mulaudzi, M. 2015. E-mail, 17 June 2015. Mushoni.mulaudzi@univen.ac.za

Library Department. Mulaudzi, M. 2016. E-mail, 11 April 2016. Mushoni.mulaudzi@univen.ac.za

Liu, Z. 2006. Print vs. electronic resources: a study of user perceptions, preferences, and use. *Information processing and management* 42: 583 – 592. www.sciencedirect.com. (Accessed 03 June 2015)

Long, MWL. 2009. Digital divide between urban and rural regions in China. *The Electronic Journal on Information Systems in developing countries* 36(6): 1 – 12. http://www.ejisdc.org (Accessed 04 October 2015).

Macmillan Education. 2009. *Macmillan study dictionary*. Oxford: Macmillan Publishing Limited.

Madzhie, CN. 2010. Challenges facing academic libraries in the management of library user education and information literacy: a case study of University of Venda. Thesis, University of Venda, Thohoyandou

Maiwashe, R. 2009. Perception of university students on communication channels and access to available sources of information for effective learning. Dissertation, University of Venda, Thohoyandou.

Makori, E.O. 2015. Micro factors influencing use of electronic information resources among postgraduate students in institutions of higher learning in Kenya. *Library Hi Tech News* 32(1): 18 -21. http://dx.doi.org/10.118/LHTN-10-2014-0096. (Accessed 30 April 2015).

Makura, A, Skead, M & Nhundu, K. [n.d]. Academic development practices at Fort Hare University: an epitome of university access. *Research in Higher Education Journal*. http://www.aabri.com/manuscripts/11797.pdf (Accessed 15 November 2017).

Malapela, T & De Jager, K. 2015. Using an electronic journal availability study to measure access to electronic journals by academics and researchers in the faculty of agriculture at the University of Zimbabwe. *Library and information research* 39(120): 29 – 39. http://www.academia.edu/22124956/Using_an_electronic_journal_availability_study_to_measure_access_to_electronic_journals_by_academics_and_researchers_in_the_Faculty_of_Agriculture_at_the_University_of_Zimbabwe (Accessed 24 March 2016).

Manda, PA. 2005. Electronic resources usage in academic and research institutions in Tanzania. *Information Development.* SAGE Publications 21(4): 269 – 282. http://repository.udsm.ac.tz:8080/xmlui/bitstream/handle/123456789/1332/Electronic%20Resource%20Usage%20in%20Academic%20and%20Research%20Institutions%20in%20Tanzania.pdf?sequence=1&isAllowed=y (Accessed 27 February 2016).

Marshall, B. 2007. Next-Generation Library Catalogs: Chapter 1 Introduction. *Library Technology Reports.* https://librarytechnology.org/repository/item.pl?id=18344 (Accessed 10 August 2017).

Masrom, M. 2007. Technology Acceptance Model and e-learning. http://eprints.utm.my/5482/ (Accessed 24 March 2016).

Mbasera, SF. 2012. The use of Internet-based information sources by postgraduate students: a survey of three universities in the Eastern Cape, South Africa. Dissertation, University of Fort Hare, Eastern Cape.

Mbati, P. 2017. UNIVEN presentation to Parliaments Portfolio Committee on Higher Education and Training. E-mail, 03 April 2017. Esther.munano@univen.ac.za

McMillan JH & Schumacher S. 2010. *Research in education: Evidence-based inquiry.* New Jersey: Pearson.

Mgobozi, M.N & Ocholla, D.N. 2002. The use of electronic journals for the dissemination of scholarly information by the University of Natal and the University of Zululand. *South African journal of library and information science* 68(2): 81 – 93. http://sajlis.journals.ac.za. (Accessed 28 May 2015).

Mittal, P & Bala M. 2013. Use of e-resources in universities. *International journal of innovative research in computer and communication engineering* 1(6) www.ijircce.com (Accessed 08 March 2016).

Mojapelo, M.S. 2014. Provision of school libraries in public high schools in the Limpopo province, South Africa. Thesis, University of South Africa, Pretoria.

Monette, D.R, Sullivan, T.J, DeJong, C.R & Hilton, T.P. 2014. *Applied social research: a tool for the human services.* 9th Ed. Australia: Brooks.

Monopoli, M, Nicholas, D, Georgiou, P & krfiati, M. 2002. A user-oriented evaluation of digital libraries: case study the "electronic journals" service of the library and information service of the University of Patras, Greece. *Aslib proceedings* 54(2): 103 – 117. http://dx.doi.org/10.1108/00012530210435239 (Accessed 21 March 2016).

Morrow, S. [n.d]. Race, redress and historically black universities. www.hsrcpress.ac.za (Accessed 17 November 2017).

Mosha, GE & Bea, GK. 2014. Barriers of using internet resources in higher learning institutions: a case of Mzumbe University in Morogoro Region in Tanzania. *Information of Knowledge Management* 4 (8): 64 – 71. www.iiste.org (Accessed 02 August 2017).

Moss, M, Endicott-Popovsky, B & Dupuis, MJ. 2015. *Is digital different? How information creation, capture, preservation and discovery are being transformed.* London: Facet publishing.

Mtega, WP, Dulle, F, Malekani, AW & Chailla, A. 2014. The use of e-resources among agricultural research and extension staff in Tanzania. *Library and Information research*   38(119):   47   –   63. http://wwwlirgjournal.uk/lir/ojs/index.php/lir/article/download/579/663 (Accessed 14 August 2017).

Mulholland, E & Bates, J. 2014. Use and perceptions of e-books by academic staff in further education. *The Journal of Academic Librarianship* 40: 492 – 499. http://dx.doi.org/10/1016/j.acalib.2014.05.018 (Accessed 17 August 2017).

Mustafa, AS & Arasan, AD. 2014. Faculty insight on ALHOSN University library services: is the level of resources adequate*? American international journal of social science.* www.aijssnet.com (Accessed 10 March 2016).

Naude, F, Rensleigh, C & du Toit, ASA. 2005. Analysis of the citation of web-based information resources by UNISA academic researchers. *South African journal of information management* 7(3).   http://).reference.sabinet.co.za.oasis.unisa.ac.za/ (Accessed 25 March 2016).

Navalur, SA, Balasubramani, R & Kumar, PA. 2012. Usage of e-resources by faculty, research scholars and PG students of Bharathidasan University: a study. *Journal of advances in library and information sciences.* www.jalis.in (Accessed 10 March 2016).

Nazir, T. 2015. Use and adequacy of e-resources by the research scholars and students of the University of Kashmir in science & social Science faculties: a case study. http://www2.marilia.unesp.br/revistas/index.php/bjis/article/viewFile/5219/3671 (Accessed 14 August 2017).

Ndlovu, S.N. 2011. Skating on thin ice: the resilience of the Zimbabwean libraries during the decade 2000 to 2010. *IFLA 2011*. http://conference.ifla.org/ifla77. (Accessed 10 August 2015)

Nemalili, TV. 2014. An assessment of the effectiveness of the academic library online public access catalogue (OPAC) by students: a case study of University of Venda. Thesis, University of Venda, Thohoyandou.

Nendila. 2015. *Newsletter of the University of Venda*. Thohoyandou: University of Venda

Ngulube, P. 2010. Internet use among students at ST Joseph's Theological Institute in South Africa: empirical findings and implications for network literacy. *Mousaion* 28(1): 45 – 61.

Njeze, ME. 2013. Use of newspapers and magazines in the academic pursuits of university students: case study of Covenant University. *Library Philosophy and Practice (e-journal).* 845. http://digitalcommons.unl.edu/libphilprac/845 (Accessed 18 August 2017).

Nkomo, M & Sehoole, C. 2007. Rural-based universities in South Africa: Albatrosses or potential nodes for sustainable development? *International Journal of Sustainability in Higher Education* 8(2): 234 – 246. http://www.emeraldinsight.com/doi/pdfplus/10.1108/14676370710726689 (Accessed 24 March 2016).

Nkosi, D, Leach, A & Hoskins R. 2012. Academic staff expectations of undergraduate students with respect to their use of the library at the University of KwaZulu-Natal, Pietermaritzburg campus. *South African journal of library and information science* 78(2): 79 – 87. http://sajlis.journal.ac.za (Accessed 07 March 2016).

Noreh, A. 2009. Impact of electronic resources on academic and research programs of the university. https://www.google.co.za/search?q=Noreh%2C+A.+2009.+Impact+of+electronic+resources+on+academic+and+research+programs+of+the+university.&oq=Noreh%2C+A.+2009.+Impact+of+electronic+resources+on+academic+and+research+programs+of+the+university.&aqs=chrome..69i57.2431j0j8&sourceid=chrome&ie=UTF-8 (Accessed 14 August 2017).

O' Dochartaigh, N. 2012. 3rd Ed. *Internet research skills.* London: SAGE Publications.

Okite-Amughoro, FA, Makgahlela, L & Bopape, S. 2014. The use electronic information resources for academic research by postgraduate students at Delta State University, Abraka, Nigeria. *South African journal of Library and Information Science 80(2).* http://sajlis.journal.ac.za (Accessed 20 April 2015).

Online computer library centre (OCLC). 2010. College students. https://www.oclc.org/content/dam/oclc/reports/2010perceptions/collegestudents.pdf (accessed 15 March 2016).

Ossai, N.B. 2010. Consortia building among libraries in Africa, and the Nigerian experience. *Collaborative Librarianship* 2(2): 74 – 85.

Oyedapo, RO. & Ojo, RA. 2013. A survey of the use of electronic resources in Hezekiah Oluwasanmi Library, Obafemi Awolowo University, Ile-Ife, Nigeria. *Library Philosophy and Practice* 2(26): 1 - 15. http://digitalcommons.unl.edu/libphilprac/84. (Accessed 15 August 2014).

Ozoemelem, OA. 2009. Use of electronic resources by postgraduate students of the Department of Library and Information Science of Delta State University, Abraka, Nigeria. *Library Philosophy and Practice.* http://www.webpages.uidaho.edu/~mbolin/obuh-alex.htm (Accessed 06 November 2017.

Padmavathi, N, Ningaiah, A & Kavita, B. 2017. Use and user satisfaction of library resources and services by PG students and research scholars in Bangalore University Library, Bangalore. *Journal of Library and Information Science* 17(1): 113 – 120. http://lirjlis.com/wp-content/uploads/2017/05/7-IR-387.pdf (Accessed 04 August 2017).

Park, SY. 2009. An analysis of the Technology Acceptance Model in understanding university students' behavioral intention to use e-learning. *Educational technology & society* 12(3): 150 – 162. www.ifets.info/journals/12_3/14.pdf (Accessed 24 March 2016).

Patel, Y. 2015. Increasing usage of e-resources in college libraries. http://www.alibnet.org/public/bookofpaper/33.pdf (Accessed 19 August 2017).

Patra, NK, Kumar, B & Pani AK. 2014. *Progressive trends in electronic resources management in libraries*. United State of America: Information Science Reference.

Pearce, RJ. 1996. Assessment of the library and information needs and expectations of University of Venda academic staff. Thesis, University of Venda, Thohoyandou.

Peiris, ND & Peiris, BL. 2012. Use of Electronic Information Resources by postgraduate students: a case study. *Journal of the University Librarians Association* 16(1): 46 – 69. https://jula.sljol.info/articles/10.4038/jula.v16i1.5197/ (Accessed 31 May 2017).

Pham, HT & Tanner, K. 2015. Collaboration between academics and library staff: a structurationist perspective. *Australian Academic & Research Libraries* 46(1): 2–18. http://dx.doi.org/10.1080/00048623.2014.989661 (Accessed 15 February 2017).

Pillay, AL & Ngcobo, HSB. 2010. Sources of stress and support among rural-based first-year university students: an exploratory study. *South African Journal of Psychology* 40(3): 234-240. http://journals.sagepub.com/doi/pdf/10.1177/008124631004000302 (Accessed 17 November 2017).

Polanka, S. 2012. *No shelf required 2: use and management of electronic books*. London: Facet Publishing.

Polit, DF & Beck, CT. 2010. *Essentials of nursing research: appraising evidence for nursing practice*. 7th ed. Philadelphia: Lippincott Williams & Wilkins.

Polit, DF & Beck, CT. 2010. Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies* 47(1): 1451–1458. http://www.sciencedirect.com/science/article/pii/S0020748910002063 (Accessed 05 November 2017).

Posigha, BE. 2012. The use and future of electronic books in academic institutions in Nigeria. *The Electronic Library* 30(6): 796 – 808. http://dx.doi.org/10.1108/026404121128211 (Accessed 31 May 2017).

Punch, K. 2006. *Developing effective research proposals.* 2nd edition. London: SAGE publications Ltd.

Punchihewa, CND, Kumara, ADB & Kiriella, KGAP. 2013. Beyond the boundaries: remote access to online resources at the University of Moratuwa Library. *Journal of the University Librarians Association of Sri Lanka* 17(2): 76 – 87. https://jula.sljol.info/articles/10.4038/jula.v17i2.6646/ (Accessed 31 May 2017).

Quadri, GO, Adetimirin AE & Idowu, OA. 2014. A study of availability and utilization of library electronic resources by undergraduate students in private universities in Ogun State, Nigeria. *Academic Journals* 6 (3): 28 – 34. http://www.academicjournals.org/IJLIS (Accessed 02 August 2017).

Radjagopal, V & Chinnasamy, K. 2012. Users attitudes and approaches towards e-resources and services in academic libraries of Puducherry Union Territory: a study. *Journal of Advances in Library and Information Science* 1(4): 149-152. http://www.jalis.in/pdf/pdf4/1%20Radjagopal.pdf (Accessed 18 May 2016).

Ram, B & Karn, B. 2014. Study of U.G.C. infonet e- Resources consortia in universities of Eastern India. *International Journal of Computer Science and Information Technologies* 5(6): 7977 – 7983. http://ijcsit.com/docs/Volume%205/vol5issue06/ijcsit20140506239.pdf (Accessed 19 August 2017).

Ramavhona, TC & Mokwena, S. 2016. Factors influencing Internet banking adoption in South African rural areas. *South African Journal of Information Management* 18(2): 1 – 8. http://doi.org/10.4102.sajim.v18i2.642 (Accessed 27 September 2017).

Rasul, A & Singh, D. 2010. The role of academic libraries in facilitating postgraduate students' research. *Malaysian journal of library and information science* 15(3): 75 – 84. www.researchgate.net (Accessed 19 August 2014).

Reitz, JM. [n.d]. *Online Dictionary for Library and Information Science*. http://www.abc-clio.com/ODLIS/odlis_e.aspx (Accessed 17 November 2017).

Rowlands, I, Nicholas, D, Jamli, HR & Huntington, P. 2007. What do faculty and students really think about e-books? *Aslib proceedings* 59(6): 489 – 511. http://dx.doi.org/10.1108/00012530710839588 (Accessed 18 May 2016).

Rubow, L, Shen, R & Schofield B. 2015. Understanding open access: when, why, & how to make your work openly accessible. https://authorsalliance.org/wp-content/uploads/Documents/Guides/Authors%20Alliance%20-%20Understanding%20Open%20Access.pdf (Accessed: 16 May 2018).

Rukwaro, MW & Otike, J. 2014. Factors affecting the development of digital resources collection in universities: a case study of Kenya*. Concepts and Advances in Information Knowledge Management*: 129 – 142. https://doi.org/10.1533/9781780634357.2.129 (Accessed 14 August 2017).

Sahin, YG, Balta, S & Eracan, T. 2010. The use of internet resources by university students during their course projects elicitation: a case study. *The Turkish online journal of educational technology* 9(2): 234 – 244. http://www.tojet.net/articles/v9i2/9224.pdf (Accessed 15 March 2016).

Salau, SA & Gama, UG. 2015. Access to and use of electronic journals in selected Federal university libraries in the Federal Capital Territory and North Central Zone of Nigeria. *African Journal of Library, Archives and Information Science* 25(2): 161 – 171.

Saldana, J. 2013. *The coding manual for qualitative researchers.* 2nd Ed. London: SAGE Publications.

Sampath-Kumar, BT & Kumar, GT. 2010. Perception and usage of e-resources and the internet by Indian academics. *The Electronic Library* 28(1): 137-156. https://doi.org.1108/02640471011023432 (Accessed 06 November 2017).

Sarasvady, S & Khatri, NK. [n.d]. Study of the use of electronic resources for implementing library consortium. http://www.isica/.ac.in/~serial/consortia/CBSOR-07.pdf (Accessed 01 March 2016).

Selolo, M. 2015. E-mail, 25 August 2015. Morongwa.selolo@univen.ac.za. (Accessed 25 August 2015).

Shahapurmath, SD, Medar, AS & Kenchakkanavar, AY. 2015. Use of electronic resources by the PG students of Karnatak College, Dharwad: a study. *International journal of advanced research in education & technology (IJARET)* 2(3): 210 – 212. www.ijaret.com. (Accessed 17 February 2015).

Shaqour, A & Daher, W. 2010. Factors influencing students' use of electronic resources and their opinions about this use: the case of students at An-Najah National University. http://online-journals.org/li-jet/article/view/1424 (Accessed 18 August 2017).

Shija, H. 2009. E-resources use via the internet improvement is a must: a case of special libraries in Tanzania. *Research on poverty alleviation (REPOA)*. www.library.up.ac.za/digi/doc/shija_paper.pdf (Accessed 16 March 2016).

Shroff, PH, Deneen, C.C & Ng, EMW. 2011. Analysis of the Technology Acceptance Model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology* 27(4): 600 – 618.

Shukla, P & Mishra, R. 2011. Use of e-resources by research scholars of institute of technology, Banaras Hindu University, India. *International refereed research journal* 2(2): 184 – 194. www.researchersworld.com (Accessed 10 March 2011).

Singh, S & Remenyi, D. 2016. Plagiarism and ghostwriting: the rise in academic misconduct. *South African journal of science.* http://www.sajs.co.za (Accessed 14 February 2017.

Silverman, D. 2013. *Doing qualitative research.* 4th Ed. London: SAGE Publications.

Sivathaasan, N, Achchuthan, S & Kajananthan, R. 2013. Demographic Variables of University Teachers and Usage of Electronic Information Resources: A Case in Sri Lanka. *International Journal of Business and Management* 8(19): 90 – 98. http://dx.doi.org/10.5539/ijbm.v8n19p90 (Accessed 13 October 2017).

Sivathaasan, N & Velnampy, T. 2013. Use of electronic information resources and academic performance of university teachers: a case study. *European Journal of Business and Management* 5(14): 46 – 52. http://www.iiste.org (Accessed 14 August 2016).

Sonkar, SK, Singh, MP & Kumar, J. 2014. Use of electronic resources by postgraduate students and research scholars of the Banaras Hindu University: a study. *Journal of information management* 1(2): 87 – 97. www.pacificresearchpublication.com. (Accessed 14 February 2017).

Sohail, MD & Ahmad, S. 2017. Use of electronic resources and services by faculty members and students of Fiji National University. *Journal of Library & Information Technology*   37(3):   165-171.   http://122.252.233.35/ojs/index.php/djlit/article/download/10567/5889. (Accessed 06 November 2017).

Soules, A. 2009. The shifting landscape of e-books. *New library world* 110(1/2): 7 – 21. http://dx.doi.org/10.1108/03074800910928559 (Accessed 18 May 2016).

South African National Library and Information Consortium. 2015. http://www.sanlic.org.za (Accessed 04 August 2015).

Spaights, E. 1980. Towards a definition of an urban university. *Urban Education* vol 15(3): 369 – 374.

Swam, D.W, Grimes, J & Owens, T. 2013. The state of small and rural libraries in the United State. *Institute of Museum and Library services.* https://www.imls.gov/assets/1/AssetManager/Brief2013_05.pdf (Accessed 13 August 2016).

Swanepoel, AJ. 2008. Citation analysis of theses and dissertations submitted at the Tshwane University of Technology: 2004 – 2006. *South African journal of higher education* 22: 1097 - 1113. http://0.reference.sabinet.co.za.unisa.ac.za/document (Accessed 25 March 2016).

Tan, MC & Maggio, LA. 2013. Expert searcher, teacher, content manager, and patient advocate: an exploratory study of clinical librarian roles. *Journal of medical library association* 101(1): 63 - 72. http://dx.doi.Org/10.3163/1536-5050.101.1.010 (Accessed 15 February 2017).

Tella, A. 2007. University of Botswana undergraduates uses of the internet: implications on academic performance. *Journal of education media & library sciences* 45(2): 161 – 185. http://research.dils.tku.edu.tw/joemls/ (Accessed 02 March 2016).

Tenopir, C, Wilson, CS, Vakkari, P, Talja, S & King, DW. 2010. Cross country comparison of scholar e-reading patterns in Australia, Finland, and the United State. *Australian academic & research libraries* 41(1): www.tandfonline.com (Accessed 07 March 2016).

Tenopir, C. 2003. Use and users of electronic library resources: an overview and analysis of recent research studies. *Council on library and information resources.* http://www.clir.org/pubs/reports/pub120/pub120.pdf (Accessed 27 March 2016).

Thanuskodi, S. 2012. Use of E-resources by the Students and Researchers of Faculty of Arts, Annamalai University. *International Journal of Library Science* 1(1): 1-7. http://journal.sapub.org/library (Accessed 13 August 2017).

Thanuskodi, S. 2011. Usage of electronic resources at Dr T.P.M. library, Madurai Kamaraj University: a case study. *DESIDOC journal of library & information technology* 31(6): 437 – 445.

Theron, NM & Boshoff, WH. 2006. Vertical integration in South African telecommunications: a competition analysis. *South African Journal of Economics* 74 (3): 575 – 592. http://onlinelibrary.wiley.com/doi/10.1111/j.1813-6982.2006.00085.x/pdf (Accessed 05 October 2017).

Thomas, G. 2013. *How to do your research project: a guide for students in education and applied social sciences*. 2nd Ed. London: SAGE.

Togia, A & Tsigilis, N. 2009. Awareness and use of electronic information resources by education graduate students: preliminary results from the Aristotle University of Thessaloniki.
http://www.isast.org/proceedingsQQML209/PAPERS_PDF/Tongia_Tsigilis (Accessed 15 March 2016).

Toteng, B, Hoskins, R & Bell, F. 2013. Use of electronic databases by law students at the University of Botswana Library. *African journal of Library, Archives and Information Science* 23(1): 59 – 74.

Treptow, R & James, M. 2011. Use of online knowledge resources by prominent South African researchers. *South African journal of library and information science* 77(1): 64 – 74. http://sajlis.journal.ac.za (Accessed 15 June 2015).

Tugli, AK, Zungu, LI, Ramakuela, NJ, Goon, DT & Anyanwu, FC. 2013. Perception of students with disabilities concerning access and support in the learning environment of rural-based university. *African journal for physical health education, recreation and dance*: 356 – 364. http://uir.unisa.ac.za (Accessed 10 March 2016).

University of Venda (UNIVEN). 2012. *From inkpot to ipad: towards an educational centre of excellence*. Janxion Communications.

UNIVEN. 2015. Newsletter of the University of Venda. http://www.univen.ac.za/docs/nendila/NendilaApril2015lowres.pdf (Accessed 10 May 2015).

UNIVEN. 2015. Strategic plan 2012 – 2016. www.univen.ac.za. (Accessed 15 July 2015).

UNIVEN. 2017. Library databases page. http://www.univen.ac.za/index.php/about-the-library/databases/ (Accessed 15 August 2017).

UNIVEN. 2017. Library services and facilities. http://www.univen.ac.za/index.php?Entity=Services%20and%20facilities (Accessed 19 August 2017).

UNIVEN. 2017. Official Opening of 2017 Orientation. Department of communication and marketing. Email: Welheminah.mabogo@univen.ac.za Date: 26 January 2017.

UNIVEN. 2017. Search the university's catalogue. http://univen9.univen.ac.za/search (Date 17 August 2017).

UNIVEN. 2017. Vice-Chancellor recognises academic excellence. http://www.univen.ac.za/web/index.php/vice-chancellor-recognises-academic-excellence/ (Accessed 19 August 2017).

Vele, J. 2011. Univen is on the priority list for the installation of SANReN. *University of Venda annual report.* http://www.univen.ac.za/docs/UnivenAnnualReport2012_Low.pdf (Accessed 11 July 2017).

Wakeham, M & Garfield, D. 2005. Supporting both learning and research in a UK post-1992 university library: a case study. *Journal of Librarianship and Information Science* 37(4): 175 – 186. http://www.lis.sagepub.com (Accessed 30 July 2015).

Walters, WH. 2014. E-books in academic libraries: challenges for sharing and use. *Journal of librarianship and information science* 46(2): 85 – 95. http://doi.10.1177/0961000612470279 (Accessed 18 May 2016).

Wang, S & Bai, X. University students awareness, usage and attitude towards e-books: experience from China. *The Journal of Academic Librarianship* 42: 247 – 258. http://dx.doi.org/10.1016/j.acalib.2016.01.001 (Accessed 16 August 2017).

Wema, E & Manda, P. 2011. The impact of e-resources usage in academic and research institutions in Tanzania. *INASP*. www.inasp.info/uploads/filer (Accessed 16 March 2016).

Wiese, M & du Plessis, G. 2014. The battle of the e-textbook: libraries' role in facilitating student acceptance and use of e-textbooks. *South African Journal of Library and Information Science* 80(2). http://sajlis.journals.ac.za (Accessed 16 February 2015).

Wiley Online Library. http://onlinelibrary.wiley.com/doi/10.1002/leap1016/pdf (date 17 August 2017)

Wilkin, S & Underwood, PG. 2015. Research on e-book usage in academic libraries: 'tame' solution or 'wicked problem'? *South African journal of library and information science* 81(2): 11 – 18. http://sajlis.journals.ac.za (Accessed 16 February 2016).

Williams, CD, Pitchforth, EL & O'Callaghan, C. 2010. Computers, the Internet and medical education in Africa. *Medical Education* 44: 485 – 488. http://content.ebscohost.com/ContentServer.asp?T=P&P=AN&K=49072475&S=R&D=a9h&EbscoContent=dGJyMNXb4kSeqK44yOvqOLCmr06eprNSsqi4SLGWxWXS&ContentCustomer=dGJyMPGtsk%2Bzr7BKuePfgeyx44Dt6fIA (Accessed 20 July 2016).

Williams, TD. 2004. Teachers' link to electronic resources in the library media center: a local study of awareness, knowledge, and influence. *Research journal of the American Association of school librarians*. www.ala.org (Accessed 14 February 2017).

Worldwide Information Services. 2016. The development of Open Access movement in Africa. *Newsletter*. http://www.wwis.co.za/wordpress16/wp-content/uploads/2016/10/WWIS-OA-Newsletter.pdf (Accessed 18 June 2017).

Wozar, JA & Worona, PC. 2003. The use of online information resources by nurses. *Journal of Medical Library Association* 91(12): 216 – 2227.

Wu, M & Chen, S. 2011. Graduate students' usage of and attitudes towards e-books: experiences from Taiwan. www.emeraldinsigight.com/0033-0337.htm (Accessed 15 March 2016).

Wu, M & Chen, S. 2012. How graduate students perceive, use, and manage electronic resources. *Aslib proceedings* 64(6): 641 – 652. http://dx.doi.org/10.1108/00012531211281779 (Accessed 25 March 2016).

www.univen.ac.za.

Yin, RK. 2016. Qualitative research from start to finish. 2nd Ed. New York: The Guilford Press.

Yusuf, M & Farouk, BL. 2017. Awareness, access and use of academic databases by faculty members: a case study of Bayero University library. *International Journal of Library and Information Science (IJLIS)* 6 (3): 13–26. http://www.iaeme.com/IJLIS/issues.asp?JType=IJLIS&VType=6&IType=3 (Accessed: 15 May 2017).

Zabed-Ahmed, SM. 2013b. A survey of students' use of and satisfaction with university subscribed online resources in two specialized universities in developing country. *Library Hi Tec News* 30(3): 6 – 8. https://doi.org/10/.1108/LHTN-02-2013-0010 (Accessed 16 August 2017).

Zabed-Ahmed, SM. 2013a. Use of electronic resources by the faculty members in diverse public universities in Bangladesh. *The Electronic Library* 31(3): 290 – 312. www.emeraldinsight.com. (Accessed 30 April 2015).

Zhang, L, Ye, P, Liu, Q & Rao, L. 2011. Survey on the utilization of NSTL electronic resources in college and universities in Wuhan, China. *The Electronic Library* 29(6): 828 – 840. https://doi.org/10.1108/02640471111188042 (Accessed 17 August 2017

LIST OF APPENDICES

APPENDIX A: QUESTIONNAIRE FOR ACADEMICS

QUESTIONNAIRE A (FOR ACADEMICS)

USE OF ELECTRONIC RESOURCES BY ACADEMICS AND POSTGRADUATE STUDENTS

SECTION A: BACKGROUND INFORMATION

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What is your gender?

Female	
Male	

2. What is your age group?

21 - 30 years	
31 - 40 Years	
41 – 50 Years	
51 – 60 Years	
61 and above	

3. What is your academic position at the University of Venda?

Junior lecturer	
Lecturer	
Senior lecturer	
Professor	
Other (specify)	

4. What is your nationality *(use space provided below to write your answer)*

_____

5. Indicate your academic field

Agricultural sciences	
Education	
Environmental sciences	
Health sciences	
Human and social sciences	
Law	
Management sciences	
Mathematics and natural sciences	
Other (specify)	

6. How long have you been an academic?

Less than a year	
1 – 2 Years	
3 – 5 Years	
6 – 10 Years	
11 and above	

SECTION B: ACCESS AND USE OF ELECTRONIC RESOURCES

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. Do you have regular access to internet?

Yes	
No	

2. Where do you access the internet from? *You can select as many as possible.*

Office	
Home	
Library	
Other (specify)	

3. What kind of connectivity do you use to connect to the internet while you are in university campus?

Cable	
Wireless (Wi-Fi) provided by the university	
Cellular	
Other (specify)	

4. What kind of connectivity do you use to connect to the internet while you are outside the university campus?

Cable	
Wireless (Wi-Fi)	
Cellular	
Other (specify)	

5. How do you rate the speed of internet connectivity on campus?

Very fast	
fast	
Neutral	
Slow	
Very slow	

6. How do you rate the speed of internet connectivity off campus?

Very fast	
fast	
Neutral	
Slow	
Very slow	

7. What device/s do you use to access the internet? *You can select as many as possible.*

Laptop	
Mobile phone	
Desktop	
Tablet	
Other (specify)	

8. Have you ever accessed the University of Venda Library website?

Yes	
No	
Not sure	

9. Have you ever accessed the electronic databases page from the University of Venda Library website?

Yes	
No	

10. How often do you access the electronic resources provided the University of Venda Library?

Often	
Sometimes	
Never	
I do not know	

11. How often do you access the following electronic databases? *You can select as many as possible.*

Name of database	Daily	Weekly	Monthly	Never
African Journals Online				
Directory of Open Access Journals				
Ebscohost				

Emerald				
JSTOR				
NEXUS				
Sabinet Online				
Science Direct				
Web of Science				
Global Books in Print				
SAGE				
Wiley e-Journals				
Southern African Legal Information Institute (SAFLII)				
South African Government Website				
Juta Online Products				
Other (specify)				

12. What device(s) do you use to access electronic resources for your research or studies? *You can cross as many as possible.*

Devise	Often	Sometimes	Never
Mobile phones/Smart phone			
Tablet			
Personnel laptop			
Office computer			
Library computers			
Other (please specify)			

13. How often do you access the following electronic resources? *Please, select all.*

Electronic resources	Often	Sometimes	Never
Online Public Access Catalogue			
Electronic books			
Electronic journals			
Electronic magazines			
Electronic newspapers			
E-theses			
Internet search engine (e.g., Google)			
Other (please specify)			

SECTION C: PURPOSE OF USING ELECTRONIC RESOURCES

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What is your purpose for using the following electronic resources? *You can select as many as possible.*

Electronic resources	Purposes				
	For research	To find information in my profession/learning	To prepare for lecture/teaching	For literature review/finding current information	Other (specify)
Electronic books					
Electronic journals					
Electronic magazines					
Electronic newspapers					

Electronic theses				
Internet search engine (e.g. Google)				
Online Public Access Catalogue				
Other (Specify)				

2. Are you achieving your purpose of searching information by using the available electronic resources at the University of Venda?

Strongly agree	
Agree	
Disagree	
Strongly disagree	

SECTION D: ATTITUDE AND PERCEPTIONS

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What do you think about the accessibility of electronic resources at the University of Venda?

	Strongly agree	Agree	Disagree	Strongly disagree
The resources are easy to access.				
The interface is user friendly.				
Do not know where to access electronic resources.				
Search option does not link to different electronic databases.				
No integration point of search for both print and electronic resources.				
No advanced searching option(s).				

2. On a scale of **1 – 5** point(s), how satisfied are you with the usefulness of the available electronic resources at the University of Venda in helping you to complete you research or task?

1 - Not at all satisfied	
2 - Slightly satisfied	
3 – Moderately satisfied	
4 – Very satisfied	
5 – Extremely satisfied	

3. On a scale of **1 – 5** point(s), what is your level of satisfaction with the electronic resources available at the University of Venda?

1 - Not at all satisfied	
2 - Slightly satisfied	
3 – Moderately satisfied	
4 – Very satisfied	
5 – Extremely satisfied	

4. What are the effects of using electronic resources for academic purposes by postgraduate students?

	Strongly agree	Agree	Disagree	Strongly disagree
Using electronic resources promotes copy and paste.				
Using electronic resources improves students' performance.				
Using electronic resources improves skills for searching information.				
Using electronic resources improves the quality of the research.				

5. From the databases listed below, please indicate five electronic databases that you mostly prefer your students to use.

African Journals Online	
Directory of Open Access Journals	
Ebscohost	
Emerald	
JSTOR	
NEXUS	
Sabinet Online	
Science Direct	

Web of Science	
Global Books in Print	
SAGE	
Wiley e-Journals	
Southern African Legal Information Institute (SAFLII)	
South African Government Website	
Juta Online Products	
Other (please specify)	

6. Do you encourage your students to use electronic resources for academic purpose? In each case, please give a reason:

Yes	
No	

SECTION E: CHALLENGES IN THE USE OF ELECTRONIC RESOURCES

Please indicate your answer by a cross (X) in the appropriate box next to the question.

1. What challenges have you experienced in accessing electronic databases? *Select all that apply*.

Challenge	Often	Never	Sometimes
Access restricted to campus only.			
The library is not subscribing to the electronic database(s) I require.			

Poor internet connection.			
Unreliable power supply.			
Always requires password to log-in.			
No network connectivity off-campus.			
Lack of information search skills.			
Failure to access full text.			
Getting too much information/information overload.			
Insufficient relevant electronic resources.			
There are too many electronic resources.			
High cost of access.			
I have to log-in into each electronic database separately			
Other (please specify). You can add as up to five other challenges:			

2. How did you get training on the use of electronic resources?

Trial and error (self-training).	
Group training organised by the library.	
Individual training organised by the library staff.	
Never trained.	
Other (specify)	

3. How do you prefer to access electronic resources? In each case, please provide a reason.

Access electronic resources on your own.	
Get information from electronic resources through librarians.	
Other (specify)	

4. What do you think the university can do to improve usage of electronic resources by academics and postgraduate student? *Select with cross (X).*

Reason	Strongly agree	Agree	Disagree	Strongly disagree
Improve internet bandwidth.				
Provide more computers.				
Subscribe to more electronic databases.				
Raise awareness of electronic resources.				
Provide training on the use of electronic resources.				
Provide each faculty with its own computer laboratory.				
Provide free laptops to all academics and postgraduate students.				
Provide interface with search option that links to different electronic resources.				
Provide Online Public Access Catalogue (OPAC) with advanced searching techniques				

Integration of a single point of search for both print and electronic resources.				
Increase awareness of newly acquired electronic resources.				
Increase awareness of training programmes on usage of electronic resources.				
Other (please specify), you can add up to five.				

THANK YOU FOR YOUR PARTICIPATION

APPENDIX B: QUESTIONNAIRE FOR POSTGRADUATE STUDENTS

QUESTIONNAIRE B (FOR POSTGRADUATE STUDENTS)

USE OF ELECTRONIC RESOURCES BY ACADEMICS AND POSTGRADUATE STUDENTS

SECTION A: BACKGROUND INFORMATION

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What is your gender?

Female	
Male	

2. What is your age group?

21 - 30 years	
31 - 40 Years	
41 – 50 Years	
51 – 60 Years	
61 and above	

3. What is your nationality?

_____

4. What is the level of your current study?

Honors	
Masters	
Doctoral/PhD	
Other, specify	

5. How long have you been at the University of Venda?

Less than 6 Months	
7 – 11 Months	
1 – 2 Years	
3 – 4 Years	
5 and above	

6. Indicate field of your studies.

Agricultural sciences	
Education	
Environmental sciences	
Health sciences	
Human and social sciences	
Law	
Management sciences	
Mathematics and natural sciences	

Other (specify)	

SECTION B: ACCESS AND USE OF ELECTRONIC RESOURCES

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. Do you have regular access to internet?

Yes	
No	

2. Where do you access the internet from? *You can cross as many as possible.*

Departmental computer	
Home	
Library computers	
General computer laboratory	
Other (specify)	

3. What kind of connectivity do you use to connect to the internet while you are on university campus?

Cable.	
Wireless (Wi-Fi) provided by the university.	
Cellular.	
Other (specify)	

4. What kind of connectivity do you use to connect to the internet while you are outside the university campus?

Cable	
Wireless (Wi-Fi)	
Cellular	
Other (specify)	

5. How do you rate the speed of internet connectivity on campus?

Very fast	
Fast	
Neutral	
Slow	
Very slow	

6. How do you rate the speed of internet connectivity off campus?

Very fast	
Fast	
Neutral	
Slow	
Very slow	

7. What device/s do you use to access to the internet? *You may select as many as possible.*

Laptop	
Mobile phone	
Desktop	
Tablet	
Other (specify)	

8. Have you accessed the University of Venda Library website?

Yes	
No	
Not sure	

9. Have you accessed the electronic databases page from the University of Venda Library website?

Yes	
No	

10. How often do you access the electronic databases page from the University of Venda Library website?

Often	
Sometimes	
Never	
I do not know	

11. What electronic resources do you mostly prefer to access*?*

E-books.	
E-journals.	
E-newspapers.	
E-theses.	
Any other (specify).	

12. How often do you access the following electronic databases? *You can select as many as possible.*

Name of database	Daily	Weekly	Monthly	Never
African Journals Online				
Directory of Open Access Journals				
Ebscohost				
Emerald				
JSTOR				
NEXUS				
Sabinet Online				
Science Direct				
Web of Science				

Global Books in Print				
SAGE				
Wiley e-Journals				
Southern African Legal Information Institute (SAFLII)				
South African Government Website				
Juta Online Products				
Other (please specify)				

13. What device(s) do you use to access electronic resources for your research or studies? *You can select as many as possible.*

Devise	Often	Sometimes	Never
Mobile phones/smart phone			
Personal laptop			
Tablet or laptop provided by the university			
Library computers			
Other (please specify)			

14. How often do you access the following electronic resources when searching for information? *Please, select all.*

Electronic resources	Often	Sometimes	Never
Online Public Access Catalogue			
Electronic books			
Electronic journals			
Electronic magazines			
Electronic newspapers			
Internet search engine (e.g. Yahoo or Google)			
Other (please specify)			

SECTION C: PURPOSE FOR USING ELECTRONIC RESOURCES

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What is your purpose for using the following electronic resources? *You can select as many as possible.*

Electronic resources	Purposes				
	For research	To find information in the area of my studies	To complete assignment	Finding current information	Other (specify)
Electronic books					

Electronic journals					
Electronic magazines					
Electronic newspapers					
Electronic theses					
Internet search engine (e.g. Google)					
Online Public Access Catalogue					
Other (Specify)					

2. Are you achieving your purpose of searching information by using the available electronic resources at the University of Venda?

Strongly agree	
Agree	
Disagree	
Strongly disagree	

SECTION D: ATTITUDE AND PERCEPTIONS

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What do you think about the accessibility of electronic resources at the University of Venda?

	Strongly agree	Agree	Disagree	Strongly disagree
The resources are easy to access.				
The interface is user friendly.				
Do not know where to access electronic resources.				
Search option does not link to different electronic databases.				
No integration point of search for both print and electronic resources.				
No advanced searching option(s).				

2. On a scale of **1 – 5** point(s), how satisfied are you with the usefulness of the available electronic resources at the University of Venda in helping you to complete you research or task?

1 - Not at all satisfied	
2 - Slightly satisfied	
3 – Moderately satisfied	
4 – Very satisfied	
5 – Extremely satisfied	

3. On a scale of **1 – 5** point(s), what is your level of satisfaction with the electronic resources available at the University of Venda?

1 - Not at all satisfied	
2 - Slightly satisfied	
3 – Moderately satisfied	
4 – Very satisfied	
5 – Extremely satisfied	

4. Does your lecturer/supervisor encourage you to use electronic resources for a given task?

Always	
Very frequently	
Occasionally	
Rarely	
Very rarely	
Never	

5. Do you agree with the following statements?

	Strongly agree	Agree	I do not know	Disagree	Strongly disagree
I need further training on the use of electronic resources					

I can recommend the use of electronic resources to other students					
Electronic resources are reliable in searching for information					
Electronic resources provide current information					
Use of electronic resources improve quality of my academic work					
Use of electronic resources improves my academic performance					
I will never recommend the use electronic resources to any one					
The use of electronic resources promotes copy and paste					

SECTION E: CHALLENGES IN THE USE OF ELECTRONIC RESOURCES

Please indicate your response by a cross (X) in the appropriate box next to the question.

1. What challenges have you experienced in accessing electronic databases? *Select all that apply.*

Challenge	Often	Never	Sometimes
Access restricted to campus only.			
The library is not subscribing to the electronic database(s) I require.			
Poor internet connection.			
Unreliable power supply.			

Always requires password to log-in.			
No network connectivity off-campus.			
Lack of information search skills			
Failure to access full text			
Getting too much information/information overload			
Insufficiency of relevant electronic resources			
There are too many electronic resources			
High cost of access			
I have to log-in into each electronic database separately			
Other (please specify). You can add as up to five other challenges.			

2. How did you get training on the use of electronic resources?

Trial and error (self-training).	
Group training organized by the library.	
Individual training organized by the library staff.	
Never trained.	
Other (specify)	

3. How do you prefer to access electronic resources? In each case, please provide a reason.

Access electronic resources on your own.	

Get information from electronic resources through librarians.	
Other (specify)	

4. What do you think the university can do to improve usage of electronic resources by postgraduate students? *Select with cross (X).*

Reason	Strongly agree	Agree	Disagree	Strongly disagree
Improve internet bandwidth.				
Provide more computers.				
Subscribe to more electronic databases.				
Raise awareness of electronic resources.				
Provide training on the use of electronic resources.				
Provide each faculty with its own computer laboratory.				
Provide free laptops to all students.				
Provide interface with search option that links to different electronic resources.				
Provide Online Public Access Catalogue (OPAC) with advanced searching techniques				
Integration of a single point of search for both print and electronic resources.				
Increase awareness of newly acquired electronic resources.				

Increase awareness of training programmes on usage of electronic resources.				
Other (please specify), you can add up to five.				

THANK YOU FOR YOUR PARTICIPATION

APPENDIX C: QUESTIONNAIRE FOR LIBRARY DIRECTOR

QUESTIONNAIRE C: FOR LIBRARY DIRECTOR

1. What kind of training/s does your library provide to academics and postgraduate students on the use of electronic resources?

_____

_____

_____

_____

_____

_____

2. Are you satisfied with the way electronic resources are being used by the academics and postgraduate students at the University of Venda? Yes or No.

If the answer is no, please provide a reason(s).

_____

_____

_____

_____

3. Are you satisfied with the available electronic resources in your library? Yes or No.

If the answer is no, please provide a reason(s).

_____

_____

_____

_____

_____

4. Are you satisfied with the budget allocated for subscription and purchase of electronic resources? Yes or No.

If the answer is no, please provide a reason(s).

_____

_____

_____

_____

5. Are you satisfied with the budget allocated for training of those who are responsible for training university community on the use of electronic resources? Yes or No.

6. Are there any challenge(s) faced by the academics and postgraduate students in the use of electronic resources at the University of Venda? Yes or No.

7. If the answer is yes, please mention those challenge(s):

_____

_____

_____

_____

_____

_____

_____

8. Does the library consult academics and postgraduate students before the library purchases or subscribes to new electronic resources? Yes or No. Please provide some reasons:

_____

_____

_____

_____

_____

_____

APPENDIX D: PARTICIPANT INFORMED CONSENT

PARTICIPANT INFORMED CONSENT

STUDY TITLE: USE OF ELECTRONIC RESOURCES BY ACADEMICS AND POSTGRADUATE STUDENTS AT THE UNIVERSITY OF VENDA, SOUTH AFRICA
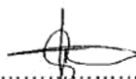
The researcher would like to invite you to participate in this study, which investigates the use of electronic resources by academics and postgraduate students at the University of Venda in South Africa.

The study is part of the researcher's Masters' degree in Information Science at the University of South Africa (UNISA). The researcher hopes that the study could provide useful information in the use of electronic resources for the academics, postgraduate students, and the University of Venda.

Participants' names will not be recorded or disclosed on the questionnaires, and the information will be solely used for the purpose of this research. Your participation is entirely voluntary and there are no anticipated risks or benefits to your participation. You have been approached as a member of the University of Venda with the view that you might be interested in taking part, *this does not mean you have to*. Participants are rest assured that they will remain anonymous. Both copies of the approval letter from the University of Venda, and of the ethic clearance from the University of South Africa can be obtained from the researcher upon/if requested.

If you have any question(s) about this study, please contact:

Researcher   : A.S Ndou

Signature   : ....

40571505@mylife.unisa.ac.za *(email)*   083 415 9938 *(cell phone)*

Supervisors   : Dr. W.L Chilimo   Dr. S.M Mojapelo

chiliwl@unisa.ac.za *(email)*   mojapsm@unisa.ac.za *(email)*

THANK YOU FOR YOUR PARTICIPATION

APPENDIX E: ETHICAL CLEARANCE LETTER

UNISA | university of south africa

DEPARTMENT OF INFORMATION SCIENCE RESEARCH ETHICS REVIEW COMMITTEE

Date: 11April 2016

Ref #:2016_IS40571505_025

Name of applicant : Mr Alugumi S Ndou

Student #: X

Dear Mr Alugumi S Ndou,

Decision: Ethics Approval

Name: Mr Alugumi, S Ndou, 072 223 5130 or 083 415 9938, 40571505@mylife.unisa.ac.za

Supervisor: Dr W L Chilimo, Department of Information Science, Unisa, +254 727 377 598, Wanyenda@gmail.com

Co-supervisor: Dr SM Mojapelo, Department of Information Science, Unisa, 012 4296071, mojapsm@unisa.ac.za

Proposal: Use of electronic resources by Academics and postgraduate students at the University of Venda

Qualification: Postgraduate degree Masters

Thank you for the application for research ethics clearance by the Department of Information Science Research Ethics Review Committee for the above mentioned research. Final approval is granted for the duration of the project.

For full approval: The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Department of Information Science on 11 April 2016.

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*

2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Department of Information Science Ethics Review Committee. An amended application could be requested if there are substantial*

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changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

Note:

The reference number [2016_IS40571505_025] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the [Department of Information Science] RERC.

Kind regards,

Prof GV Jiyane
012 4296057

APPENDIX F: APPROVED PERMISSION TO CONDUCT RESEARCH

The Vice-Chancellor and Principal

University of Venda

Private Bag X5050

Thohoyandou

Dear Prof Mbati

Approved.

22-3-16

UNIVERSITY OF VENDA
OFFICE OF THE VICE-CHANCELLOR
AND PRINCIPAL

2 2 MAR 2016

PRIVATE BAG X5050
THOHOYANDOU 0950
REPUBLIC OF SOUTH AFRICA
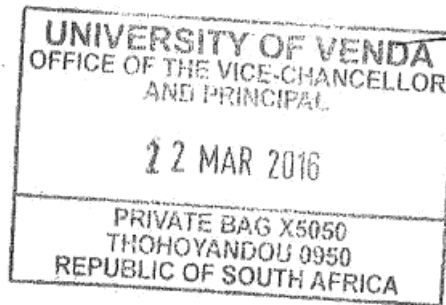
REQUEST FOR PERMISSION TO COLLECT INFORMATION FOR RESEARCH

I am one of the University of Venda staff members attached to the Library department. Last year I requested a permission to collect information about the total number of students and academics, and the permission was granted. My research proposal is now approved by University of South Africa (UNISA) High Degree Committee, and I have to start with my research on the: *Use of Electronic Resources by Academics and Postgraduate students at the University of Venda.*

In order for me to complete the above mentioned research, I am requesting the university to provide me with the following information: total number of registered students for the 2016 academic year, honors , masters, and doctoral students, and total number of academic staff - *number of Professors, senior lecturers, lecturers, and junior lecturers.*

And also be allowed to collect data from the university community through the use of questionnaires.

I undertake that whatever information will be provided to me will be solely used for my Research.

A copy of my proof of registration is attached to this letter.

I hope that you will find this in order and therefore, anticipate your assistance.

Yours sincerely

Alugumi Samuel Ndou (Staff N0. 455)

Date: 22 March 2016