The views, adoption and use of e-books by undergraduate students at the University of Namibia

by

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ABSTRACT

The advancement of Information Communication and Technology, especially the vast development of the Internet, which makes information more widely available to more people, has brought changes to the publishing industry. This technological development includes the introduction of electronic information sources such as e-journals and e-books.

The research aimed at investigating the adoption of views about and use of e-books at the University of Namibia. The research design was exploratory and the study adopted a mixed approach, in which both quantitative and qualitative methods were used. Data collection was done through administering questionnaires, a focus group discussion and observation, combined with think-aloud methods. Both purposive sampling and random sampling techniques were used in selecting respondents.

The results of this study reported a high awareness about e-books by students. The study also revealed frequent general use of e-books. The study further reported that respondents used both the non-library search engines and the library search tool as starting points to search for e-books, with the result that the use of the library provided e-books has not reached any significant level. The study also observed positive attitudes towards e-books by students, as they indicated a preference for e-books over printed books and reported using e-books mainly for course work and research purposes. In identifying factors that hinder the use of e-books, aspects such as slow Internet connections, lack of knowledge (including the awareness and skills required to utilise e-books), limited and/or lack of relevant e-books titles, preference for print, eye strain and difficulty reading on screen, as well as limited computers and lack of e-readers, were identified as major deterrents for the use of e-books. Additionally, the study found that the relative advantage, compatibility, trialability and observability have significant influence on the adoption of e-books.

DECLARATION

I, Anna Leonard (student number: 46503676) hereby declare that the Mini dissertation **The views, adoption and use of e-books at the University of Namibia** is my own work in both design and execution, and that all used or quoted sources have been duly acknowledged by means of complete references.

SIGNATURE

28 February 2017

DATE

DEDICATION

This dissertation is dedicated to my never-born child, to my child whom I never had a chance to hold in my hands, a child that was part of me but whom I have never seen, a child with whom I never had the chance to smile, socialize and play with or feel his or her skin.

I also dedicate this dissertation to my mother, the brave Esther Mashina (Gwanambahu) Nghifilenya, for being a good mum and for raising me with a spirit that anything is possible.

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KEY TERMS

The following key terms are frequently referred to in this study:

Adoption

Adoption of innovation

Diffusion of Innovation theory

E-books

E-resources

Information behaviour

Information-seeking behaviour

Innovation

Students

Use of e-books

LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this study:

DRM	Digital Rights Management
E-books	Electronic books
E-journals	Electronic journals
E-resources	Electronic resources
E-textbooks	Electronic textbooks
ETSIP	Education and Training Sector Improvement Plan
ICT	Information Communication Technology
IUM	International University of Management
JISC	Joint Information System Committee
LIRC	Learning and Information Resource Centre
NSA	Namibia Statistics Agency
OPAC	Online Public Access Catalogue
SA	South Africa
UK	United Kingdom
UNAM	University of Namibia
US	United States

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CHAPTER 1: INTRODUCTION

1.1 Introduction and background information

The advancement of information communication and technology (ICT), especially the vast development of the Internet that makes information more widely available to more people, has brought changes to the publishing industry. This technological development includes the introduction of electronic sources such as e-journals and e-books. The increasing cost of traditional scientific, scholarly information (Quandt 1996), coupled with the development of widely available Internet communication tools such as the World Wide Web (www) have transformed the exchange of scientific and technical information (Berners-Lee, Cailliau, Groff & Pollermann 1992).

In the past, information was usually published in print format, but now journals, books, newspapers and magazines are being converted to electronic formats. Electronic books have been around for a decade, and higher education institutions have recognised the potential of e-books. Higher education institutions are spending a fair amount of money on providing e-books for use by their students and staff (SCONUL 2009). A report on a national e-book observatory project in the UK, conducted by the Joint Information Systems Committee (JISC), declares that e-books are now becoming part of academic institutions' core business with 65% of e-books used by students and staff.

Maepa and Nkosi (2013) declare, however, that the notion of e-books in Africa is still an abstract idea and that its acceptance has not yet reached any significant levels. This may be due to the slow growth of the e-book market on the continent. Few countries in Africa, such as Nigeria and South Africa, have local e-books publishers in the market. Maepa and Nkosi (2013) identified several factors that are hindering the acceptance of e-books in Africa. These factors include the scarcity of e-books produced in Africa, high e-books prices, challenges in Internet connectivity, and a lack of legal framework to administer digital publishing.

Studies on the acceptance and use of e-books across the globe reveal interesting results. Armstrong and Lonsdale (1998), Armstrong and Lonsdale (2003), Abdullah and Gibb (2006), and Abdullah

and Gibb (2008), found that the acceptance and usage of e-books varies. E-journals are, however, used on a much larger scale. It is therefore critical to understand why there is slow acceptance of e-books and which factors contribute to the low acceptance of e-books.

Based on the studies in the abovementioned paragraphs, it can be concluded that the acceptance of e-books varies from institution to institution and from one country to another. Academic libraries are the heart of academic institutions. The academic community relies on libraries for the provision of information resources in various formats. It is therefore important to understand and have background information on how academic libraries and academic communities react to the notion of e-books. The next section will discuss various aspects regarding e-books in academic libraries.

1.1.1 E-books in academic libraries

In order for 21st century academic libraries to fulfil and satisfy their users' information needs, they need to provide information in various formats and ways that can make their services and information resources easily accessible to their users at a time and place needed. Academic libraries are a focal point of information for supporting teaching, learning, and research in their respective institutions, and they are expected to provide up to date information resources. As observed by Campbell (2006:17): "numerous creative and useful services have evolved within academic libraries in the digital age." Thus, in order to meet the ever-increasing demands for information, academic libraries must subscribe to electronic resources such as e-books, full text e-journals and online bibliographic databases (Armstrong et al. n.d.) According to Wilkie and Harris (2010) almost all academic libraries across the globe have a collection of e-books and are acquiring e-books to meet the demanding needs of their users and to support teaching and learning in their respective institutions, yet most libraries spend only a small portion of their budgets on e-books.

In Africa e-books are mainly accessed in urban areas where 80% of Internet connections are found in urban areas (Global e-book Snapshot 2012). Most libraries in Africa do not have e-books budgets. Of the libraries that have e-books some do not have an e-book budget. Twenty four percent indicated that they can spend less than 1% of their budget on e-books. While 14% of public libraries in Africa can reserve 3-5% of their budget to purchase e-books, only 7% of libraries have

more than 5% of their budget available for e-books (Maepa & Nkosi 2013). At the University of Namibia the allocated budget of e-books is less than 5% of the overall library budget.

1.1.2 Advantages and disadvantages of e-books

The integration of e-book collections has the advantage of saving space in the library and creating constant access to books. Library users, when faced with an information need, can access the library online without going to the physical library building. However, these are not the only advantages. Renner (2007) identifies the following advantages of e-books: expanded offering, expanded usage, reduced personnel required, reduced maintenance costs and enhanced functionality and usage statistics.

E-books have many merits such as convenience, being easy to access, being accessible at all times, the fact that many users can use a book at the same time, the ability to link to relevant reference sources, the ability to take notes and the ability to search within the text. However, there are also disadvantages. E-books have their limitations and complexities such as digital rights management, licensing agreements, software to be downloaded in devices for users to be able to download a book, registration of the client to access contents and a lack of a standard e-book formats, such as e-PUB and PDF.

Studies on the acceptance and use of e-books reveal different levels of e-book use. However, most studies in Africa reveal a low use of e-resources, especially e-books. For instance, Agaba (2003), Connaway and Wicht (2007), Jenkins (2008), Harle (2009), Bassi and Camble (2011), Maepa and Nkosi (2013), Ikoja-Odongo (2013)) identified the following factors as barriers for the adoption of e-books:

- ✓ Lack of standard formats for e-books and hardware developments
- ✓ Incompatible rights and operability
- ✓ Unrealistic prices
- ✓ Inconsistent purchase model
- ✓ Limited editions

In spite of the barriers and challenges of embracing e-books, e-books provide academic libraries the potential to offer the academic community convenient access to full-text books whenever students need to access information without having to come to the library. It is important for librarians to study users' awareness, use of e-books, and perceptions of e-books in order to understand users' information needs, problems and behaviour.

In order to understand the potential use of, the perception about and the preferences of e-books it is crucial to define the concept 'e-books'.

1.1.3 E-books defined

The concept of e-books started with electronic versions of books that usually already existed in print format. Currently, many e-books are produced originally as e-books and never existed in print format. This resulted in the change of information-seeking behaviour and needs of users of e-books (JISC 2003). Since an e-book is an evolving phenomenon, there is still no universally accepted definition of 'e-book' (Bannet 2006) and the term has been confusing and differently defined by many authors (Sawyer 2002; Tedd 2005; Armstrong 2008; Vassiliou & Rowley 2008). *The Online Dictionary of Library and Information Science* (2013) simply defines an e-book as "an electronic version of the printed book, designed to be read on the computer or on an e-book reader". E-books are defined as digital objects with textual and/or other content, which arises as a result of integrating the familiar concept of books with features that can be provided in an electronic environment (Vassiliou & Rowley 2008:363). Abdullah and Gibb (2008) refer to e-books as both the electronic contents and the computerised devices used to store and retrieve it through the use of automated textual storage and retrieval development.

In addition, Armstrong, Edward and Lonsdale (2002:217), in their study of e-books in UK libraries, define e-books as "any piece of electronic text regardless of size or composition (a digital object) but excluding journal publications made available electronically (optional) from any device handled or desk-bound that includes a screen".

1.1.4 The study of e-books in Namibia context

In order to study the use of and views about e-books in Namibia, it is important to understand the context in which the study was conducted. This section gives a brief background of Namibia, the country in which the study was conducted. This study investigates the usage and perception of e-books by undergraduate students at the University of Namibia. Namibia's demographic, geographic, economic, educational and cultural contexts are variables that may influence the use of e-books and will therefore be addressed.

The level of education in Namibia, according to *Encyclopaedia Britannica* (2013), excels that of other sub-Saharan countries, with an 89% enrolment in primary education. In addition, the country has an 88% literacy rate of persons over 15 years (NSA 2012). ICT literacy is also now part of the primary and secondary education curriculum. Namibia introduced free primary education in 2012, which may possibly increase the enrolment level of primary education in the future.

Namibia has three universities: the University of Namibia (UNAM), which is the biggest and only public university in the country, the Polytechnic of Namibia, which is to be renamed the University of Science and Technology, and the International University of Management (IUM), which is the only private university in the country.

The use of ICT in education in Namibia is aligned to the long-term national strategic plan of Vision 2030. Vision 2030 is a document that clearly spells out the country's development programmes and strategies to achieve its national objectives. "Vision 2030 aims to achieve a fully integrated, unified and flexible education and training system that prepares the Namibian youth and other learners to take advantages of a rapidly changing environment and contributes to the economic, moral, cultural and social development of the country" (Vision 2030). In support of Vision 2030, the ICT policy for education was created to enhance the use and development of ICT in the delivery of education and training. The Ministry of Education has an Education and Training Sector Improvement Program (ETSIP), which took the initiative to develop ICT infrastructure in Namibian libraries and provide computer training for library staff.

In terms of economic status and situation, Namibia is categorised as a middle-income country with a gross national income per capita of $5.721 for 2014 and $5.436 for 2015 (MBI Research 2015). Despite the country being rated as an upper middle-income country, Namibia has a high rate of unemployment. The majority of the unemployed people are young people. The highest rate of unemployment is in the northern regions of the country, for example, 62% unemployment in Ohangwena, 54% in Omusati, and 22% in Erongo and Oshikoto (Namibia Statistic Agency (NSA) 2012).

Namibia, "land of the brave" as defined by its national anthem, gained independence in 1990. According to the NSA (2012), the country has a population of 2 066 398. Namibia is divided into 13 administrative regions, which are further divided into constituencies. Each administrative region is governed by governors, together with councillors, each representing a constituency (Fuller 2006.) Namibia is a democratic state, with local, regional and presidential elections being held within specified periods.

It is situated on the southwestern coast of Africa, approximately between 175° and 29°S, 11°E and 25°E. It shares borders with Botswana in the east, South Africa in the south and southeast and Angola to the north (Angula 2010). Namibia is a large country with a total land area of about 823 680 km^2.

Location of study

This study was conducted at the University of Namibia (UNAM). UNAM is a leading public higher education institution that was founded by an Act of Parliament in 1992. UNAM was established as a one-campus university, but has grown into a multi-campus university comprising ten campuses and nine regional centres across various regions of Namibia (Namhila & Ndinoshiho 2011). The University of Namibia's vision is to be a "beacon of excellence and innovation in teaching, research and extension services", and its mission is to provide quality higher education through teaching, research and advisory services to customers with the view to produce productive and competitive human resources capable of driving public and private institutions towards a

knowledge-based economy and economic growth and improved quality of life (University of Namibia 2010: vii).

As a multidisciplinary institution, the University of Namibia's academic programmes originate from six faculties and two schools. These are the Faculty of Agriculture and Natural Resources, the Faculty of Economics and Management Science, the Faculty of Education, the Faculty of Humanities and Social Sciences, the Faculty of Law, the Faculty of Health Sciences, consisting of the School of Nursing and Public Health and the School of Medicine, the Faculty of Science, as well as the Faculty of Engineering and Information Technology.

Since its establishment, the University of Namibia has steadily grown to 11 campuses and 10 centres. The centres are established to provide support to students that are enrolled for distance education. The large number of campuses is a result of the integration of four colleges of education into UNAM in 2010, and the establishment of the School of Medicine in 2010 as well as the establishment of the Engineering campus, also known as the Ongwediva campus in the northern part of the country, in 2009. In 2013, The University of Namibia also launched the Southern Campus at Keetmanshoop in the Tsara region. The University of Namibia has about 19453 registered students and comprise distance students, full-time students and part-time students enrolled for undergraduate and postgraduate studies.

The significant growth in student enrolment, particularly following the merger of the former colleges of education into the University of Namibia, new schools such as the School of Medicine, and the expansion of campuses added extra challenges to the university (UNAM 2010), and the library is not an exemption in this regard. The Information and Learning Resource Centre (ILRC) well known as the UNAM library is critical for supporting learning, teaching and research work at the University (UNAM 2010).

In support of the learning, teaching and research of the university, the University of Namibia Library began to acquire e-books in 2012 and has access to about 6300 e-books through EBSCO and few e-reference books through Science Direct. The library plans to double the budget for e-

books in 2014 and will continue to include patron-driven e-books into its collection in order to make the resources available to students across Namibia.

At the time of this research, the library made its e-books available through a vendor's e-books platform, the library catalogue and through the alphabetical title list of electronic holdings and direct links to individual e-books on the library's website. The e-books are proposed to library users through e-mails, lists of new acquisitions, website, posters and leaflets, and through library information literacy training. The ICT training, information literacy training and the library orientation offered to students vary, which might have an impact on the students' use of library resources.

1.2 Statement of the problem

The library of UNAM provides e-books through platforms such as EBSCO, Science Direct, and IET. In addition, the university also added free online books onto the library's website to make them accessible to library users. The e-books are made accessible through an online public access catalogue (OPAC), library website and also on the alphabetical title list of e-books. Users who have laptops can also access e-books by using their laptops on campus where there is wireless internet access. Those who have access to the internet can access the electronic resources wherever they are, using the off-campus access facility to the library's resources.

Studies by Illonga (2012) and Ndinoshiho (2010) investigated the use of e-resources at UNAM and found that there is low usage of the library's electronic resources. In 2012, the university library added more computers for users, following the high demand of computers in the library in 2010 and 2011. At the time of this research, the library had 112 computers, and there were also additional computers in computer laboratories in various departments.

However, since the integration of e-books, the expansion of computers for library users and the provision of wireless Internet on campus, no study has been conducted to determine the use of e-books at the library of the University of Namibia. Studies on the general use of e-resources, such as studies by Nakanduungile, Shilongo and Heino (2012) and Ndinoshiho (2010) revealed low usage of e-resources at the University of Namibia. The statistics below were extracted from the

administration sites of e-book platforms and reflect the overall use of e-books in 2012 when they were integrated into the library collection:

- ✓ EBSCO – 788 full-text downloads
- ✓ Science Direct – 200 full-text downloads
- ✓ Encyclopaedia Britannica – 859 full-texts downloads

Based on the statics and literature cited above, it is evident that there is a low usage of e-books at UNAM Library. This study therefore wanted to investigate why there is low usage of e-books at the University of Namibia by investigating the awareness, usage patterns, perceptions and preferences of e-books by undergraduate students. There is also insufficient literature about the use of e-books in the Namibian context.

1.3 Purpose of the study

Many studies have been conducted on the adoption and use of e-books in academic libraries. Among them are studies by Renner (2007), Vassiliou and Rowley (2008), Abdullah and Gibb (2008a; 2008b), Brown (2009), Ahmad, Halim, Aleng, Mohamed, Amin and Amiruddin (2013), to mention a few. By the time of writing this thesis no research has been conducted on the usage of e-books at the University of Namibia. Studies conducted in Namibia, with a focus related to this particular topic, were conducted, as stated above by Nakanduungile et al. (2012) and Ndinoshiho (2010) but both studies only focused on the use of electronic information services and resources for nursing students at Oshakati Campus. Hamutumwa (2008) investigated the utilisation and promotion of e-resources in Namibian government libraries. The purpose of this study is to investigate the adoption and use of e-books by undergraduate students at UNAM.

1.4 Research objectives

This study aimed to investigate the adoption of, views about and the use of electronic books by undergraduate students at the University of Namibia. The study was guided by the following objectives:

- ✓ To determine the awareness level and perception of undergraduate students about e-books at UNAM

- ✓ To determine the usage pattern of e-books at UNAM
- ✓ To identify factors that influence the use or non-use of e-books
- ✓ To determine the factors that influence the adoption and non-adoption of e-books at UNAM

1.5 Research questions

The purpose of this study is to determine the awareness, perception, adoption and usage patterns, of e-books and what factors influence or hinder the use of e-books by undergraduate students at the University of Namibia. In order to investigate why there is a low use of e-books at the UNAM, the following research questions guided this study:

1. What is the level of awareness among undergraduate students regarding e-books at UNAM?
2. Which use patterns of e-books can be identified among undergraduate students at UNAM?
3. What are students' perceptions regarding e-books at the University of Namibia?
4. What are the factors influencing the use and non-use of e-books by undergraduate students?
5. Which factors influence the adoption and non-adoption of e-books by undergraduate students?

1.6 Scope and limitations

This study focused on the adoption and use of e-books by fourth year students at the University of Namibia. The study also focused on the information behaviour of users towards e-books. Other sources and the general use of the library collection were not considered in this study. The study was limited to fourth-year students at the main campus only. Students at other campuses and centres were excluded because:

- ✓ UNAM has ten campuses with nine centres across the country, and the geographic area is too large to include all campuses in this study, and
- ✓ Resources in terms of finance and time would have been a barrier as the researcher had limited funding.

1.7 Significance of the study

Many studies have been conducted on e-books in academic libraries but no study of this nature has ever been conducted in Namibia. A few studies on related topics were found, but the focus of those studies is mainly on e-resources and searching behaviour at UNAM. This study on the perceptions, adoption and use of e-books was the first to be conducted in the context of UNAM.

This study, therefore, acts as an initial investigation into the adoption and use of e-books, preferences between e-books versus traditional books, and an early identification of the factors affecting the adoption of, views about and use of e-books at UNAM. The findings of this study can be of assistance to the university's library to attend to problems and challenges that might be identified, and to optimise the use of e-books.

The findings of this study provide insights on how e-books are used by students. The findings and recommendations may help the UNAM Library to address issues that were raised by the study and will also help the library to improve the promotion of e-books and the training of users on how to use e-books.

1.8 Literature review

Reviewing literature is one of the most important activities in research and writing and is also an important aspect in planning research. Machi and McEvoy (2009:4, as cited in Pickard 2013), define a literature review as "a written document that presents a logically argued case founded on a comprehensive understanding of the current state of knowledge about a topic of study". According to Wisker (2008:176), reviewing literature helps to develop the line of thought. In most cases, researchers add or try to fill gaps in what has already been researched. Literature is reviewed in order to get an overview of what others have done and found on a subject. Any new study creates the opportunity to engage with the literature to be synthesised and criticised.

Sources of information, such as journal articles, books and conference proceedings, were used. Databases, such as Emerald, EBSCO, Science Direct, Sage, SpringerLink, Project Muse, and

Google Scholar were used to search information. The literature review in Chapter 2 included the following topics:

- ✓ Information-seeking behaviour
- ✓ Adoption and diffusion of innovation theory
- ✓ Adoption of e-books
- ✓ Uses of e-books
- ✓ Factors affecting the adoption and use of e-books
- ✓ The advantages of adopting and use e-books
- ✓ What is hindering the adoption and use of e-books
- ✓ Increasing the adoption and use of e-books

1.9 Research approach and methodology

Mixed-method research refers to empirical research that involves the collection and analysis of both qualitative and quantitative data (Punch 2009). Terms such as multi-methods, integrated, blended, combined, methodological triangulation, multi-methodological research, and mixed-method model have been used by several researchers. Tashakkori and Teddlie (2003) and Creswell and Plano Clark (2007:5-6), for instance, refer to mixed-method research. This study used a mixed-method research approach in order to get an in-depth understanding of the adoption and use of e-books. Both qualitative and quantitative methods were used in order to avoid the weakness of one method and to get more detailed data that one method alone could not achieve.

This study is exploratory research and used a two-phase design. In an exploratory design, qualitative data are collected in the first phase and quantitative data in the second phase (Punch 2009:297).

Simple random sampling was employed where every member of the population has an equal chance of participating in the study. Different tools were used to collect data, namely, a questionnaire, focus group discussions and observation. Focus group discussions and observation were employed in order to explain and explore the behaviour and perception of undergraduate students about e-books. Quantitative data were collected in order to confirm or reject, and

generalise the qualitative data gathered through group discussions and observation. The questionnaires were collectively administered based on the qualitative data gained from focus group discussions and observation and also by looking at other questionnaires of previous research conducted on the subject.

1.10 Definitions of key terms

The operational definitions of terms used in this Masters dissertation are explained below:

Adoption of innovation

Rogers (2003) defines adoption of innovation in general as the relative speed with which an innovation is adopted by members of a social system.

Adoption

Adoption is seen as the first or minimal level of behavioral utilisation of an innovation (Rogers 2003).

Innovation

New products and equipment but also new methods and ideas (Hoffmann, 2005). An innovation is an idea, behaviour or object that is perceived as new by its audience (Rogers 2003).

Diffusion of Innovation theory

The 'Diffusion of Innovation' theory is a theory that seeks to explain how innovations are taken up in a population (Robinson 2008).

E-Books

The concept of e-books can be defined based on its technological aspects and its features. Vassiliou and Rowley (2008) define e-books as a digital object with textual and/or other content, which arises as a result of integrating the familiar concept of a book with features that can be provided in an electronic environment. An e-book has in-use features such as search and cross reference

functions, hypertext links, bookmarks, annotations, highlights, multimedia objects and interactive tools.

E-Resources

E-resources are defined as those electronic information resources and services that users access electronically via a computing network from inside a library or from an access point remote from the library (Shim 2001). E-resources include online databases, electronic journals, electronic books, full text articles and Websites.

Information Behaviour

Information behaviour is defined as an integrated process of information seeking, foraging, sense-making, information searching, information organising and information use on single or multiple topics (Spink, Park, Jansen & Pedersen 2006).

Information-seeking behaviour

Information-seeking behaviour comprises activities in which a person may engage after having identified his/her own need for information; he/she then starts to search for information in any way, and after having found the relevant information, uses or transfers that information (Majid & Kassim 2002).

Use of e-books

Use of e-books refers to the activities engaged in by a user when using e-books. These activities include searching, browsing, examining, visiting, downloading, e-mailing and reading of e-books by users (students).

1.11 Ethical considerations

This study conforms to high standards with regard to scholarly integrity, social responsibility and respect for the dignity and self-esteem of individuals. Therefore, the purpose of the research and the methods used was thoroughly explained to the respondents before the start of data gathering. Participants were informed that the project is solely for the purpose of completing a Master's dissertation. Participants had the right to choose whether to take part in the study or not. The permission to conduct a study was requested from UNAM: Research and Publication Office.

1.12 Conclusion

This chapter provided an introduction of the position of e-books in academic libraries and their advantages and disadvantages. The chapter also gave a brief outline of the context in which the study was conducted. In addition, it articulated the research problem and research objectives of the study as well as the research questions that formed the basis for this research. The sub-research questions that guided the study were also listed.

1.13 Chapter outline

Chapter 1 contains the background and introduction of e-books in the library sector in Namibia and also gives a brief outline of the context in which the study was conducted. In addition, this chapter also articulates the research problem and research question that formed the basis for conducting this study. The sub-research questions that guided the study are also listed.

The literature review in Chapter 2 focuses on e-books, their adoption and use, and users' behaviour towards e-books. The perception surrounding e-books is also discussed and the factors that may affect the use of e-books are explored. Sources such as journals, conference papers, books, theses and dissertations were used to do the literature review.

Chapter 3 concentrates on the research methodology. The research approach and research design used are discussed, including the sampling methods, methods of data collection and analysis.

Chapter 4 presents the findings of the research in terms of the research objectives.

Chapter 5 focuses on the discussion of the findings in relations to the findings of other researchers and provides a summary of the dissertation, conclusions and recommendations.

1.14 Research time frame

Table 1.1 Research time frame

Themes	**Date**
Proposal	Jan 2013 – April 2014
Literature review	April 2014 – September 2015
Methodology	October 2015– May 2015
Data gathering	June 2016 – August 2016
Data analysis	Sep -Oct 2016
Discussion, recommendations and conclusion	Oct 2016 – Jan 2017

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

E-books can generally be defined as books available in electronic format (Mincic-Obradovic 2010). In this chapter the use of e-books, specifically in an academic context, will be discussed. The chapter will comment on the high level of awareness of e-books in countries such as Australia, Brazil, France, Germany, India, Japan, South Korea, Spain, the UK and the US (Bowker 2012) and the relatively low penetration of e-books in Africa (Maepa & Nkosi 2013). The implementation of e-books at the University of Namibia will also be discussed because it is the specific focus of the study.

This chapter will indicate that the concept of an e-book can be viewed as an innovation that must be adopted by students and that accepting or rejecting this innovation will affect their information-seeking behaviour. Consequently, Chapter 2 will review the literature about the adoption of innovation as a theory as well as factors relating to the adoption of an innovation. The five elements of diffusion, such as innovation, communication channels, time and social systems and their subdivisions will be used as fundamental concepts for understanding the adoption of e-books. In order to understand the usage of e-books in academic libraries the elements of diffusion will be discussed in conjunction with other factors that influence the information-seeking behaviour of students when seeking information for academic purposes. How e-books are used and problems and advantages related to the use of e-books will be also be discussed. Additionally, this chapter will touch on the adoption of e-books and factors influencing the adoption of e-books as well as ways in which the adoption of e-books can be improved and how academic libraries can promote and increase the use of e-books.

2.2 Information behaviour

This study on the adoption or rejection of e-books as an academic resource is rooted in the field of information science. Information science is a "discipline of professional practice and scientific inquiry addressing the effective communication and information objects, particularly knowledge records among humans in the context of social, organizational and individual need for and use of information" (Saracevic 2010:2570). Saracevic further notes that information science has two orientations – one that deals with information needs and information behaviour, and the other that deals with information retrieval techniques and systems. Information science includes aspects such as user studies, citation analysis, experimental retrieval, science communication, information seeking and its context and metadata and digital resources.

One important field of research in information science revolves around user studies. User studies, according to Connaway and Powell (2010), is the study about people and what they do in libraries. User studies study the characteristics of users of libraries and/or information. Wilson and Allen (1999) elucidate the specific user-related characteristics or variables that have been measured in user studies research. These characteristics include: frequency of library or information use, reason for use, type of information and library used, attitude and opinion regarding libraries and sources of information, reading patterns, level of satisfaction, demographic data, personality and awareness of library services. User studies form part of the key intellectual structure of information science, as indicated by Saracevic (2010:2573). In his study, he discussed the historical perspectives of events and forces that illustrate the development of information science. User studies is a fundamental aspect of information science and, according to Bates (2002), user studies fit into the second main question of information science, the 'social question' which seeks to understand how people relate to, seek and use information.

Information-seeking behaviour is one of the important areas in user studies. The complexity of seeking information through the use of various technologies and genres makes it critical to learn more about information behaviour and the failures and problems encountered when seeking information (Bates 2010). Information-seeking behaviour helps the information scientist to understand users' information needs and how they try to fulfil these needs (Rafiq & Ameen 2009).

This understanding of human behaviour in seeking for information helps libraries to offer user-centred information services. 'Information behaviour' is currently the preferred term used to describe the many ways in which human beings interact with information. It includes what is also referred to as 'information-seeking behaviour' which focuses particularly on the ways people seek and utilise information (Bates 2010). The two terms 'information behaviour' and 'information-seeking behaviour' in this study, refer to the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking and information use. Wilson (1999), Spink et al. (2006) and Case (2012) focus on human behaviour in dealing with information. Spink et al. (2006) add to Wilson's definition and state that information behaviour is an integrated process of information seeking, foraging, sense-making, information searching, information organising and information use on single or multiple topics. Wilson (1999), as well as Case (2012:5), note that information behaviour encompasses purposive information seeking as well as the totality of other unintentional or passive behaviour, like glimpsing or encountering unintentional information such as information provided in an advertisement.

Shenton and Hay-Gibson (2011: 167) view information behaviour from an information literacy point of view. They focus on human experiences in dealing with information and define it as "as a realm that in its entirety, explores the totality of a person's experience as an information user". Three particular dimensions are defined: "the recognition of an information need on the part of an individual, the tracing and acquisition of material in response to that feeling and the use of what has been located in order to respond to the situation that stimulated the action taken" (Shenton & Hay-Gibson 2011:167).

Bates (2010), as well as Wang (2011), are examples of authors who view information behaviour as a broader concept that encompasses sub-fields. Wang (2011) identifies information needs, information-seeking, looking for information, searching for information, information retrieval systems, browsing information resources, finding information, relevance judgments, accidental information encountering, serendipitous information, personal information management, information avoidance, effect associated with information, information habits, information style and information-related human behaviour.

2.2.1 Information-seeking behaviour

Information-seeking behaviour is one of the major aspects of information behaviour. The term 'information-seeking' becomes relevant when a user is confronted with an information need. This may lead to an information seeking situation which can be further defined as an activity which may reflect on purposive information-seeking, such as work-related behaviour as well as passive information behaviour, such as accidental information (Wang 2011). Wang prefers to see information-seeking behaviour as "the purposive seeking of information as a consequence of a need to satisfy some goal" (Wang 2011:16).

Wilson (1999) describes the information-seeking behaviour process as defined by Wang (2011) and Majid and Kassim (2002) as activities a person may engage in after having identified his/her own need for information and then starts to search for information in any way, and after having found the relevant information, uses or transfers that information. In the course of seeking for information an individual may interact with manual information systems, such as newspapers or a library, or with computer-based information systems, such as the World Wide Web (Wilson, 1999).

Kakai, Ikoja-Odongo and Kigongo-Bukenya (2004), as well as Majid and Kassim (2000), view information-seeking behaviour as an individual's way and manner of gathering and sourcing information for personal use and personal updating of knowledge, and development. Majid and Kassim (2000) see it as a broad term which involves a set of actions. An individual must first express an information need before seeking it and then the information is evaluated and selected to be finally used to satisfy a particular information need.

It is clear that in essence information-seeking behaviour refers to the way people search for and utilise information (Fairer-Wessels 1990:361). The fact that information-seeking behaviour does not only encompass intentional information behaviour but the totality of the information seeking process, including unintended or passive behaviour (Wilson 1999; Wang 2011; Case 2012), is important to consider in this study, as it includes behaviour that does not relate to searching for information but also includes information seekers' perception, preferences and other factors that may influence the seeking of information, directly or indirectly.

For the purpose of this study, in studying the user patterns and preferences for e-books by students and academics at the UNAM, Wang's (2011) and Case's (2012) definitions will suffice. The rationale for this choice is that their description and definition of information behaviour can help explain the objectives of this study which only examines the purposive use of e-books. The behaviour of an individual in seeking information for academic purposes is also influenced by their attitudes, preferences and decisions regarding the use of certain book formats. The work of Wang (2011) and Case (2012) provides a theoretical foundation to understand the use or non-use of e-books as sources for the information-seeking behaviour of students.

2.2.2 Factors influencing information-seeking behaviour

In general, information seeking is influenced by certain variables that play a role when individuals are looking for information. The literature on information-seeking behaviour identifies several variables. These include, among others, personal characteristics, searching skills, environmental/situational factors (including time, geographical location and national or organisational culture as sub variables) source characteristics, educational variables, demographic variables, social/interpersonal variables and economic variables (Wilson 1999; De Alwis, Majid and Chaudhry 2006; Zhang and Kudva 2013). These factors can also be applied to decide or use e-books as an information source (Norbert & Lwoga 2013).

According to Leckie, Pettigrew and Sylvain (1996), factors that also affect information-seeking behaviour include personal reasons for seeking information, the kinds of information being sought and the ways and sources in which needed information is being sought. In the academic context information needs also differ according to area of specialisation, the purpose for which information is required, the environment of the user, the users' skills in finding the information, sources favoured for obtaining the desired information and the available time which a user has to seek the information (Bigdeli 2007; Maceviciute 2006; Chowdhury 2004).

Zhang and Kudva (2013) found that accessibility, quality, richness of information, individual and institutional characteristics were the major factors influencing information-seeking behaviour and preference for academic source.

To summarise, this section presented the factors that influence human behaviour in dealing with information, which are mainly contextual, situational, personal, socio-cultural and informational. It is evident that these factors can play a role in the behaviour of an individual when finding sources in an academic environment.

2.2.3 Information sources in an academic environment

The library is the heart of every academic institute and the collection of reading material is the centre point of the library. The main motto of every library is to develop a balanced quality and quantity-based collection as per users' demand.

The developments in technology have changed the information environment, with more and more information being published and distributed in electronic format. A number of journals are currently available in electronic format, while many books are being made available electronically on a daily basis (Gorghiu, Gorghiu, Bîzoi & Suduc 2011). Therefore, academic libraries need to accept changes in the education system, curriculum, teaching and learning methods, medium of instruction and examination, changes in the publishing world due to ICT, financial realities and users demands (Rane 2015).

Smith (2006) believes that academic libraries today disseminate information to their patrons very differently than they did a generation ago. He describes eight ways in which academic libraries have shifted: "from amassing collections of paper-based monographs (analogue) to buying digital formats; from books to journals and other media; from highly accessible on-site storage to compact storage whether onsite or offsite; from local storage to remote access; from local ownership to subscription-based access; from selection of individual items to selection of aggregate resources; from library specific collection development to group-based resource sharing; from active acquisition of grey literature to free access via the Web".

Electronic resources like e-journals, e-books, full text (aggregated) databases, indexing & abstracting databases, reference databases, numerical and statistical databases, e-audio/visual resources, and open access resources represent increasingly important components of the collection building activities of academic libraries (Rane 2015). Electronic resources are

invaluable research tools that complement the print-based resources in a traditional library setting. Their advantages include access to information that might be restricted to the user due to geographical location or finances, access to more current information, and the provision of extensive links to additional resource-related contents (Dadzie 2007).

Academic libraries in many countries spend significant proportions of their acquisition budgets on e-books or the implementation of e-books in their libraries (Slater 2010; Walters 2013a; 2013b). It is of strategic significance for collection building and management to know whether money spent by academic libraries and the effort put into such an endeavour is effective and what users think of e-books (Bucknell 2012).

Information resources at the UNAM Library

This study was conducted at UNAM. UNAM comprises twelve campuses and nine regional centres across various regions of Namibia (Namhila & Ndinoshiho 2011). It is a multidisciplinary institution and its academic programmes originate from eight faculties and two schools, which are the Faculty of Agriculture and Natural Resources, the Faculty of Economics and Management Science, the Faculty of Education, the Faculty of Humanities and Social Sciences, the Faculty of Law, the Faculty of Health Sciences, consisting of the School of Nursing and Public Health and the School of Medicine, the Faculty of Science, as well as the Faculty of Engineering and Information Technology. At the time of this research the University had about 20 000 students and 800 academic staff members.

Since its establishment, the University of Namibia has steadily grown and currently UNAM has 12 campuses and 9 centres. The centres were established to assist students that enrol for distance mode studies. The large number of campuses is a result of integration of the four colleges of education into UNAM in 2010, the establishment of the School of Medicine in 2010 and the establishment of the Engineering Campus in 2009, known as Ongwediva Campus, in the northern part of the country. In 2013, the University of Namibia also launched the Southern Campus at Keetmanshoop in the Tsara region.

The significant growth of student enrolment, particularly following the merge of the former collages of education and other new campuses such as School of Medicine, Southern Campus and Henties Bay Campus, has caused additional challenges to a number of units (UNAM 2010) and the library is not an exemption. The UNAM library, known as the Information and Learning Resource Centre (ILRC) is critical for supporting learning, teaching and research work at the university (UNAM 2010).

In order to support learning, teaching and research multimedia material was added to the print collection. UNAM subscribes to databases such as EBSCO, Science Direct, Emerald, Sage, SpringerLink, Oxford, Juta, SA E-publications, Business Monitor, HeinOnline, Hague Academy Collected Courses Online, and the University of Cambridge's International Law Reports. In support of the learning, teaching and research of the university, the library of UNAM began to acquire e-books in 2012 and now has access to about 6300 e-books through EBSCO and Science Direct.

The library makes its e-books available through the vendor's e-books platform, the library catalogue and through the alphabetical title list of all electronic holdings and a direct link to individual e-books on the library website. The e-books are promoted to library users through e-mails, lists of new acquisitions, websites, posters and leaflets, and through library information literacy training. The University of Namibia enrols students from across all regions in Namibia and abroad. This results in unequal ICT literacy, information literacy and understanding of the library and influences students in their use of library resources. At the time of this research the library was investigating another possible e-book package, in addition to EBSCO, but a thorough investigation of the students' views, information-seeking behaviour and usage of e-books would be necessary.

2.3 What is an e-book?

An e-book is defined as a digital object with textual content provided in an electronic environment (Vassiliou & Rowley 2008:363). However, Armstrong, Edward and Lonsdale (2002:217), in their study of e-books in UK libraries, define an e-book as "any piece of electronic text regardless of

size or composition (a digital object) but excluding journal publications made available electronically (optional) from any device handled or desk bound that includes a screen". Abdullah and Gibb (2008) refer to e-books as both the electronic contents and the computerised devices used to store and retrieve information through the use of automated textual storage and retrieval development. An e-book is also defined as "an electronic version of the printed book, designed to be read on the computer or on an e-book reader" (*Dictionary of Library and Information Science* 2013). For the purpose of this study, Vassiliou and Rowley's definition is preferred to guide this study, as it gives a general and yet simple definition of an e-book.

E-books can also be considered as an innovation because they are regarded as a new, digital way to access reading material and as a learning tool for students (Maduku 2015). Since the e-book is an innovation, it is necessary to investigate its diffusion and adoption. But before this is done it is important to discuss the theory used to investigate the diffusion and adoption of an innovation.

2.4 Diffusion of Innovation theory

The Diffusion of Innovation theory is an innovation theory that was introduced by Everett Rogers in his book *Diffusion of Innovation* published in 1962. Since its introduction, the theory has gained appeal for investigating the adoption of innovative technological products and services. The theory has undergone five revisions, namely in 1962, 1971, 1983, 1995 and 2003 (Cheng, Kao & Lin 2002) and are used by various disciplines.

Rogers (2003) defines adoption as a decision made by an individual to make full use of an innovation because it seems to be the best course of action available. For an innovation to be adopted, it has to be diffused to the intended adopters. The Diffusion of Iinnovation theory can help to explain how innovations like an e-book, are taken up by a population or not (Robins 2009).

Innovation as a concept has been defined in various ways (Malian & Nevin 2005:8). Rogers's (2003:12) definition of an innovation, namely, "an idea, practice and object that is perceived as new by social actors" has been extended in the definition of Baregheh, Rowley and Sambrook (2009:34). They reviewed literature dealing with innovation and coined the following definition of innovation: "the multi-stage process whereby organizations transform ideas into new/improved

products, services or processes in order to advance, compete and differentiate themselves successfully in the marketplace". The newness of an innovation is expressed in terms of "knowledge, persuasions or a decision to adopt" (Rogers 2003:12).

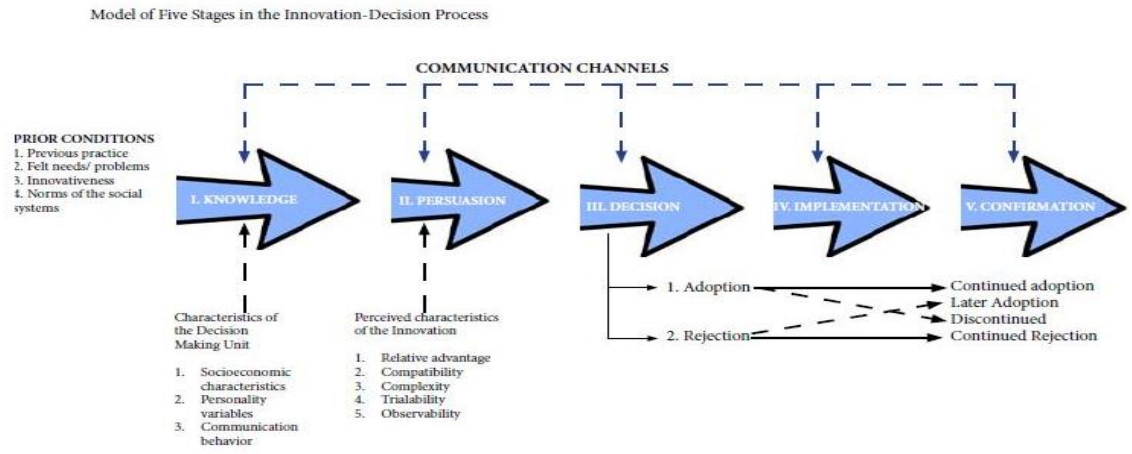
The first e-books were made available more than a decade ago (Marques de Oliveira 2012), but can still be considered as an innovation that needs to be explored because it was not accepted on a large scale in communities, and especially communities in countries of the developing world.

Since the adoption of an innovation depends on its diffusion, the next section will provide an overview of how an innovation can be diffused.

2.4.1 Diffusion of Innovation

For an innovation to be adopted, it has to be diffused so that the information about it can reach the intended population. Diffusion is defined by Rogers (2003:14) as the process in which an innovation is communicated through certain channels over time, among the members of specific social systems. The graphical presentation below, presents the Diffusion Innovation theory that stipulates the theory process and sub-processes involved in the adoption of an innovation.

Table 2.1 Diffusion of Innovation Theory



Rogers (2003:170)

The process of diffusing an innovation contains four elements, namely the innovation itself, communication channels, time and the social system (Rogers 2003). These elements are factors that can influence the adoption of an innovation. The four elements will be discussed in more detail below.

Innovation

A specific innovation is the first element in the diffusion process and it is a critical factor in predicting the adoption of an innovation. The adoption rates of innovations are not equal with regard to the rate of adoption. Some innovations are adopted fast, while it takes long for others to be fully adopted (Robinson 2009; Goncalves, Laguna & Iglesias 2012). How an innovation is perceived by individuals is a critical factor in its successful adoption and this needs to be emphasised. Rogers (2003:15) and others describe how the characteristics of an innovation, as perceived by individuals, can help to influence the rate of the adoption of the innovation.

The following characteristics of innovations can influence its adoption (Denis, Hébert, Langley, Lozeau & Trottier 2002; Rogers 2003).

- Relative advantage "is the degree to which an innovation is perceived as better than the idea it replaces" (Rogers 2003:15). The relative advantage can be measured in terms of economic, social prestige factors, convenience and satisfaction of individuals.
- Compatibility is the degree to which an innovation is perceived as being compatible with the existing values, past experiences and needs of potential adopters. (Rogers 2003:15). Innovations that are compatible with user's values, social norms, needs and past experiences are more readily adopted compared to those that are not compatible.
- Complexity is the degree to which an innovation is perceived as difficult to understand and use. According to Denis et al. (2002), innovations that are perceived by key players as simple to use are more easily adopted. However, the complexity can be reduced by practical experience and demonstration of the innovation.

- Trialability is the degree to which an innovation may be used in experiments on a limited basis. Innovations that can be used in experiments on a limited basis by intended adopters are adopted and assimilated more easily (Yetton, Sharma & Southon 1999; Plsek 2003).
- Observability is the degree to which the result of an innovation is visible to others. If the benefits of an innovation are visible to the intended audience, it will be adopted more easily. Demonstrations and promotion can increase the likelihood of the adoption of the innovation (Greenhalgh, Robert, Macfarlane, Bate & Kyriakidou 2004).

An innovation that is perceived as one with relative advantages, compatible with prevalent values, experiences and needs and that is easy to use will be adopted at a faster pace as those that are not perceived as having relevant advantages, and that are incompatible and complex to use.

Communication channels

Another element of diffusion comes into play when the existence of the innovation needs to be communicated. Any innovation is diffused through various communication channels in order to reach the intended adopters. Mass media channels such as radio, television and newspapers transmit messages which can reach large audiences (Rogers 2003) are sometimes used. In addition to mass media, interpersonal communication may be also efficient in persuading individuals to accept an innovation. Interactive communication via the Internet, such as social networks are becoming important for the diffusion of an innovation (Rogers 2003). This has become more frequent with the increase of communication on social media.

Communication is also influenced by homophily and/or heterophily. Homophily, is the degree to which two or more individuals, who interact, are similar with regard to certain attributes such as beliefs, education and socio-economic factors (Rogers 2003). Adoption of an innovation by individuals is more likely if individuals have similar attributes to the current users of the innovation (West, Barron, Dowsett & Newton 1999; Fitzgerald, Ferlie, Wood & Hawkins 2002). Heterophily, is the degree to which individuals who interact, are different with regard to such attributes (West et al. 1999; Rogers 2003).

The type of communication channels used to diffuse an innovation may also impact the rate at which an innovation is adopted as well as the time it takes to diffuse the innovation. Time as a variable in innovation diffusion and adoption will be discussed next.

Time

Time is the third element of diffusion. As innovation, diffusion and the adoption processes progress, people make a decision as to whether adopt or reject the innovation. In this decision-making process, they have to be well-informed to be able to seek and find more information about an innovation before they make a decision to adopt the innovation. Rogers (2003) argues that the innovation-decision process consists of two activities, namely information-seeking activities and information-processing activities. During these two activities, the target audience must be motivated to adopt the innovation, for example, uncertainty about the advantages and disadvantages of a new idea or product must be reduced. Information-seeking activities will be explored later in this chapter.

Social system

The social system is the fourth element in the diffusion of the innovation process. A social system is a "set of interrelated units that are engaged in joint problem solving to accomplish a common goal" (Rogers 2003:23). The interrelated units can be individuals, organisations and subsystems. Rogers (2003:28) also identifies three types of innovation decisions that are influenced by the social system as described below:

- The optional innovation decision. This refers to the choices to adopt or reject an innovation by an individual, independently of the decision of the other members of the system.

- A collective innovation decision is when a decision is reached by consensus among many members of the system.

- Authority innovation decisions refer to the "choices to adopt or reject an innovation that is imposed by relatively few individuals in a system who possess power, status or technical expertise" (Minishi-Majanja & Kiplang'at 2005:213).

As described above, the rate of adoption of an innovation is influenced by the innovation itself and its characteristics, the communication channels, the time frame of the adoption process and the social system, norms, structure and role of opinion leaders.

Decision-making process

With time people make certain decisions about an innovation. Rogers (2003) and Dooley (1999) identified five stages of the innovation-decision process, namely knowledge, persuasion, decision, implementation and confirmation.

- Knowledge is concerned with the exposure to the innovation's existence and function. For individuals to adopt an innovation they need to have the knowledge that the innovation exists and understand how it works and benefits them before they will make use of it. The knowledge stage consists of three types of knowledge; awareness (knowledge about the innovation and its advantages), know-how (consists of information necessary to use an innovation properly) and principal knowledge (consisting of information dealing with the functioning and the underlying principles of how the innovation works). Knowledge is a critical factor in the decision process.

- Persuasion is the formation of a favourable or unfavourable attitude towards the innovation.

- Decision has to do with the engagement in activities that lead to a choice to adopt or reject an innovation.

- Implementation is putting the innovation into use.

- Confirmation occurs when an individual seeks reinforcement of the decision to use an innovation or reverse the previous decision due to the conflict.

These stages in the decision-making process can be a contributing factor or barrier to the adoption of an innovation. If students are, for example, aware of the existence of smartphones but they lack

knowledge on how to access and use them, it will have an impact on the adoption rate of smart phones. The decision-making process helps to understand the process that one may go through before confirming the adoption or rejection of an innovation. However, the adoption of an innovation can also be influenced by the social system in which the innovation exists and is diffused.

In order to understand the adoption of e-books in academic libraries a discussion of innovations in a library environment will be discussed next. This section discussed the fundamental concepts that may have an impact on the adoption of e-books. The next heading will focus on the discussion of the innovation in the library context.

2.4.2 Innovation in the library environment

In libraries, innovation has become an important concept, especially in the transition from print materials to electronic resources (Carr 2009). Academic libraries need to continue to redefine their role in the digital environment, they need to leverage their strengths and innovate to create responsive and convenient services (Scopula & Nicolajsen 2010:304). No academic library can ignore electronic innovations because it has to collaborate with academic institutions that are embracing the notion of e-learning (American Libraries Association 2012). Academic libraries have to be creative and innovative to transform their services to meet the demand needs of their users.

Several studies in library and information science investigated the involvement and role of customers on library services innovation (Scopula & Nicolajsen 2010). Natarajan (2010) focuses on knowledge innovation cultures in libraries. Clayton (1997) uses a case study approach in his published dissertation, along with Rogers's five attributes as a framework to study innovation in Australian academic libraries. His findings contributed significantly to Rogers's model. Jantz (2011) explores the leader perspectives on innovation in academic libraries.

Blackburn (2011) investigated the Millennials and the adoption of new innovation in libraries through a diffusion process, and stages of adoption and the five stages of decision making process as outlined in Rogers' Diffusion of Innovation theory. His findings show that the Millennials are

regarded as change agents and bring a technology-driven attitude to work in libraries using communication channels.

Several other studies researched innovation in the library and information science field using the Diffusion of Innovation theory including that of Maull, Saldivar and Summer (2010). On the application of digital libraries in instructional planning and teaching, Holland (1997) and Allard (2003) considered the roles of librarians when introducing users to networked information. Minishi-Majanja and Kiplang'at (2005) focused on the appropriateness of DOI in library and information science research, while White (2001) studied the digital reference services. Neo and Calvert (2012) based their study on the application of Facebook in New Zealand libraries and concluded that in the innovation decision-making process, knowledge and attributes of innovation are the most important factors of Rogers' Diffusion of Innovation theory to explain the adoption and/or rejection of an innovation. Tran (2007) studied the adoption of community information networks. Having reviewed other studies on the adoption of innovation and the theory that is applies, this work applies the Diffusion of Innovation theory to study the adoption and use of e-books by students.

Rogers's Diffusion of Innovation theory could be used to shed light on why intended adopters are slow in accepting online databases to seek information (Williamson, Wright, Burstein, Schauder 2003). The Diffusion of Innovation theory is a complex one with many components which combine to respond to how and why people adopt innovation (Miller 2015). It provides a foundation for understanding the multiple aspects and elements of the adoption of innovation ranging from the characteristics of an innovation itself to the decision-making process carried out by an individual to the roles and influences of the societal and cultural context (Miller 2015). The discussion above is an indication that the Diffusion and innovation theory can be a useful theory in investigating the adoption of innovation in libraries. Hence its application in studying the adoption of e-books for the purpose of this research.

2.4.3 The diffusion of e-books as an innovation

It is important to determine what other studies have found about the adoption of e-books as an innovation and what variables were studied.

According to Rogers (2003) the adoption of e-books might also be affected by the perceived attributes of an innovation, such as relative advantages, compatibility, complexity, observability and trial ability. Studies by Hayati and Jawker (2008); Lai and Ulhas (2010); D'Ambra et al. (2013); Dambra, Wilson and Akter (2013); Lee (2013) and Jin (2014) that investigated the adoption of innovation in libraries observed that the perceived attributes have a significant impact on the adoption and use of an innovation. Hayati and Jawker (2008) focused on the five perceived attributes of Rogers (2003) and the findings revealed that all the attributes have an impact on the adoption of the e-reference materials. The perceived usefulness, convenience, compatibility and enjoyment make significant contributions toward the intention to use a dedicated e-textbook application for learning (Lai & Ulhas 2010). Zinn and Langdown (2011) identified major and unique problems that may affect e-book adoption in Africa, such as the cost of equipment to read e-books and e-books format (compatibility) that is not flexible. Compatibility, usefulness and the relative advantages of e-books are therefore closely related to the acceptance of e-books (Jin 2014). In addition, Lai and Ulhas (2010) investigated factors that influence university students to use dedicated textbooks for learning at Taiwanese's universities and found that factors such as perceived usefulness, convenience (relative advantages), compatibility and perceived enjoyment have an effect on e-book acceptance. Maduku (2015a) adopted the Unified Theory of Acceptance and Use of Technology (UTAUT) model to investigate the behavioural intention of students in selected South African tertiary intuitions to use e-books and revealed that performance expectancy, social influence and facilitating conditions are significant factors of behavioural intention towards e-book use.

Individual innovativeness is another aspect that may influence the adoption of an innovation. Rogers (2003) stated that in a society, people demonstrate different responses to innovation depending on their personality traits. The individual innovativeness is divided into five different categories from earliest to latest: innovators, early adopters, early majority, late majority and

laggards. Lee (2013) integrated the Diffusion of Innovation theory with the Technology acceptance theory and Model of innovation resistance, and used a survey to examine features that lead to the adoption of mobile e-books in South Korea. His findings revealed that individual innovativeness has a significant influence on perceived usefulness and perceived use. Individual characteristics significantly influence the perceived usefulness of e-books, which in turn influences the academics use of e-books and overall performance (D'Ambra et al. 2013). In addition, Jung, Chan-Olmsted, Park & Kim (2011) conducted a study to establish predictors of e-books diffusion in relation to the e-books readers' awareness, interests and adoption intention. Their findings revealed that e-book readers' awareness, interest and intention to adopt correlates positively with age, education, income, personal innovativeness, adopters' demographic variables and innovation attributes. Khaldin (2013) found a significant relationship between five personality traits, such as conscientiousness, agreeableness, neuroticism, openness to experience and extraversion, and the adoption of e-books. Aharony (2014) studied the attitude of information professionals towards the adoption of e-books and found that personal innovativeness and other personal characteristics are predictors of behavioural intention to use e-books.

Marketing and promotion are also important components that influence the use of e-books. The marketing aspects can be related to the communication channels of Rogers' diffusion of an innovation which investigated how the innovation is diffused to the intended adopters. Raten (2010) examined the factors that lead individuals to adopt an e-book device using social cognitive theory and concluded that marketing has a positive impact on the individual's intention to use e-book devices (Raten 2010). Wales and Brown (2009) note that the promotion of e-books is crucial in order to ensure a high acceptance and usage level of e-books.

Attitudes towards e-books vary according to individual characteristics such as age, gender, academic level and discipline. Lamothe's study (2012) on the use of e-books in the J. N. Desmarais Library of Laurentian University concludes that there was quantitative evidence that PhD students use e-books the most, followed by Master students. Individual characteristics significantly influence the task-fit technology of e-books, which in turn influence the use of e-books and overall performance of academics (D'Ambra et al. 2013).

Knowledge and skills are the most important attributes required to enable people to adopt an innovation. They need to be aware and know how to use the innovation. Holland (1997) identified the knowledge and skills needed to use networked information, namely, the awareness skills of the basic concept of the networked content or Internet, for example, e-readers and e-books. The skills require interacting, searching and retrieving information from the networked content. Online searching skills are also required to fully utilise and exploit the full-text database via the Internet or database platform. General skills, including awareness and basic skills on how to access information, are not an exemption in the aspect of e-books adoption. Students and lecturers need to be aware of the availability and accessibility of e-books. More importantly, they need skills to manipulate the e-book platform and search for information in an e-book. These skills correlate with the three knowledge trends, namely awareness (knowledge about the innovation and its advantages), know-how (information necessary to use an innovation properly) and principal knowledge (information dealing with the functioning of and principles underlying how the innovation works) which were identified by Rogers (2003:166). The three knowledge trends are premised on the assumption that if librarians want academic users to optimally use the e-books provided by their library, then they have to make sure that the three categories of skills are well addressed in their institution. Grenina (2012) also mentioned that the level of computer skills (knowledge) has an impact on the adoption and use of e-books in Latvia. Quan-Haase, Martin and Schreurs (2014) tried to understand the adoption of e-books among seniors and found that confidence and technology exploration may influence the adoption of e-books.

2.4.4 Hindrances to the adoption of e-books

This section discusses the factors that hinder the adoption of e-books.

One of the reasons given is not being comfortable with using personal computers, laptops and other e-readers (Helfer 2000; Andersen 2001). Other reasons include: finding it difficult to read on small screens; problems with browsers, such as slow loading time; and difficulties with navigating (Gibbon 2001; Chu 2003). Some individuals prefer to read print (Holmquist 1997; Ray & Day 1998; Gibbon 2001).

A lack of a standard format was identified as a present hindrance to the adoption of e-books (Mincic-Obradovic 2010). E-book publishers publish e-books in different file formats, such as HTML and PDF. Not all book formats are compatible with all e-book readers or reading devices. Furthermore, some e-books require special software to be downloaded and some software might not be compatible with certain e-book reader devices and computer software. In addition, publisher and vendor platforms are different in appearance, navigation and search features. This can confuse the users. Some platforms are complicated to navigate. Users need something simple and easy to use, like Google, when searching for e-books. Fear of technological complexity also acts as a barrier to acceptance and the difficulty of using e-book readers have a significant impact on its adoption (Wang & Bai 2016). Difficulties in searching some of the electronic reference materials/platforms, as well as the existence of different search strategies in different databases might hinder the use of e-books to some e-book users.

Digital rights management (DRM) is another contributing factor that may hinder the adoption of e-books. DRMs are systems used to digitally manage the copyrights or enforcing exploitation rules as determined by the rights holder (Rump 2003). Safavi-Naini, Sheppard and Uehara (2004) explain how DRM allows copyrighted multimedia materials owners to control and monitor the distribution and use of the multimedia content through electronic channels. It controls the copying, printing and redistribution of online contents. The purpose of DRM is to prevent unauthorised redistribution of digital media and restrict the ways consumers can copy, print, and burn in other devices the content they have purchased, and thereby avoid copyright infringement. According to McKnight, Dearnley and Morris (2008:176) and Vasileiou, Rowley and Hartley (2012:221), DRM is perceived as a factor that hinders the adoption of e-books. The DRM and the restrictions placed on e-books are a major issue affecting the adoption rate of e-books in academic libraries (Slater, 2010). Van Arnherm and Bernett (2014) state that DRM restricts the flexibility and accessibility of e-books and frustrates users seeking an interactive online reading experience. For instance, when using EBSCO as a vendor, a user is not allowed to check or download more than two or three items at a time, and one is only allowed to print about 60 pages of a book. A user is not

allowed to download a book to read offline without opening a personal account with EBSCO and one always has to sign in to browse books.

Another blockage to the use of e-books is a lack of seamless access Mincic-Obradovic (2010). He notes that, while libraries provide many information resources, users' needs require simplicity and ease of access and use of the library collection. It is frustrating and time-consuming to move from one platform to another: from OPAC, to EBSCO and then again to Emerald. Libraries need to avoid these frustrations and make life easier for their users. Today's libraries, with a variety of different print and electronic resources, need to provide uniform access or one-point search, known as discovery, meta search and beta search, for all their print and electronic resources. Uniform access would eliminate the need to consult separate resources and search interfaces**.** Accessibility to e-book content for libraries remains restricted with limits on multiple access and discovery issues (Library Journal 2012)**.** These issues can act as serious deterrents to the potential adoption and use of e-book collections.

Another hindrance in the use of e-books is the difficulty of reading on the screen. Marques de Oliveira (2012) investigated the usage patterns and attitude of students at Andrew University and found that eye strain and difficulty of reading are reasons for students not to use e-books. Springer (2008) conducted a study among five institutions from different countries, namely from the Netherlands, the United States, Germany, Finland and India to determine the viewpoints of end users about e-books. Participants in these studies described the primary disadvantage of e-books as the difficulty of reading content from a screen. These recurring findings on e-book readability problems might indicate ongoing challenges for e-book adoption.

Cultural resistance is another obstacle to the adoption of e-books. People are used to reading printed books and find it difficult to move to reading on screen. Many studies conducted on the adoption of e-books, such as studies by Woody, Daniel and Baker (2010); Rod-Welch, Weeg, Caswell and Kessler (2013); Zhang and Kudva (2013); Miller (2014); Tosun (2014); and Walter et al. (2014) indicate preferences for printed books. Landoni and Hanlon (2007:605) studied book clubs, where they reported that the social side of the reading groups worked against the adoption

of e-books. All the group members had very strong feelings about paper books and in a certain way felt they are betraying paper books when using e-books. Walton (2008:33) suggests that "cultural norms in Western society toward reading print books will make the widespread adoption of e-books for reading a very slow process". Another study conducted by Annand (2008) probed the preference of e-books over printed books. It also found that students generally prefer printed materials. Nicholas et al. (2008) conducted a national e-books observatory study in the UK, where only 13.2% from the population of 22 437 students expressed a preference for e-books. Even though 61.8% of the population indicated that they had used e-books, they still preferred reading printed books rather than e-books. Woody, Daniel and Baker (2010) investigated the preferences of e-books over textbooks. They also found that students have a preference for printed textbooks over electronic textbooks.

Another barrier for e-book adoption is a lack of knowledge about this innovation. In their study Hayati and Jowker (2008:60) investigated the adoption of electronic reference materials in Iran. They found that aspects such as "lack of sufficient experience in using the computer" as a factor that hinders the use of e-books. It seems clear that computer and searching skills can impose a burden on the use of e-books (Hayati and Jowker 2008).

The lack of awareness is another obstacle to the adoption of e-books (Hayati & Jowkar 2008:60; Mincic-Obradovic (2010). The awareness of e-books in higher education institutions varies. Desouza et al. (2004), E-brary (2007) and Brown (2009) found that awareness of e-books is low, while Ahmad et al. (2013:89) found that the awareness and acceptance of e-books is average. Lack of awareness of the Royal Roads University Library's e-books collection was the top reason cited by 779 students who participated in a study about not using e-books (Croft & Davis 2010).

Nicholas, Rowlands and Jamali (2010:273) evaluated the use of e-books and information-seeking behaviour of business management students from a UK university and found that the lack of more and relevant e-books titles can hamper the use of e-books. Limited selection of titles is a disadvantage that hinders the use of this type of book format (Thomas 2007:39). The availability of titles in both print and electronic formats is another burden to the usage of e-books (Walton 2014). Walton's findings reflected that when the same e-book and printed book are available,

students usually or always chose to use the printed book and never or rarely chose to use the e-book.

Table 2.1 provides a summary of problems related to the use of e-books derived from the discussion above. The problems are categorised and aligned to the main concepts of the Diffusion of Innovation theory.

Table 2.1 Factors and problems related to the use of e-books

Factors	**Problems related to the use of e-books**
Knowledge of the innovation	• Lack of sufficient experience in using a computer • Lack of searching skills • Lack of awareness of e-books
Perceived attributes of the innovation	• Difficulties of access • Difficulties to highlight and take notes • Difficulties of reading on the screen • DRM restriction • Lack of a standard format • Eye strain
Accessibility of the innovation	• Lack of seamless access • Discovery services and uniform access • Lack of more and relevant titles • Lack of titles in some disciplines
Communication of the innovation	• Lack of awareness • Lack of training • Poor promotion of e-books
Social system in which the innovation is diffused.	• Cultural resistance • Dislike reading on the screen • Preference for hard copy

Besides the problems that students have when using e-books, there are also benefits to gain when using e-books.

2.5 Advantages of e-books

E-books are perceived to have many potential advantages to offer to the academic community. It is important to understand what those advantages are.

Ease of use and e-books' compatibility with their research work are some of the factors that encourage historians at the University of Western Ontario to use e-books (Martin & Quan-Haase 2013). Easy navigation was the most dominant reason for users to use e-books in many studies (Chu 2002; Jamali, Nicholas & Rowlands 2009; Kang, Wang & Lin 2010; Romero-Otero, Iglesias-Fernández & Giménez-Toledo 2013). Roesnita and Zainab also found that 45% of the participants were of the opinion that e-books are faster and offer easier access to newer titles.

The most important reasons why the respondents of Wu and Chen's (2011) study use e-books are accessibility and convenience to use an e-book at any time and wherever, without visiting the physical library. Appleton (2004) in his study on the use of e-books in midwifery education confirmed that students like the convenience of using electronic materials at home. E-books' functionalities, such as accessibility and convenience, are the dominant reasons to use e-books (Chu 2002; Roesnita & Zainab 2005; Jamali et al. 2009; Kang, Wang & Lin 2010; Romero-Otero et al. 2013). Vassiliou and Rowley (2008); E-brary (2008) and Armstrong (2008) argue that many users can have access to one e-book at a time and the e-book can be accessed wherever Internet connections are available, while Wu and Chen (2011) note that having access to an e-book at any time without visiting the physical library is the most important reason why the respondents use e-books.

Unlike the traditional book, an e-book is portable; it can be easily forwarded from one user to another (Rao 2003). For example, an e-book chapter can be send to more than one person's e-mail at one time. Anuradha and Usha's (2006) study showed that 50% of the participants in their study liked the mobility of e-books because e-books are portable and easier to carry, and students can access e-books with their smartphones wherever they are.

Another advantage of e-books is their search functionality. One can search through text as e-books offer a variety of computerised search options (Armstrong & Lonsdale 2003). Abdullah and Gibb (2006) also mention the fact that e-books have features that printed books do not have, such as a search function and link to a dictionary or thesaurus. Studies by E-brary Global Survey (2009), Kang, Wang and Lin (2010); Romero-Otero et al. (2014) also provide evidence that searching within text is the dominant advantage for students to use e-books. In a study by Anuradha and Usha's (2006) 71,6% of the respondents liked the search tool to locate words or quotes.

E-books can also be offered for text processing and users can, among others, copy and paste, highlight text and define words. E-books have features that print books do not have, such as links to dictionaries or thesauri (Abdullah & Gibb 2006). This can also include functionalities such as hypertext and links to related documents and links to authority files. Texts from e-books can be downloaded, saved, and e-mailed in PDF. For evidence, see studies such as Hayti and Jawke (2008), Nicholas, Rowland and Jamali (2010), Cassidy, Martinez and Shen (2012). In a study by Folb, Wessel and Czechowski (2011) 76.6% of the respondents valued the printing option and 72% regarded saving downloads on a personal computer and other e-readers as the most significant features that inspire them to use e-books.

Based on the literature that were reviewed above, it is evident that e-books as an innovation have much to offer academic library users. Students and lecturers should adopt and use e-books. Hayti and Jawke (2008), Nicholas, Rowland and Jamali (2010), Cassidy, Martinez and Shen (2012) identified reasons why people should adopt and use e-books. Those reasons are the convenience of information retrieval, the accumulation of a large volume of information, the possibility of searching in a specific subject field, possibility of applying Boolean operators, the existence of links to hypertext or related documents, the search history option, links to authority files and thesauruses, access to full texts, printing citations, simple interface, user-friendliness, and the existence of a help option. All these functionalities have benefits for the academic community.

2.6 Marketing and promoting access to e-books by academic libraries

It has been established above that to enable an individual to adopt or reject an innovation, he or she has to be aware of the innovation. The knowledge about an innovation has to be diffused to individuals or groups, in order to later process the information. The knowledge can be diffused through mass media or by interpersonal communication.

Responsibility for the marketing, branding and promotion of a library's collections is nowadays a prerogative of the library and information services. Therefore, libraries cannot integrate e-books and assume that users will know about the new collection. The use of digital content is driven by the visibility and discoverability of such content in major search engines like Google and other access points like library websites, blogs and catalogues (Hasan, Chavan & Chausasia 2011). Lonsdale and Armstrong (2001) argue that "in the context of e-books, it might be contended that the publicising and promotion is even more critical, since there is even a greater lack of awareness and understanding by academic staff and students of this relatively new book format". Nariani **(**2009**)** raises the question that "if libraries bought e-books and did not market and promote them, would the academic community use them? If lecturers and students are not aware of e-books will they use them?" Libraries therefore, need to find practical and efficient ways to promote their collections more effectively.

Multiple access points to the e-books such as the use of discovery search tools, a direct search box for e-books and multiple links to e-books will increase accessibility and discoverability of e-books and thereby increase the use of e-books (Hasan et al. 2011). These multiple access points can include providing access through the library catalogue, website and discovery searches that are used to enhance accessibility and discoverability of the library's collections, including e-books.

Nariani (2009) found that the library catalogue was the most popular way in which undergraduate students and faculty got to know about e-books. About 30% of faculty staff and 17.2% of students only became aware of e-books during the survey. This is an indication that librarians need to exhaustively market and brand their collections so that library patrons are aware of the existence of the new information sources.

A library website is another way in which students and faculty many discover e-books (JISC 2008). A pilot project for Springer e-books at the University of California found that 60% of the respondents discovered e-books through the library catalogue and 36% through the library website (Li, Poe, Potter, Quigley and Wilson 2011). Brown (2009), in his study, also found that library web pages make a great contribution to the discovery of e-books.

User education is critical in providing knowledge required by an individual to make a decision about the adoption of an innovation. Anuradha and Usha (2005) emphasise the need for librarians to accept that they should create awareness and conduct user education in order to demonstrate an innovation. JISC (2012) observed that universities need to develop a strategy for raising awareness of all types of e-books and develop information literacy training programs to equip individuals with the knowledge that will lead to the adoption of e-books as an innovation.

Lin, Tzeng, Chin and Chang (2010) examined how users perceive the influence of the recommendation about the intention to use e-books for academic purposes, looking at three sources, namely, word-of-mouth, advertising and expert recommendation. Their findings revealed that word-of-mouth proved to play a more important role when compared to advertising and expert recommendation. Roesnita and Zainab (2005) conducted a study with undergraduate computer science and IT students at Malaya University. Their findings also recognised the contributions of lecturers in raising e-book awareness among students. About 17% of the respondents indicated that they got to know about e-books when they were referred to them by their lecturers.

The use of discussion forums and other social network sites regarding the benefits of e-books and discussing e-book usage, have an important role in encouraging understanding (Lin et al. 2009; Bickard & Schindler 2001). It could reduce future hesitancy to use e-books and increase self-confidence in the new book format because scholars, lecturers, professors and researchers spent most of their time online. Discussion forums and social networks could be a platform through which libraries can increase their visibility and raise awareness about their resources, as well as provide guidance to their patrons on how to utilise newly introduced resources. Quan-Haase (2011) explored the role of social networks in the adoption of e-books and found that specialist librarians can act as change agents in the university. Although the role they have on the adoption of new

technology needs to be further explored, they are frequently acknowledged in the study as key sources of information about the awareness of e-books.

Unlike Brown (2009) and Lonsdale and Armstrong (2001), the findings of Li et al. (2011) show that marketing and branding by library staff were the least important way in which students and academics discovered e-books; only 15% became aware of e-books in this way. Other promotional marketing strategies such as posters, flyers and newsletters tend to be very insignificant or less effective in raising awareness.

Regarding marketing campaign and advertising, Torabi (2011) conducted a research study among 25 librarians to determine the existence of a formal promotion or marketing strategy for e-books in academic libraries. His findings revealed that none of the participating libraries had a formal marketing strategy in place. However, among all participating cases, 19 recognised the importance of developing one. According to Svencionyte (2005), on the other hand, advertising is usually the most used method of marketing in libraries. Its effects appear to be more beneficial than word-of-mouth (Kanso & Nelson 2004).

Additional promotional tools include OPAC, library websites, information literacy sessions, e-mails, online tutorials, blogs, display screens and marketing campaigns. Although the success and effectiveness of these tools have not been proven successful, tools such as information literacy, online tutorials, online guides and blogs are currently critical to use in the current library environment where the diversity of information sources require skills and guidance on how to use and search for information in different formats and on different platforms. Table 2.2 summarises the possible ways which libraries can market and promote the usage of e-books.

Table 2.2 Ways to market and promote usage of e-books in libraries

Expertise recommendation	Discovery services
Word-of-mouth	Training /Information literacy/Discussions
Promotion (marketing, branding of library and advertising)	Multiple access points

Include e-books in library catalogue	Online guide and tutorials
E-books link on the library website	Library staff

Table 2.2 summarises the possible ways to increase the usage of e-books in libraries. Librarians should consider and ensure that they use these strategies to make e-books more easily accessible to their users. Besides the understanding how the awareness of e-books can be communicated to all, it is also important to understand how e-books are used.

2.7 Usage of e-books

This section discusses the usage of e-books to get an overview of who and how e-books are used, with reference to particular countries.

2.7.1 Usage patterns of students in libraries in developed countries

In understanding how e-books are used in the developed world, (Levine-Clark 2015) conducted a study among developed countries such as Australia, New Zealand, Europe, North America, the United Kingdom and Ireland. His findings revealed that there are more downloads per session. In a survey to determine the usage and perceptions of e-books among 120 participating universities in the UK Nicholas et al. (2008) found that e-book penetration is very strong, with 61% of students who participated in the survey using e-books for their scholarly work. It is further reported that, among all the users that indicated that they have used e-books, 46% indicated usage of e-books from the university library, 42% from Internet access and only 5% bought their own hard copies. The majority of participants (91.6%) reported using e-books for work and study purposes. This is why most of the users used e-books provided by the library.

Nicholas' findings correlates with those of Briddon et al. (2009) who found that 62% of the students who participated in his study use e-books, 76% use e-books for independent reading for coursework, while 55% use e-books as recommended reading for coursework. There were differences in the use of e-books among users of different disciplines. Law students were the most

frequent users (31%) of e-books, compared to students in other disciplines such as humanities, languages and social sciences who comprise only 21% users (Briddon et al. 2009).

The Springer survey conducted in 2008 revealed that users access e-books mostly for research and study purposes and that the types of e-books most frequently used are reference works and textbooks. Chaurasia and Chaurasia (2012) conducted a study to explore the information-seeking behaviour of students and scholars in the electronic environment and found that students prefer to use electronic books in their research and assignment studies.

In China, the level of awareness and usage by students of library-provided e-books were both very low (Wang & Bai 2016). Although most respondents said that they knew the term, and even came across this format of reading, the daily usage of e-books was low. About 57.7% of the respondents said that they used e-books occasionally; 30.6%, frequently; 8.4% everyday; and 3.3% said that they had never used e-books.

In New Zealand, students are aware of e-books and use e-books often and are satisfied with e-books, especially with the ease of finding and using e-books (Wilkinson, 2015). About 65% had use e-books for recreational purpose, while 85% had use e-books for academic purposes.

However, Chandra (2013) in his study that examined the reason and the methodology of teaching e-citizenship at Edith Cowan University, found that because the e-citizens spent most of their time in front of a computer, they do not want to read at length on the computer. He argues that the method of learning to use e-books was not embraced by students. This confirms other studies on reading behaviour in an electronic environment that have been conducted by scholars such as Lui (2005), Lui (2005), Rowlands et al. (2007), Nicholas et al. (2008), Noorhidawati & Gibb (2008**),** Nicholas (2011), Nicholas and Clark (2012) and SpringerLink (2013).

For the purpose of this study, it is also important that the use of e-books in the context of Africa is discussed since Namibia is an African country.

2.7.2 The use of e-books in Africa

The use of e-books in Africa varies from country to country but generally the usage of e-books is quite limited. Even in SA the use of e-books among academic librarians is also limited (Zinn & Longdown 2011). E-books are mainly used when browsing for information and are selected for functionality searches within text, anytime-access and automation (Zinn & Longdown 2011). Despite the high rate of awareness of e-books at Nigerian institutions of higher learning, the usage of e-text books is limited (Adubika 2011).

In Africa e-books are accessed mainly in urban areas where 80% of Internet connections are found (Global e-book Snapshot 2012). Students in Ghana are aware of e-books and the benefits of using e-books, but at the time of the study had not used e-books (Asunka 2013). Asunka concludes that students are unfavourably using e-books and other electronic contents in place of print books. A study to investigate the use of electronic resources at the University of Lagos in Nigeria, Egberongbe (2011) reported that e-books are less used by both students and lecturers.

Zell (2013) focusing on the use of electronic devices in Sub-Saharan Africa, reported that the use of e-books in Africa are still limited due to the small number of e-book publishers in the leading e-book countries in sub-Saharan Africa, such as Kenya, Nigeria, Ghana and South Africa. The academic staff in Nigeria who participated in the study had used e-books before (Basil 2012) but they all indicated that they encountered problems in the process of using e-books.

Besides reporting on the usage patterns of e-books by students, it is also important to develop insight into how students use e-books.

2.7.3 How students use e-books in developed countries

E-books are used differently and for different purposes in developed countries. The frequency of how often students use e-books differs from one student to another. Some students use e-books more often than others. Gilbert and Fister (2014), in their study to determine the perceived impact of e-books on students' reading practices, found that 55.9% of respondents used e-books daily, 55.5% weekly and 54% of respondents used e-books on a monthly basis. At least 39.3% of the respondents in Gilbert and Fister's study are likely to use library e-books for research purposes.

A study by Camaoglu, Sacici and Torun (2013) found that 68% of students read e-books on a weekly basis.

Students also use e-books in different ways: some browse through the book while others download and print a chapter to read at a later stage. Studies conducted by Rowlands (2007), Nicholas et al. (2008), Shelburne (2009) and Hasan, Chavan and Chaurasia (2011), indicated that users prefer to read short sections of e-books and prefer print books when they are challenged to read the entire book. Sacco and Daniel's (2014) findings indicate that students are likely to read one chapter or less from e-books, and that 27% of those who had used e-books like to print out a chapter and read it at a later stage. Students refer to sections from an e-book but those who use e-readers are likely to read the whole book (Water, Roach, Emde, McEarthron & Russel 2014). In addition, 28% of the respondents indicated that they download and print the e-book section they want to read (Hernon, Hopper, Leach, Saunders & Zhang 2007; Noorhidawati & Gibb 2008a, 2008b; Camaoglu et al. 2013) observed that students use e-books for finding relevant information and scanning through for selective reading that involves extensive browsing and searching activities. Students read an e-book on the screen, search for quick information and print a relevant chapter for extensive reading (Shelburne 2009; Nicholas, Rowlands, Clark, Huntington, Jamali and Olle 2010). Levine-Clark (2006) noted that students generally read a single entity or a few pages of a book. Wu and Chen (2011) found that students flipped the pages and they first used a keyword search to locate sentences and paragraphs which contained the keyword after they have browsed through those pages. Berg, Hoffman and Dowson (2010) noted that readers treat e-books as searching tools for a discrete piece of information. This is in line with a conclusion by Grogery (2008) that e-books are used in a manner similar to e-journals.

The purpose and reason for using e-books also differ amongst e-books users. In higher institutions of Malysia e-books are mainly used for finding relevant content and to support research work, but not for extended reading (Noorhidawati & Gibb 2008a, 2008b). Most academics and students (60%) at the University of Maryland in US use e-books for research, while 52% use e-books for recreational reading purposes (Corlett-Rivera & Hackman 2014). Students, particularly undergraduate students, use e-books mainly for leisure purposes, while postgraduate students tend to use e-books more for academic purposes (Wang & Bai 2016).

However, despite the fact that the majority of students use e-books for research purposes, Camaoglu et al. (2013) found that about 75% use e-books for course materials. In addition, in a study conducted by Laptovska, Slater, Beauregard, Mimouni, Lange & Orlotsky (2014) they show that 49% of the respondents use e-books for extended reading, referring to the long term reading of chapters or a lengthy book as opposed to short articles.

Although there are some students who use e-books at length, it can be generally concluded that e-books are not used in their entirety but readers refer to e-book sentences, paragraphs, sections and chapters that are relevant to them, based on keyword searching. E-books are good for dipping in, looking for specific information or reference use (Jamalie, Nicholas & Rowlands, 2008).

2.7.4 How e-books are used in an African context

In a study to investigate students' awareness and use of text books at the University of Pretoria, South Africa, Wiese and Du Plessis (2014) reported that although 44% students know how to access electronic books in the library they do not make use of them. At the University of Pretoria, about 82% of respondents never or rarely made use of e-textbooks from the library, but they access e-books from general search engines like Google (Wiese & Du Plessis 2014).

In a study conducted among university students in Ghana, Asunka (2013) found that 62% of students read e-books online with a computer. UNSECO (2014), in the report titled "Reading in the mobile era" analysed mobile reading trends in countries of Africa and found that young readers enjoy reading on mobile devises more often. This show that they can also use their mobile devices to access e-books if proper guidance and training is provided.

At the University of Ibadan in Nigeria, 30% of technology students and 28.6% of art students use e-books every day (Nwagwu 2014). A study conducted in South Africa found that 15% of students use e-books occasionally while 30% use e-books weekly (Wiese & Du Plessis, 2014). In another study Maduku (2015b) found that 20.5% of students in South Africa use e-books daily while 41.7% use e-books weekly.

As in the US and UK, it seems that students in Africa do not read e-books in their entirety. Students use e-books mainly to validate information and to gain insight about a specific topic (Nwangu

2014). Another study observed that 46.5% of students read relevant content only by skimming the text for important information, 18.9% use e-books for findings facts and information snippets only, while 17% use e-books for reading a chapter at a time or as needed (Khan & Underwood, 2015).

Khan and Underwood (2015) found that 93.9% of students in Africa (mainly postgraduate students) use e-books for research purposes, while 62.8% of undergraduate students use e-books for recommended course reading. They further found that 37.5% indicated that they use e-books for studying and 18% for teaching purposes. Maduku (2015a, 2015b) found that in South African tertiary intuitions about 41.7% of his respondents indicated that e-books are useful for their studies. Students of the University of Putra in Malaysia use e-books more often for research work than for course work, because e-books are easier to find information and easy to manage their research work (Letchumanan & Tarmizi 2011). This is in line with the conclusion of Sackstein, Spark and Jenkins (2015) that e-books are suitable for teaching and learning in Africa as well but that there is room for improvement.

2.8 Chapter summary

Chapter 2 reviewed the literature about the adoption of innovation as a theory, and factors relating to the adoption of an innovation. The Diffusion of Innovation theory was used as the basis for determining the use of e-books in academic libraries. The five elements of diffusion, namely, innovation, communication channels, time and social systems and their subdivision were fundamental for understanding the adoption of e-books. These elements were used in conjunction with the factors that influence information-seeking behaviour to understand the usage of e-books in academic libraries. Information behaviour and information-seeking behaviour as well as factors related to it were discussed.

The adoption of e-books and factors influencing the adoption of e-books, as well as ways in which the adoption of e-books can be improved, were discussed. The usages of e-books and problems related to the use of e-books, as well as their advantages, were also discussed. This chapter also discussed how e-books are used by students and for what purpose they are used. The advantages of e-books were also highlighted. There are overlaps on the factors that influence the adoption and

those that influence information-seeking behaviours. Some of these factors, such as personal characteristics as well as the characteristics of the sources, appear to be the contributing factors to both the adoption and usage of an innovation. The discussion also revolved around the ways in which academic libraries can promote and increase the use of e-books. The use of e-books in developed countries and in Africa was also discussed.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss the approach to the study and methods used in determining the perceptions of students of the University of Namibia towards e-books as well as their adoption and use of e-books. Nachmias and Nachmias (as cited in Ngulube 2005), define a research methodology as "a system of explicit rules and procedures on which claims for knowledge are evaluated". This chapter on research methodology describes the selected research approach and determines the research design, sampling methods and procedures, data collection methods as well as data analysis.

3.2 Research approach

Creswell (2009) distinguishes three research approaches, namely, qualitative, quantitative and mixed-method research approaches. These approaches differ with regard to theoretical assumptions and worldviews, types of research strategies used in research and specific methods employed in conducting these strategies.

3.2.1 Qualitative approach

According to Ritchie and Lewis (2003:3) qualitative research is "a naturalistic interpretive approach that is concerned with understanding the experiences and meaning which people attach to a phenomenon within their social world". Qualitative research is often referred to a whole-world experience because the interest of qualitative research is on the depth of human experience, including personal and subjective peculiarities that are characteristics of individual experiences and meaning associated with a particular phenomenon (Du Plooy-Cilliers, Davis & Bezuidenhout 2014). Two of the paradigms that are associated with qualitative research are the constructivist and transformative worldviews.

The constructivist or social constructivist paradigm believes that individuals seek understanding of the world in which they live or work as they develop a subjective meaning of their experiences and meaning to a certain object or experience (Creswell 2009). According to Creswell and Plano

Clark (2011) the understanding of the meaning of a phenomenon is formed through participants and their subjective views. Creswell and Plano Clark further emphasize that constructivist research is more inductive. Constructivists argue that a single and external reality can never be measured, the research participants provides the researcher with their own interpretations, which the researcher will re-interpret in the research process (Gilbert 2009).

Creswell (2009) identified designs or strategies that can be applied in conducting qualitative research. These include ethnography, phenomenology, grounded theory, historical, case study and action research design. Methods such as participant observation, oral report, documents and interviews are used to collect qualitative data.

3.2.2 Quantitative research approach

According to Creswell and Plano Clark (2011), a quantitative research approach is often associated with post positivist thinking and also holds a deterministic philosophy in which causes determine effects or outcomes. Quantitative research is an approach for testing hypotheses by examining the relationships among variables (Creswell, 2009). Leedy and Ormrod (2001) argue that quantitative research is specific in its surveying and experimentation, as it builds upon existing theories to establish, confirm, or validate relationships and to develop generalisations that contribute to theory. Quantitative research involves numeric and statistical approaches to research. Creswell (2009) noted that quantitative research employs strategies of inquiry such as experiments and surveys and collect data with predetermined instruments that yield statistical data.

3.2.3 Mixed-method research approach

Mixed-method research refers to empirical research that involves the collection and analysis of both qualitative and quantitative data (Punch 2009). Mixed research is the "class of research studies in which a researcher mixes or combines quantitative and qualitative research approaches and techniques into a single study" (Johnson & Christiansen 2012:430). Terms such as multi-methods, integrated, blended, combined, methodology triangulation, multi-methodological research and mixed-method models have been used by several researchers such as Tashakkori and Teddie (2003) and Creswell and Plano Clark (2007:5–6).

A mixed methods approach provides researchers with an alternative to the belief that quantitative and qualitative research approaches are incompatible and that their associated methods cannot and should not be mixed (Johnson & Onwuegbuzie 2004:14). With a mixed-methods approach to research, researchers incorporate methods of collecting or analysing data from quantitative and qualitative research approaches into a single research study (Tashakkori & Teddie 2002; Johnson & Onwuegbuzie 2004; Creswell 2009).

Pragmatism is the philosophical paradigm that support the mixing of research approaches, methodologies and strategies.Pragmatism is a philosophical worldview that strives to underpin the use of mixed methods by focusing more on the research problem rather than using pluralistic approaches to drive knowledge about the problem (Morgan, 2007; Tashakkori and Teddie, 2010; Feilzer, 2010; Johnson & Onwuegbuzie, 2004). Pragmatism as a worldview arises out of actions, situations and consequences rather than the antecedent conditions that are presented in post positivism (Cresswell, 2014:10). Its focus is on solving practical problem solving in real world problems rather than on an assumption about the nature of knowledge (Feilzer, 2010:8). In other words, the pragmatism worldview makes use of multiple approaches and strategies of enquiries that may work based on the type of the research problem and questions, and is not necessarily bound to choose between the qualitative and quantitative approach.

In view of the above, this study used a mixed-method research approach in which both qualitative and quantitative methods were used in order to avoid the disadvantages of using just one research approach. According to Johnson and Christiansen (2014) the purpose of mixing research approaches and techniques is to improve the overall quality of research. The fundamental principles of mixed method research are that "researchers should not mix research approaches for the sake of mixing but quantitative and qualitative methods, approaches, procedure, concepts and other paradigm characteristics have to be combined or mixed thoughtfully and strategically in a way that produces an overall design with complementary strengths that is broadly viewed and non-overlapping" (Johnson & Christiansen 2012:663). They also stated that the strengths of mixed methods, as listed below, should inform the basis of choosing mixed-methods:

- Words, pictures and narrative can be used to add meanings to numbers.

- It can strategically combine quantitative and qualitative research strengths in a single study to cover a single purpose better or to cover multiple purposes well in a single study.
- Researchers can generate and test a mixed-methods grounded theory.
- It can answer a broader and more complete range of research questions because the researcher is not confined to a single method.
- The researcher can use the strengths of an additional method to overcome the weakness of another method by using both in a single research study.
- It can provide stronger evidence for a conclusion through convergence and collaboration of findings.
- It can add insights and understanding that might be missed when only a single method is used (Johnson & Turner 2013).

The purpose of using mixed research in this study is to develop an understanding of views, perceptions and preferences that students have with regard to e-books. The findings of data gained through qualitative data collection methods were used to formulate a questionnaire that was used in the quantitative phase, in order to generalise the findings to the whole population.

3.3 Research design

This study used an exploratory research design based on a mixed-method research approach. In an exploratory sequential design, the researchers collect and analyse the findings of the method used in the first phase, which will then inform the data collection instrument in the second phase (Hesse-Biber 2011:457). According to Creswell and Plano-Clark (2007:75), an exploratory design could be used where the researcher needs to develop a deeper understanding of the phenomenon in question. The aim of an exploratory design is to use the results of the method applied in the first phase to further develop or inform the results obtained by the second method (Onwuegbuzie 2007). One can either collect the quantitative data and do the analysis in the first phase and collect the

qualitative data and analyse it in the second phase in order to explain the quantitative results, or a researcher can collect the qualitative data in the first phase and collect the quantitative data and analyse it in the second phase to see how the qualitative results can be generalised (Creswell & Plano Clark 2011; Ary, Sorensen & Waker 2012). Tashakkori and Teddlie (2002) referred to this process as sequential quantitative-qualitative analysis or sequential qualitative-quantitative analysis.In this study the researcher started with qualitative data in order to explore in-depth a phenomenon under study and then proceeded to a second phase of quantitative data collection and analysis.

Both modes of exploratory design were consequently applied sequentially. This study aimed to explore the awareness of and views about, as well as factors that affect the use of e-books. It also wanted to determine how a library can better influence the adoption and use of e-books. The in-depth information about the views, perceptions, and factors influencing the use and adoption of e-books, had to be well understood before determining and establishing the patterns of adoption and use by using qualitative data. Thereafter, the themes gained from the qualitative data were explored quantitatively.

3.3.1 Organisation of the study

This study was done in two phases. In Phase 1 a qualitative research approach was used. Consequently, qualitative data collection methods, sampling and data analysis, were used. The data collected in Phase 1 was immediately analysed and the results of this analysis, as well as the information gained from the literature review, was used to establish the data collection instrument for Phase 2. In Phase 2 quantitative collection methods, sampling techniques and data analysis were employed. Figure 3.1 shows how the research process was organised.

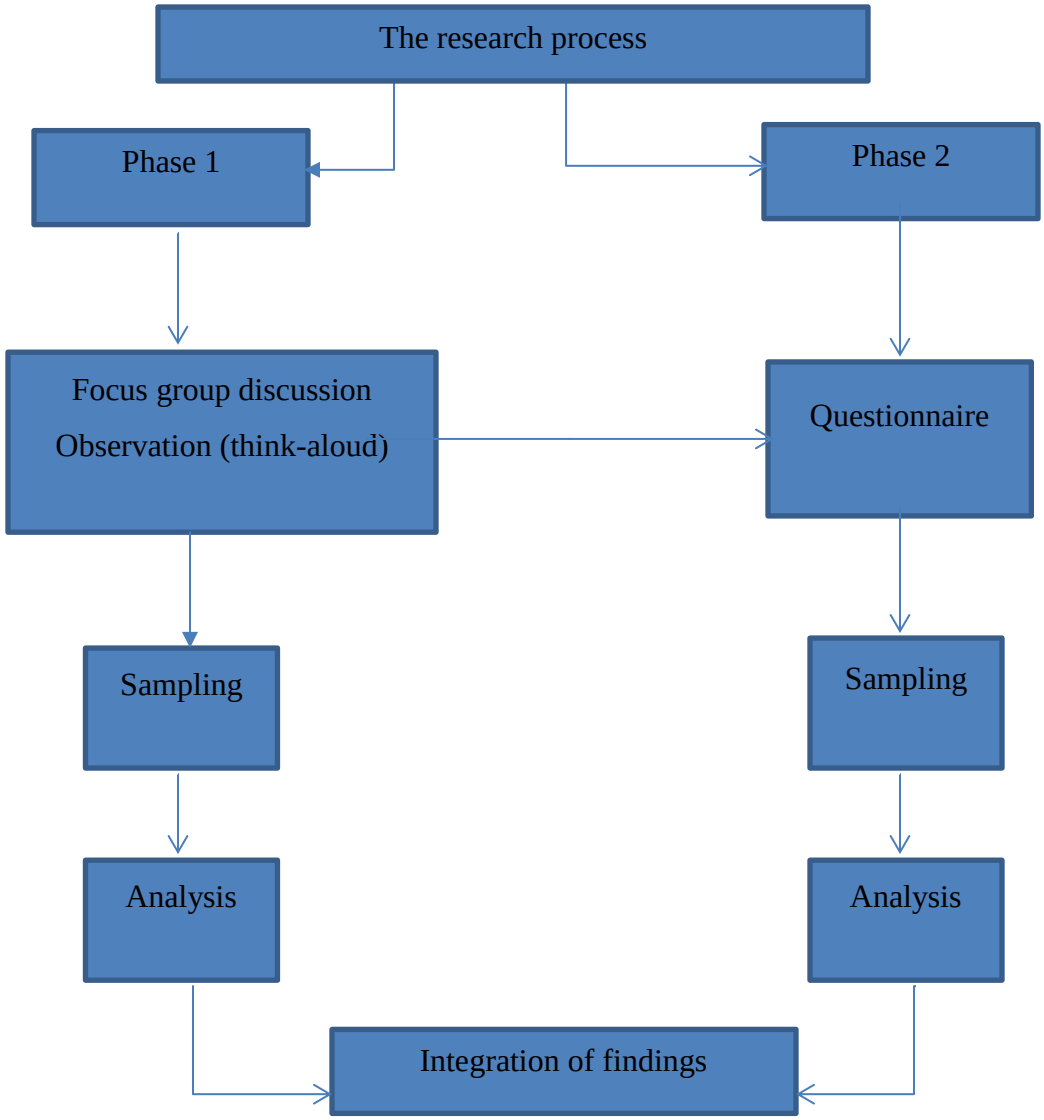


Figure 3.1 Organisation of research processes

Phase 1: Qualitative research approach

The qualitative research approach, according to Babbie and Mouton (2001), refers to studies of people in terms of their own definitions of specific issues that need to be analysed and focuses on the subjective experiences of individuals, in contexts where people interact with each other.

Creswell (2009:175) argues that qualitative methods "tend to collect information in the field at the site where participants experience the issue or problem under study". Therefore, a qualitative approach was employed in this study to gather information about the perceptions and behaviour of students and lecturers about e-books.

Phase 1: Data collection methods

The most common sources of data collection in qualitative research are interviews, observations, and the review of documents (Locke, Silverman & Spirduso 2010). In this study the following qualitative data collection methods were used: focus group discussions and observation in combination with the think-aloud method.

Focus group discussions

According to Kitzinger (1995:299) a focus group discussion is "a form of group interview" that capitalises on communication between research participants in order to generate data. Powell, Single and Lloyd (1996) define focus group discussions as groups of individuals selected and assembled by the researcher to discuss and comment on their personal experience about the topic that is the subject of the research. Kitzinger (1995) and Pickard (2013:244) emphasise that focus group discussions are particularly useful for exploring people's knowledge and experiences and can be used to examine what people think, how they think and why they think that.

For the purpose of this investigation, a focus group discussion was used to examine the views and understanding of students regarding e-books and how they perceive e-books. According to Connaway and Powell (2010:173) a focus group discussion is designed to explore in-depth the

feelings and beliefs that people hold and to learn how these feelings shape their behaviour. A focus group discussion was used in this study to understand the views, perceptions, attitudes and motivations of students and lecturers with regard to e-books that would not have been possible to gather when using questionnaires.

The advantages and disadvantages of focus group discussion that are listed below, are derived from 210 and formed the basis for choosing this method of data collection.

- ✓ They do not discriminate against people who cannot read or write.
- ✓ They can encourage participation from those who are reluctant to be interviewed on their own.
- ✓ They can encourage contributions from people who have nothing to say and can reveal group interaction patterns.
- ✓ They give the moderator a chance to probe and to develop questions and discussions not anticipated by the researcher.
- ✓ Their results can be analysed and reported shortly after the data have been collected.
- ✓ Focus group discussions can foster conformity among group members.

A list of the disadvantages of focus group discussions is presented below.

- ✓ They are quite susceptible to bias caused by the interview setting, the moderator, faulty questions and an unrepresentative sample.
- ✓ The cost of the sessions can be a disadvantage.
- ✓ The success of the focus discussion depends on the skills of the moderator.
- ✓ The group experience may intimidate and suppress individual differences causing some participants to withdraw and not participate in the discussion.
- ✓ Possible manipulation by an influential and wilful member of the group.
- ✓ They must be followed up with statistical quantitative data collection method, like a questionnaire (Connaway 2010).

The aims of these focus group discussions were to identify the factors that influence the use of e-books as well as the barriers that impede the use and preferences of e-books.

After the focus group discussions, the same respondents were recruited to participate in the observation and think-aloud process.

Observation

Observation of behaviour is the most common method used by qualitative researchers in libraries and in information science (Gorman & Clayton 2005). This method involves the systematic recording of observable behaviour, usually in a natural setting. This can provide a useful understanding of the unconscious behaviour of the participants because the researcher can observe the body language and effect, tone of voice and other paralinguistic messages and actions in addition to the words (Gorman & Clayton 2005; Marshall & Rossman 2011). O'Leary (2005:119) identified reasons why researchers use observation to collect data, which include (a) seeing it yourself, because the gulf between what people say they do and what they actually do can be far and wide, and (b) it takes place in the real world.

This study wanted to discover student real attitudes and behaviour towards e-books. Semi-structured observation was selected to achieve this aim.

Like other methods of data collection, observation also has strengths and limitations. The advantages and disadvantages of observation, as discussed below, could have had an influence on collecting data for this study.

Gorman & Clayton (2005) identified the possible advantages and disadvantages of observation which are summarised in Table 3.1 below.

Table 3.1 Advantages and disadvantages of observation

Advantages	Disadvantages
• **It permits a variety of researcher perspectives to, or a degree of involvement with the activity being observed.**	• People who are aware of being observed tend to change their behaviour.
• **It has a present orientation, recording what occurs as it occurs.**	• There are issue of ethics e.g. gaining permission to the site and rights to those being observed.
• **It has a reality verifying character**	• Observation can be time consuming
• **It enables data to be analysed in stages or phases as understanding of its meaning is gained**	• The subjectivity of the observer must always be taken into account.

Adapted from Gorman & Clayton (2005)

The think-aloud method was used in the observation process. The think-aloud method is a research method in which participants speak out what they are thinking as they complete their tasks (Charters 2003). It is also referred to as talk aloud, verbal protocols or verbal reports. The respondents were asked to verbalise their thoughts while working on a particular task (Oh & Wilde3muth 2009:81). This approach allowed the researcher to collect the real-time response of the subjects.

Although there is a possible drawback of influencing performance (Oh & Wildemuth 2009), the researcher was able to observe the students' reactions and remind them to think aloud while they are completing their tasks (Schooler, Ohlson & Brooks 1993). According to Young (2005) a concurrent think-aloud approach allows the researcher to ask direct questions while participants are undertaking the activity to access information which is held in the participant's short term memory. In this way, the researcher can obtain real reactions, behaviour and understand the participants' experiences through observing them and recording their verbalisation while doing

their tasks. According to Nielsen, as cited by Oh & Wildemuth (2009), a collaborative approach is more realistic in capturing cognitive behaviour, as people naturally verbalise their thoughts when they complete a task and have a conversation with others at the same time. Participants are engaged in more talking as they communicate with their partners, asking and answering questions and problems associated with the task completion.

The benefits and drawbacks of using this method are summarised in Table 3.2.

Table 3.2 Benefits and drawbacks of the think aloud method

Benefits	**Drawbacks**
• **It is relatively easy to use**	• Task performance may be slower; it takes time for participants to complete the task.
• **It makes it possible to investigate the reactions, feelings and problems that the subjects experienced.**	• There is conflict between theory and practice.
• **It allows you to observe the sequential steps of the subject's cognitive processes in a given time period.**	

Adapted from Oh and Wildemuth (2009).

The six groups, consisting of five to ten students that participated in the focus group discussion, were given a task to search for books and use e-books functionalities while the researcher was observing them. The participants were requested to voice their thoughts in order to know their attitude and experiences with e-books.

Observation took place immediately after the discussion groups. The students had to do prescribed exercises (See Appendix C) which included finding e-books, and using certain e-book functionalities, such as downloading, e-mailing, and printing.

Due to the fact that students had a right to choose a venue that was convenient for them, some students accessed e-books using their smartphones or their own devices while others used the laptops that the researcher provided.

The prescribed exercises were printed and given to the respondents. Instructions on how they should carry out the task were included. They were requested to express their thoughts and reactions aloud as they conduct the exercise in order to document their though processes.

Marshall and Rossman (2011) emphasise that it is important that observations are recorded either in writing or with a recorder. During this process the participants of the six focus groups discussions were observed in order to obtain as much information as possible about their attitudes to and their experiences with e-books. The observations were recorded with a tape recorder and all the non-verbal reactions and behaviour were noted in field notes. Data and the pre-determined schedule for observation were used to design the statements of the last part of the questionnaire, which focused on the influence of perceived attributes of an innovation on the adoption of e-books.

Phase 1: Sampling

Sampling is a very important element of research because it is generally impossible to study a whole population, especially when the population is large. A research population can be described as the sum of all the cases that conform to some designated set of specifications of the unit analysis of the study (Hoyle, Harrison & Judd 2002:182; Punch 2009:135).

Sampling is a method of selecting participants for a research project. Generally, there are two standard methods of sampling, namely probability sampling and non-probability sampling. Sampling is often complex in qualitative research. Non-probability sampling is a sampling method in which the investigator does not select a sample based on probability theory. However, it has the benefit of not requiring a list of all possible elements in a population and therefore allows for

the likelihood to access a highly sensitive and hard to research study population (Berg 2009:50). Non-probability sampling is mainly used for qualitative research (Marshall 1996:522). In qualitative research, purposive sampling is often used (Patton & Cochran 2002; Bryman 2012). Purposive sampling is concerned with the selection of units (which may be people, organisations, departments, or documents) with characteristics that are relevant to the research questions that are being asked. Purposive sampling is also called judgemental sampling.

The population was purposefully selected in a sense that only fourth-year students in six faculties were targeted based on the assumption that these students should be familiar and well informed about using the library's services and resources when compared to first year, second year and third-year students. The study used random probability sampling in phase 1 as part of the qualitative approach.

A list of students was obtained from the Strategic and Physical Planning Department of the university. An e-mail was then sent to the students, requesting their voluntary participation in the study. Those who confirmed their willingness to participate in the study were further screened to confirm a suitable time to participate in the study.

The sample size is often difficult to establish in qualitative research. According to Carlsen and Glenton (2011), a sample size in a focus group refers to "the number of groups and not the number of participants in the study". The sample size in qualitative research "should not be too small so that data saturation or information redundancy is not achieved" (Onwuegbuzie & Collins 2007). At the same time, they also emphasise that the sample should also not be too large that it becomes difficult to undertake a deep case-oriented analysis, or too small that it may compromise the quality of data collected. Bender (1994), Kitzinger (1995), Freitas, Oliveira, Jenkins and Poploy (1998) and Krueger and Casey (2009), recommend that a focus group discussion should consist of a minimum of four and maximum 12 participants per group. A sample size of two to five groups per category is sufficient (Morgan 1997; Krueger and Casey 2009). Onwuegbuzie, Dickson, Leech & Zoran (2007) recommend three to six groups, however, the sample size depends on the complexity of the research questions and the composition of the group. This study conducted six focus groups consisting of eight to ten participants each.

Based on this, respondents for six focus groups were selected which consisted of five to ten fourth year UNAM students from six faculties. The fourth year students were intentionally selected with the assumption that they should be familiar with the library's services, compared to first year students.

Phase 1: Data analysis

The qualitative data were analysed using content analysis. Content analysis refers to the analysis of textual content gathered, amongst others, from interviews and field notes.

The transcribed texts of the interviews were coded and categorised to identify the concepts and themes relevant to the research questions of the study. In the process, emergent themes were identified that were potentially fruitful for further data exploration. The themes and concepts from the focus group discussions and observation were then used to develop the questionnaire. In this way, the emergent themes from the qualitative data were further explored in the quantitative study.

Phase 2: Quantitative research

Ngulube (2005) and Creswell (2009) define a quantitative research approach as a process of collecting data in order to test hypotheses or answer questions concerning the current status of the subject in the study. A quantitative approach entails the collection of numerical data (Ngulube (2005); Bryman (2012). Bryman (2014) further notes that quantitative research is deductive in nature. Terms such as variables, population sample and results are used in the vocabulary of quantitative research (Golatashi 2003). The findings of quantitative research are presented by using charts and graphs.

A quantitative approach was useful for this study in which the adoption and rate of use of e-books at the University of Namibia were determined. Questionnaires were used to obtain the awareness level and usage patterns of e-books.

Phase 2: Data collection

Quantitative research use structured and systematic controlled techniques, like questionnaires and experiments, for collecting data. A questionnaire was deemed a suitable tool to obtain quantitative information regarding the adoption, use of and views about e-books at the University of Namibia.

Questionnaire

A questionnaire is a series of pre-determined questions that can be self-administered through mail or interviews (Pickard 2013). Johnson and Christiansen (2012) define a questionnaire as a "self-report data collection instrument that each research participant fills out as part of the research study". Burns (2000) emphasise that a questionnaire is based on one underlying assumption, namely that the respondents will be willing to give truthful answers. Every method has weakness and strengths. Bayata (2012) identified some advantages and disadvantages of questionnaires, and are summarised in Table 3.4

Table 3.3 Advantages and disadvantages of questionnaires

Advantages	Disadvantages
• **They are very cost-effective compared to face-to-face interviews, especially for investigations involving large sample sizes and large geographic areas, and when the number of questions increases.**	• There is a possibility of low response rates.
• **Data entry and tabulation for nearly all surveys can be done easily with many computer software packages.**	• There is the inability to probe responses.
• **They are familiar to most people.**	• As they are structured instruments, they allow little flexibility to the respondent in respect of the response format.

• **They reduce bias. There is uniform question presentation and no middleman bias.**	• They may be completed by someone who was not intended, such as other employees or by managers, wives for their husbands, or young people as a prank.
• **They are less intrusive than telephone or face-to-face surveys.**	• They are simply not suited to some people, for example a written questionnaire to poorly educated people may not work because of reading skill problems.
• **They are easy to analyse.**	

Adapted from Fox and Bayata (2012:87)

This study used a questionnaire in order to expand on the results of the focus group discussions and observation and to obtain feedback from a bigger population so that the results can be generalised to the whole population. The themes that were gained from the qualitative method were used to construct the questionnaire.

The questionnaire was designed, based on the themes that emerged from the qualitative data and also from the literature reviewed. The questionnaire consisted of both closed (quantitative) and open ended (qualitative) questions to address the views and use of e-books at the University of Namibia. The qualitative questions mainly addressed book format preferences and possible recommendations on how the use of e-books could be improved.

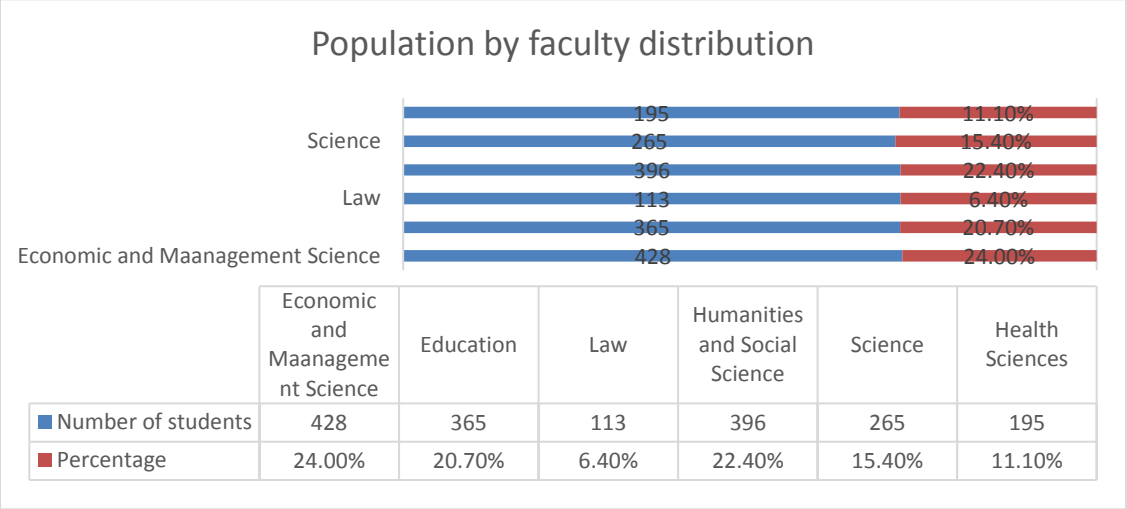
The questionnaire used to collect data in this study is attached as Appendix D.

The questionnaire was distributed to fourth-year students using Smart Survey software. Smart Survey is an online survey tool, developed in the UK that allows one to design questionnaires, collect data and analyse the data. In this study, Smart Survey was used to design the questionnaire; consequently, the link of the questionnaire was distributed to students' mobile phones. For students who did not have smart phones, but were willing to participate in the survey, a computer was reserved at the library on which to complete the survey.

Population of the study

The available population for this study was the undergraduate students of the University of Namibia (UNAM). As already said, Overall UNAM has 19824 students in total, with a total population of 1762 fourth year students. The research population for this study was, however, fourth-year undergraduate students from the Faculty of Humanities and Social Sciences, the Faculty of Economics and Management, the Faculty of Law, the Faculty of Science and Technology, the Faculty of Health Science, and the Faculty of Education because they are situated on the main campus which was accessible to the researcher. Faculties from the other campuses were excluded due to geographical remoteness and for the project to be manageable.

Figure 3.2 Population of the study



	Economic and Maanagement Science	Education	Law	Humanities and Social Science	Science	Health Sciences
Number of students	428	365	113	396	265	195
Percentage	24.00%	20.70%	6.40%	22.40%	15.40%	11.10%

Looking at Figure 3.1 it is evident that majority of the population for this study are from the Faculty of Economics and Management Science, Faculty of Humanities and social sciences and Faculty of Humanities. The other faculties produced a small number of respondents.

Phase 2: Sampling method

Probability sampling is a sampling method in which all elements of the population have the same probable chance of being selected for the sample (Bryman 2012:187). Probability sampling is based on the notion that a sample can be selected that will mathematically represent the subgroups

of some larger populations (Shaughnessy 2008). It is mainly used in quantitative research in order to yield generalizable data. Simple random sampling is the most common probability sampling method. A simple random sampling technique is a technique in which each member in the population has a known and equal probability of selection (Polonsky & Waller 2011:140). Simple random sampling is regarded as mainly unbiased because all the individuals have an equal opportunity to be included in the study (Greenfield 2002:190). Students to participate in the survey were randomly selected from a list of 4th year students received from the Department of Statistics and Strategic Planning at UNAM.

Sample frame and size

Sampling frame, as defined by Babbie (2007:198), is the list of respondents from which the probability sample is selected. Babbie emphasises that, for the sample to be representative, the sample frame must include all members of the population. For the purpose of this study, the sample population consists of fourth-year students on the main campus of the University of Namibia.

The sample size for this study was selected from the population of 1762 fourth-year students from the Faculties of Humanities and Social Sciences, the Faculty of Health Sciences, the Faculty of Law, the Faculty of Science and Technology, Faculty of Education and Faculty of Economics and Management. A free sample size calculator, namely Creative Research System (2015), was used to calculate the sample size for this study at a 95% confidence level. According to the Creative Research System (2015), 316 students should participate in this study. The formula below was used to calculate the sample size:

$$ss = \frac{Z^2 * (p) * (1-p)}{c^2}$$

Formula key: Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice, expressed as decimal
(.5 used for sample size needed)
c = confidence interval, expressed as decimal (e.g., .04 = ±4)

The questionnaire was established from the qualitative data, gathered in the first phase of the research, and was compared with questionnaires of similar research. The questionnaire consisted of both open-ended and closed-ended questions. Some questions allowed participants to choose multiple answers.

Response rate

The response rate is very important to consider in every study, to determine the representativeness of the population in the study and in consideration of the response bias. The questionnaire was send to the student's emails for them to complete, however the process of completing the questionnaire was very low due to time constraint because students at that level are mostly engaged with their research project and assignments and other academic activities unlike the first, second and third year students. The Figure below presents the response rate by the fourth year students per faculty.

Table 3.4 Response Rate per faculty

Faculty	Number of 4th year population per faculty	Estimated sample size per faculty	Number of Respondents per Faculty	Response rate Percentage by Faculty
Economic and Management Science	428	62	25	7.91%
Education	365	59	55	17.40%
Law	113	40	16	5.06
Humanities and Social Science	396	60	26	8.22%
Science	265	50	17	5.37%
Health Sciences	195	45	16	5.37%
Not indicate			4	1.26%
Total	1,762	316	159	50.59%

As indicated on the table above the overall response rate for the study was a bit low but significant enough for the generalization as it reached at least 50.59% response rate of the estimated sample size. The faculty of Education has the highest response rate.

Phase 2: Data analysis

In quantitative research, analysis refers to the stage in the research process where the researcher, through the application of various statistical and mathematical techniques, focuses separately on specific variables in the data set (Mouton 2012). Quantitative research provides statistical data. According to Neuman (2011), quantitative research is concerned with the collection, organising and analysis of numeric facts and observation. There are many quantitative data analysis tools available, for example, STATA, SAS, and SPSS.

This study used the SPSS tool to analyse the quantitative data. SPSS is an acronym for Statistical Package for the Social Sciences, used for the statistical analysis of qualitative data. More information about SPSS is available at on their website (IBM, 2016) http://www-03.ibm.com/software/products/en/spssstatistics.

3.4 Validity and reliability

Validity and reliability are important concepts that determine the quality of a research report. According to Connaway and Powel (2010:60), research is regarded valid and reliable if the conclusions are true and when the findings are repeatable. Researchers, such as Mitchell (2005) and Kimberlin and Winterstein (2008), defined validity as the extent to which the research findings accurately represent what is really happening in the situation. This study used a mixed-method approach, and the researcher needed to discuss the validity of the qualitative findings by determining whether the findings are accurate from the viewpoint of the researcher, participants or the readers of an account and establishing the validity score from quantitative measure by drawing meaningful and useful inferences from score on particular instrument; employing strategies such as member checking and triangulation of data sources (Creswell & Miller 2000; Creswell 2014). Whereas reliability is the extent to which a measurement procedure gives the correct answer when repeated (Gorman & Clayton 2005:54).

Pretesting questionnaires or interview schedules is an important tool that may be used for content validation and assessment of replicability of the results (Ngulube, 2005). To ensure that the tests for this study were valid and reliable, the schedule for the focus group discussion and observation, as well as the questionnaire used in this study were given to an experienced librarian and the supervisors for proofreading. The questionnaire was also pre-tested by a few respondents to ensure that students understand the questions and if the results can be repeatable. Afterwards the questionnaire was sent to the project leader for verification and approval. To maintain the validity and reliability of the study, the 26 respondents who participated in the focus group discussion and observation in Phase 1 of this study were also included in the follow-up phase to ensure accuracy of the findings.

3.5 Ethical issues

Ethics concern issues such as human rights, respect, consent, and confidentiality of the participants. Johnson and Christiansen (2012:99) define ethics as "the principles and guidelines that help us uphold the things we value". According to Oliver (2008), ethical issues in research are complex by nature, as people hold different views about the manner in which they should be addressed. He further advised that it is critical that every researcher should carefully address the ethical issues in all research conducted.

This study was conducted at the University of Namibia. The permission to conduct a study on the premises and to get participants to take part in the study was obtained from the Research and Publications Office of the University of Namibia.

Informed consent of the participants is critical in every research being conducted. No one should be forced to take part in the study if they are not willing. As a result, participants were informed of the research topic, the purpose of the research, research objectives and told that their participation is voluntarily and confidential. There is no known harm that could come as a result of a student's participation in the study. Participants in this research study were also informed of their right to withdraw their participation if they feel that they do not want to continue with their participation. Every participant was given an informed consent letter to read before the interview.

The informed consent letter outlined the purpose of the research and all the ethical aspects of the research. The informed consent letter served as mutual understanding, which remained constant through the research and provided a reference point for both the researcher and the participants.

Anonymity and confidentiality are important ethical issues in research. The identities of the respondents were kept confidential, as well as the information gathered by the researcher. This information was also safeguarded in a place to which only the researcher, supervisor and research assistants had access.

3.6 Chapter summary

The logic behind using both the qualitative and quantitative approaches, the research design, research population and sampling processes for phases one and two of the study, data collection methods the two phases and the analyses methods of the data were described in this chapter. This study used the mixed method approach and the exploratory research design. The study was conducted in two separate phases, namely Phase 1 (qualitative research) and Phase 2 (quantitative research). Methods, such as focus group discussion, observation and think aloud, were used to collect qualitative data. A questionnaire was used to collect quantitative data.

In the next chapter, the analysis of the interviews and observation from a sample of students of the University of Namibia, done in Phase 1, is discussed. The data collected by the questionnaire, which was based on the analysis of the qualitative data, are presented. This is followed by an exposition of the integration of the findings of Phases 1 and 2.

CHAPTER 4: DATA ANALYSIS AND PRESENTATION OF THE FINDINGS

4.1 Introduction

This chapter presents the analysis and interpretations of the findings of the qualitative (Phase 1) and quantitative data (Phase 2) of the study. The analysis and findings of Phase 1 were obtained from a sample of 26 students who were recruited to participate in focus group discussions as well as an observation process during which the think aloud method was used. The analyses and findings of Phase 2 were obtained by means of an online survey in which a total of 159 students participated.

4.2 Data analysis and presentation of the findings of the qualitative data (Phase 1)

4.2.1 Focus group discussions

The purpose of this section is to report the results of the qualitative data collected from selected fourth-year students from different faculties of the University of Namibia. This study employed two methods of collecting qualitative data, namely focus group discussions and observation combined with the think-aloud method. The first section dealing with qualitative data will analyse data from the focus group discussion and the observations.

Demographic information of qualitative respondents

Four discussion groups were used in this study, each consisting of five to ten participants. Sixteen of the participants were female and ten males. The majority of the respondents were in the age category of 20-25 years, and only two participants were in the age category of 26-35. This means that the majority of the students who participated in this study are of a younger generation, or the so-called ‘Google generation’ who spend much of their time online, on devices, screen-reading text on social network sites and blogs.

Sixteen students who participated in the discussion group rated their computer skills as quite sufficient and. Computer skills are required to be able to use e-books. The students who participated in this study had the necessary computer skills that could enable them to use devices required to optimally use e-books.

Views about and awareness of e-books [1]

Understanding of the term and object

The analysis of the focus group discussions shows that some of the students who participated in this study knew what an e-book is and some had already used e-books. A few of the respondents stated that they had never used e-books and therefore had no opinion about it. Other students referred to e-books as a technological aid that can enhance their studies.

> *[An]e-book is an organised technology [in] the library that can help slow learning learners as they do not need to go to the library, they can read anywhere they are* (C3).

> *An e-book is a very good technology that is suitable for assignments and good for slow learners because of its flexibility and convenience* (C6).

Another respondent mentioned the flexibility of using e-books when doing assignments (B5); also, that:

> *E-books are a good technology for students learning or studying …* (A2).

A few of the respondents claimed that if students are technologically orientated they spend much of their time on their devices, such as smartphones and tablets, reading text on e-mails, Facebook, blogs, etc.

[1] The respondents' comments were recorded without changing grammar and/or style mistakes.

> *Most students are technology savvy and most of them have smartphones, if you walk around the campus you will see that most students that will possibly be on their computer screen reading text on Facebook, playing games or watching a video. Reading an e-book on the screen won't be a problem because that is our daily activity (*A4).

Four respondents did not understand the term 'e-books', because they were not used to that terminology; they referred to e-books as books in 'soft copy' or 'online books'.

> *Ohoo, so you are talking about books in soft copies … the whole time I have been thinking it's electronic something, but I never imagine it was books in soft copies (*B1).
>
> and
>
> *May I ask a question? When you are talking about e-books, are you referring to books in soft copies that are accessed online through Internet?* (C3).
>
> *I have used Google books, but I never knew that they are called e-books (*D3).

Some of the respondents were aware that the UNAM Library provides access to e-books and some had attended library training about electronic resources, including e-books:

> *E-books are books in electronic format, the library already paid for them; they are free of charge for students. It is just the same as print books but online* (B4).
>
> *I remember we have a training about e-books, databases like EBSCO, Science Direct etc. (*A2).
>
> *I remember we once had a discussion with the history teacher about e-books and we were taken to the library for training on how to use e-resources and e-books,* (D5).

A small number of the participants had no understanding of e-books and did not know that their library provided access to e-books.

> *E-books, what are e-books? I have never heard of that (*C1).

> *I did not know what e-books is before the discussion, but I think it is a good technological tool for students' learning* (D3).

> *I did not know anything about e-books, this is the first time I am hearing of it.* (B3).

Most of the respondents knew what e-books were and some were aware that the library provides e-books. They also referred to e-books as an organised technology of books converted into soft copies or as online books. There were a few who had not heard of e-books before.

Experiences of using e-books

The respondents were asked to describe their experiences of using e-books. The findings show that majority of the students have used general e-books on the Internet, by using Google and other Internet search engines, and there is evidence that they did encounter problems.

Many respondents regarded paying for e-books or viewing the full text as a problem:

> *[Not] all the books are available full text and most of the time the e-books sites require you to pay* (B4).

> *[S]ome of the textbooks you have to subscribe if you are not a member of that site* (C5).

> *I used Google books, where you type in a topic, then it gives you a book to preview or a chapter, but you cannot copy or print and […] not even be able to save the books (*D2).

> *Some sites do not allow you to print or save the e-books and most of the time is only [a] preview available* (B4).

Students also do not have all the required skills to access the e-books that the library provides. They find it complicated to access and use e-books, as the following respondent indicated:

> *Sometimes I found the steps used to access e-books too complicated, there are too many steps* (A7).

Training also seems to be a problem. About ten respondents indicated that they had used library e-books before, and some of them are students who had attended library training, as can be seen in the responses below:

> *The only time we had training was last year with the research methodology module, our lecture brought us to the library for training* (D5).

> *We received training last year, and also beginning of this year on how to use e-resources, meaning twice a year is not enough.* (A2), (A4), (A5), (A7).

Other problems identified by respondents were limited titles and few relevant titles. The respondents are of the opinion that there are no relevant books in electronic format. Only students from the Economics Department claimed that there are more relevant titles, especially for economics and management, and that they could find more relevant e-books from the library's e-books platform.

> *There are more relevant e-books especially in economics and management, is just that lectures put more emphasis on print books* (C2), (C5).

> *There are three relevant titles on law …* (A3), (A5), (A6), (A7).

> *Yes, there are some relevant titles on history, but more title selection is needed.* (D4).

Some of the students who attended library training used library e-books, but most of those who did not receive library training about e-books used Internet search engines such as Google to search for e-books. Students who did not receive library training, regarded the paying and viewing of full text as a problem because they are unable to copy and print them. Some students indicated that

there were limited relevant titles, except in subjects like economics and management, and would prefer that the library acquire more e-books. There were also students who found it complicated to access the e-books provided by the library and some also indicated that they had received the library training at least twice but they felt that it was still not enough.

Advantages of e-books

The majority of students who participated in the group discussions preferred e-books. Only six students maintained that they preferred print books. Those who said they preferred e-books indicated that they preferred e-books because of advantages such as convenience, portability, the possibility to search within the book, and accessibility. Similarly, the respondents who did not like to use e-books gave their reasons.

Convenience

Almost all students who indicated a preference for e-books based their reasons on the convenience factor of e-books. This correlates with studies by Ismail and Zainab (2005) and Walton (2014).

> *E-books are convenient (*D5).
>
> *They are more convenient, unlike print books because you can use them wherever and whenever you need them, all you need is Internet* (A5).
>
> *I don't prefer print books because I don't like carrying heavy things in my bag, I like my bag small* (B2).

Searchability

An equally important advantage, according to the respondents, is the searchability function found in e-books. Some respondents pointed this out as the most advantageous feature or functionality of e-books. Students have limited time and they have a lot of 'school work' to do. The searching facility saves them time.

> *... it's easier because when using print book for you to search something specific you have to skim through all over and over searching for the pages relevant, but with e-books you just press find type in a keyword then it takes you to that page* (B3).

> *With e-books, it is easier to find relevant paragraphs that you are looking for* (C5).

This is also an indication that students do not read e-books to their full extent but only look at specific relevant pages and/or paragraphs that contain information that they need for an assignment. Only one respondent, namely (A6), indicated that he/she usually reads e-books in length.

Portability

Another functionality that students like about e-books is their portability and the fact that e-books are easy to store on devices like smartphones. It makes students' life easier because they always have their e-books with them, without the burden of carrying heavy bags.

> *I prefer e-books because carrying print books around it is likely to get lost, but e-book will always be on the platform* (A4).

> *It is portable; you don't have to carry heavy books* (C5).

Accessibility

In the same way students also prefer e-books because they are readily accessible. They like to have access to e-books whenever they need them.

> *E-books, it is accessible and you can read it everywhere you are* (A3).

> *I prefer e-books because I am always on the go, sometimes I am in the queue, public transport, or at home I can still use my e-book through my smart phone.* (B2).

> ……. *e-books [you] can access it where and whenever you need it as long as you have Internet access (*D5).

Low cost of e-books

A few students mentioned the fact the e-books are cheap in comparison with print books, as the comments below show:

> *Cheap if you have Wi-Fi* (D6).
>
> *You are never charged when returned late like print books* (B2), (B3).
>
> *… it saves time because it is searchable, you won't [be] … spending time turning pages you just search within e-book* (A3).

Most of the students who indicated preferences for e-books did so because of the advantages of e-books, in the following order of priority: convenience, searchability and portability. Some students also like e-books because of its reasonable cost.

4.2.2 Factors hindering the use of e-books

Hindering factors are factors that impede the respondents from using e-books. This study identified the following major themes as barriers to using e-books: a lack of knowledge, slow and unreliable Internet, a lack of or limited hardware, and a lack of or limited relevant content. Each of the themes are discussed below.

Lack of knowledge

Rogers (2003:166) identified three types of knowledge required for someone to adapt to an innovation, namely awareness knowledge, know-how knowledge and how-to knowledge. In this study, lack of knowledge is one of the preventive factors that hamper students' use of e-books. Awareness knowledge represents the knowledge of the innovation's (e-books) existence, while how-to knowledge is concerned with information about how to use an innovation. The lack of knowledge will be discussed by using Rogers's three types of knowledge indicated above. But in

this study only two types of innovation were recognised: awareness knowledge and know-how knowledge.

Lack of awareness

Almost all participants agreed that a lack of awareness is the greatest impediment that prevents them from using e-books. The respondents formulated this problem as follows:

> *Awareness, for you to use e-books you need to know that it exists* (B1).
>
> *When we come to UNAM we were not told about e-books. Thus, why you find students asking where the portal, information dissemination is critical. UNAM Library needs to raise more awareness about these e-resources (*D3).

Know-how knowledge

A lack of know-how knowledge has also been identified in the responses of the respondents as a factor that influences the use of e-books. The lack of know-how knowledge can be attributed to a lack of training about how to use e-books, as can be seen in some of the comments below:

> *Lack of awareness, for some people has no access to computers and from high school they are not taught on how to use the computer, for me to come from the village and start using e-books at a university I will not know what to do* (C3).
>
> *You need to be computer literate* (B5).
>
> *You need to be computer literate and know how it works* (B3).
>
> *Training on how to use e-books works because many people don't know how to use e-books* (B4).
>
> *I do not understand the steps or how to access UNAM e-books, they are too complicated* (C6).

Inadequate skills on how to use electronic resources have also been cited as one of the mayor obstacles for the utilisation of electronic resources (Ajayi et al. 2014). This study also found that students need skills, awareness and practical knowledge regarding how e-books function as well as knowledge about how to access and use e-books. Absence of these skills can hinder the adoption and use of e-books.

Internet availability

Slow Internet connection is another significant factor that is recognised in this study as an obstacle to the adoption of e-books. The use of e-books requires reliable and fast Internet access in order to download and move across pages. Too slow Internet and/or a lack of Internet access can restrict the use of e-books among students.

> *Internet here at UNAM is a problem; it will take you an hour before the chapter download* (C5).
>
> *Slow Wi-Fi, and most of the time our laptops and smartphones are failing to connect* (A3).
>
> *Internet at UNAM only works well in the evening; otherwise during the day you must have enough time to wait for the e-books to complete downloading* (B3).

Limited or lack of relevant content in e-books

Contrary to the findings of Lamothe (2013), who found that the size of the collection influences the likely use and adoption of e-books, this study found that the relevance of the collection is more likely to influence the use and adoption of e-books than the size of the collection. In this case the databases to which the library subscribes, do not offer the most relevant books that students need for their assignments. There is no relation between e-book contents and the UNAM curriculum. Below are the comments of some of the respondents:

> *In biology, we are more focused on content/practical, we are not more focused on technology, … only in our second year we have computer literacy. E-books is not more emphasized we are not exposed, like for behavioural ecology this library have five copies of this book. Imagine the group of 80 education students and again the science students, enquiring the lecturer, replied that he brought his from America. We tried to download but the site requires us to pay. So, the emphasis for acquiring books is more on print* (B3).

> *We are a faculty of 200 law students and all of us are doing criminal law as a module, and the library only has two copies……. Sometimes we have a test when you come to the library the next two or three days before the test all the print books…. are already borrowed out* (A6), (A8).

> *Sometimes you have an assignment, and you walk all long way to come to the library and when you go to short loan someone just took out the book and the library has only two copied* (C4).

Some students do not use e-books provided by the library. Instead they use e-books from free search engines and commercial sites or perhaps from the publishers' sites to which the university library does not have subscriptions. Accessing e-books from non-subscribed sites requires users to pay in order to get access, or to login in order to become a member of this site.

> *Some sites require you to pay and subscribe if you are not a member of that site* (D5).

> *…. tried to download but the site requires us to pay* (B3).

Limited or lack of the necessary hardware

One of the factors that hinders the adoption and use of e-books by students at UNAM is the limited number of computers available for the students. The computers that the library provides for use by students are not enough for the number of students on campus. The Windhoek campus of the University of Namibia has about 9 641 full-time students and the library provides about 100

computers. The library also does not provide loan services for e-readers and laptops to students. The 100 computers shared among a population of 9641 full-time students means that about hundred students are sharing one computer.

> *Besides the slow Internet, the computers in the library are very limited; they are not enough for all students* (C4).
>
> *... when you go to the computers all the computers are occupied* (B3).
>
> *Sometime when you come to the library all the computers are occupied and some are not working, they are not sufficient with the number of students* (D6).

Besides limited access to computers, there is also a lack of e-book readers or reading devices for students. This further restricts the adoption and use of e-books. Although the majority of students have smartphones, according to the respondents, the screen of a smartphone is too small to read and study textbooks. They therefore emphasised their need for access to reading devices in order to fully utilise the e-books innovation.

> *For you to read an e-book you require a device, a laptop, smartphones or a laptop* (D2).
>
> *The library needs to buy e-readers for students* (B4).
>
> *The library needs to buy reading devices for students, especially for those who do not have laptops or smartphones* (C5).

Influence of screens on reading and learning

Respondents in the group discussions who said they preferred print books based their preferences on factors such as that print books are easy to read, health problems, and unreliable power and Internet constraints. Eye strain, due to reading the screen for a long time, is the most cited factor that influences students' preference for print books.

> *Print books are easier to read as opposed to e-books, my eye gets tired and [I] sleep* (C2).

> *E-books are in a device, the light on the screen can damage your eye in terms of extended reading* (B6).

> *The light from the device screen can damage one's eyes. It is better for me to use print books than straining my eye* (A7).

Some respondents claimed that they find it difficult to learn content from a screen, and that they are not able to remember what they have read. Therefore, the cognitive remembrance distinction between the two book formats is another factor why print books are preferred.

> *I just find it difficult to read e-books, because when I am studying I like to write notes on a book, and it's difficult to do that in an e-book* (D4).

> *It is just difficult to study using an e-book, I will not remember what I have read because by the time I am done reading, I have seen so many pages, browsing and slides, that will confuse me* (C6).

The comments above give another reason why some respondents prefer print books instead of e-books. Respondents feel that they tend to remember content better when they read print books, compared to content read on e-book devices.

Accessing e-books on the UNAM website

A few respondents tried to access UNAM e-books through the library's website but the platform required them to login.

> *Sometimes when accessing UNAM library e-books [I] use EBSCO e-books, it asks for a password and the UNAM credential never worked on the platform* (B4).

The comment above is an indication that the respondents do not have the required skills on how to access the e-resources. There are two sites for accessing e-resources on the UNAM library website:

"access e-resources on campus" and "access e-resources off-campus". When students use the computers in the UNAM computer laboratory on the main campus they are regarded as 'off-campus' even though they are on campus. The students need to use the e-resources as off-campus students at all times in order to be authenticated by using their student login details. This allows them to login on the e-resources portal and not on the e-books platform and/or publisher's site. Apparently, all the students are not aware of this.

Access to e-books

Some students found e-books are inaccessible due to power outages and unreliable Internet access and consequently preferred printed books.

> *You can read [printed books] anytime, but with an electronic device you need electricity and Internet data* (C3).

> *Sometimes the power can go off, and Internet is not always reliable that makes e-books to be inconvenient in a way* (B3).

Summary findings of focus group discussion

In view of the above, the focus group discussion of this study identified seven factors that are hindering the use of e-books. These factors are: lack of knowledge, Internet availability, limited or lack of relevant content in e-books, limited or lack of the necessary hardware, influence of screen on reading and learning, accessing e-books on UNAM website and access to e-books.

Some studies regard accessibility as one of the advantages of using e-books. However, from the findings of this study it appears that accessibility is a factor that prevents students to use e-books due to power outages that sometimes happen unexpectedly, and also due to unreliable Internet access in the country. In addition, this study also found that accessing e-books through the library's website is another factor that hinders students to use e-books because of the complicated authentication process needed for students to use e-books.

4.2.3 Observation and think aloud

The data collected, using the observation and think-aloud method, were organised and the emergent themes were categorised into different aspects of the objectives of the study. The data were analysed using content analysis. The data were organised by identifying themes and placing them into meaningful categories, based on the key objectives of the study. Students were also allowed to interact with each other when they were doing the task and this may also have influenced the findings. Data and the pre-determined schedule for observation were used to design the statements of the last part of the questionnaire, which focused on the influence of perceived attributes of an innovation on the adoption of e-books.

Access and use of e-books

Although the discussion groups' results indicated that the majority of participants had already used e-books through other search engines, such as Google, Yahoo, etc., the majority of students who took part in the observation and think-aloud method were able to find the e-books asked for in the exercise. The majority of students accessed the e-books though the e-resources portal and found the link to e-books databases, for example EBSCO and Project Gutenberg. Unlike the findings from the focus group discussion, where the majority of participants used e-books from free search engines and publishers' sites, the findings of observation and the results of the think aloud method indicated the opposite. The majority of the respondents used the library portal to access the e-books for the task given. Students were also allowed to interact with each other when they were doing the task and this may also have influenced the findings. This could have been because students worked together.

Only five of the respondents used the library catalogue to search for the book listed in the first task. After clicking on the e-book link, three of the students were aware that they had to use their portal login details, but the other two did not know which password to use.

> *... haa, it is requesting for the password, which login details must I enter* (A5).
>
> *I put in my library account login details but it did not work, what should I do now*? (B3).

Among the students who searched the library catalogue, three used the keyword search to locate the required book and two of the participants used the full title. These students then used the EBSCO package for the second task because they were referred to the database through the library catalogue when they got the link to the book which they searched for in the first task. This means that students knew multiple access points to search for e-books which included the library catalogue, the e-resources portal or the discovery services, which none of them have used.

There were about seven students who knew how to go about searching the e-books that the library provides. These students used free search engines like Google and Yahoo to locate the e-books for their task. Although they were able to retrieve a record of the book online, they were not able to access the full text of the e-book for the first task because it was not an open source book. They then moved on to the second title which was available as an open source book through Project Gutenberg.

> *Where should I search?* (B1).
>
> *How should I go about searching for e-books, let me try Google? But there is no full text, what should I do now? Please show me, how did you get there?* (D5).

Searching the e-book access points

Most of the students demonstrated their searching skills by identifying keywords from the title of the book which they had to search. The majority of students used keywords such as *social research methods* and *social research methods, African perspectives* to search the book for the first task. This enabled them to find the correct book.

In addition to keyword searching, some of the students also demonstrated their searching skills by typing the author's name as a keyword in the basic search box, and retrieved the correct book by the specified author, as shown in Figure 4.1.

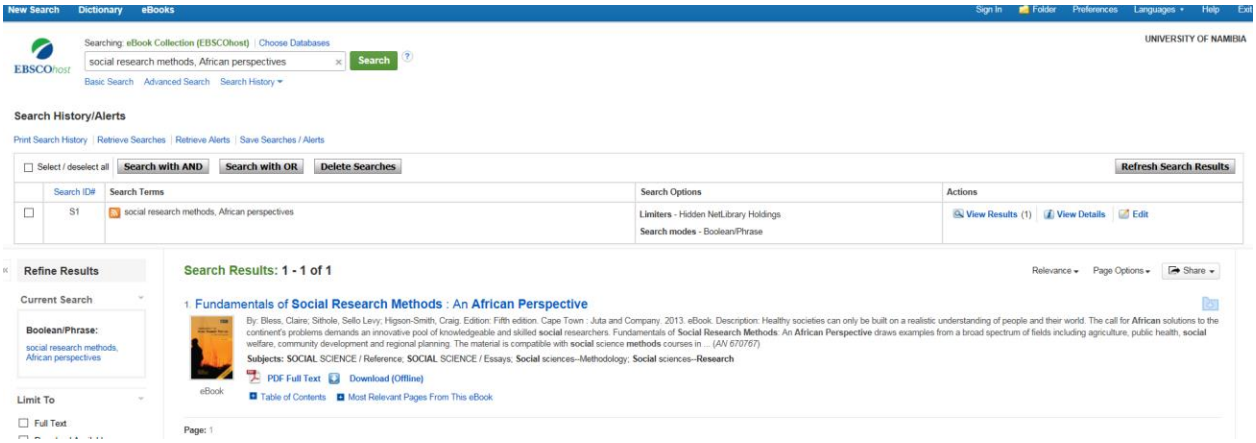


Figure 4.1 Author search

Some students used the assigned book title to search for the specific books and that also yielded the same results as presented in Figure 4.1

However, some of the students did not have the required searching skills. They typed the following phrase from their first task in the search box: "Chapter 10 Research planning and design" This yielded chapters from different books, even from books that are not about research. See Figure 4.2.

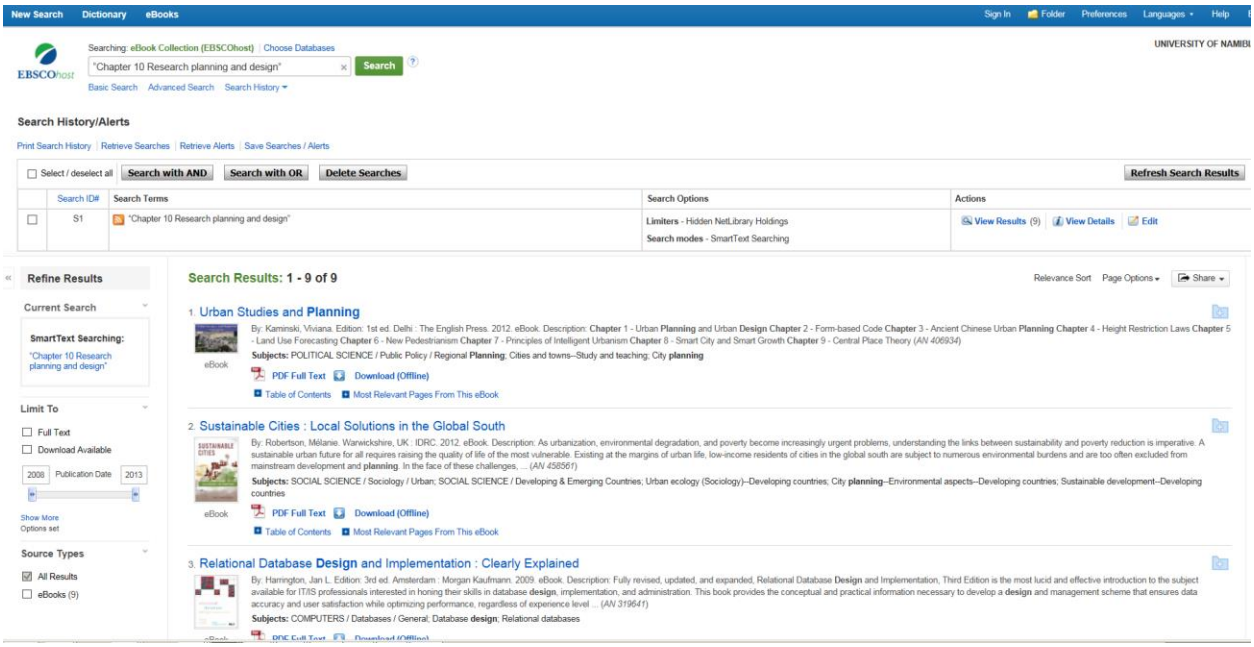


Figure 4.2 Chapter search as keyword for an e-books

Another student used "Chapter10: research method" as a search phrase to search for the book listed in their first task. The system used smart text to search through contents of the books and retrieved the book shown in Figure 4.3. However, it was not the correct book.

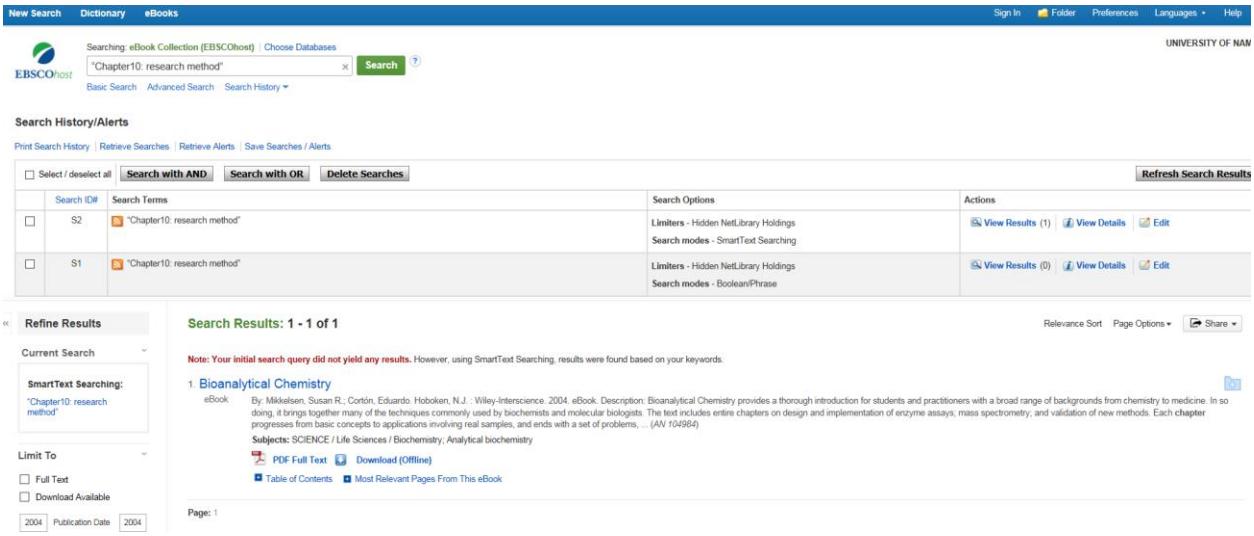


Figure 4.3 Chapter search: research methods

The responses from some of the students are presented below and validated the information presented in the preceding paragraph:

> *I could not find the book, guys how did you search?* (D2).
>
> *I typed chapter 10 research method, but the result that I got is not relevant at all*. (B4).

Advantages of e-books

The benefits of e-books serve as the enabling factors that influence people to use e-books. This study identified the following features as advantages of using electronic books: ease of use, search within, ability to e-mail, save and print the chapter, and accessibility. The findings on the advantages of e-books resemble the focus group discussion except that, while observing the students, they recognised the ease of access and use of e-books which was never referred to in the focus group discussion.

Easy access and use

Ease of access and use was tested in Task 1 and is one of the factors that can encourage the adoption and use of e-books. If the innovation is easily accessible and easy to use, it is more likely to be used when compared to an innovation that is complex (Uta, Chiliya & Chuku 2014). Some of the participants found it easy to use e-books. Even though some of the respondents have never used e-books before, they were able to easily find them, although a few experienced some difficulty at first.

> *It is that easy, I am using this for the first time but I can easily do it on my own* (B1).
>
> *I got it, that was easy* (A4), (B5), (C3).

Searchability

The majority of students like the possibility to search in a book. With regard to Task 6, i.e. "Read Chapter 22, find out who takes care of the horse and gives Raoul a sword?", it was found that, despite the instruction to read through the chapter, none of the respondents read all these pages. All respondents used the find function to search for the answer that could complete the exercise.

On enquiring why they had not read through all the pages, a typical response was:

> *The search function is the key benefit of using e-books as it helps us to get to relevant information just by a click* (A6), (B4), (B5), (C2).

This finding correlates with the findings of the group discussion.

E-book functionalities (e-mail, save and print)

The majority of respondents that took part in the observation and think-aloud process valued the functionalities of e-books, such as e-mail, saving and printing. Some students praised the e-mail functions, observing that it is useful for sharing information when having group work.

> *Wow, this is good especially when you have groupwork, you can easily share information among group members* (C2).

> *I like the fact that you can save a chapter on a stick or desktop to refer to at a later stage without Internet access* (A5).

Barriers to the use of e-books

Limited or lack of knowledge and searching skills

In the observations, it became clear that some of the students did not have the necessary searching skills as they were not able to set up proper keywords for searching. The focus group discussions also revealed that a lack of searching skills was a barrier to the use of e-books. With the observation

and think-aloud method, the same findings were validated. Five of the students searched using "*research methods chapter 10*" as a keyword. The respondents were able to get a list of all the research methods' titles available, but they were not able to go directly to Chapter 10, of the exact book title that they were looking for, as they assumed.

> *I typed in "research methods chapter 10", but the system give me all research methods books, but not the specific chapter from the book that I requested* (C4).

This was interpreted as evidence that some students do not have the basic information literacy skills required for them to fulfil their information needs.

> *E-books are good but require someone who have the searching skills* (D5).

This is an indication that students need to be trained, not only on how to access and use e-books but, more importantly, on searching strategies and keyword formulation, so that they are able to retrieve more relevant resources when searching.

Slow and unreliable Internet

The majority of students were able to complete the task, but some of the students experienced difficulties due to the very slow Internet, as the pages took a long time to load. Five respondents could not do any of the tasks because their computers did not successfully download the e-books they were looking for. The effective and efficient use of e-books requires reliable and fast Internet access; too slow Internet may prevent students from using e-books as it is inconvenient, because it takes up much of the students' time, waiting for the pages to open. These findings correlate with the findings from the focus group discussion.

Relevance of e-book collection

The relevance of the e-book collection is important in libraries of academic institutions. If the library's electronic resources are relevant to the institution's curricula, the likelihood that students will use the collection is higher. The respondents pointed out their frustration in this regard and remarked that they wanted to see a more relevant e-book collection.

I only find about four to six relevant law titles (A2).

There are not books on knowledge management, digital libraries, marketing libraries services, and these are very important topics for library science students (D4).

History is a subject that requires more reading, the library need to look into providing more African and international history e-books (D4).

I could not find the prescribed books for my course, I think the library should acquire all prescribed books in e-format (B3).

On the other hand, some of the respondents, mainly from the Faculty of Economics and Management Science, were excited because there were a lot more relevant books, which they could use for their course, that they were not aware of:

Wow, I just wish I knew this before, there are just more relevant e-books (C6).

Look at this, even the management principles are available while we have been fighting for a short loan print book that you just have to read in the library (C3).

This is an indication that the library needs to acquire more titles in the format of e-books for some disciplines. The limited relevant e-books collection was also identified in the focus group discussion as a barrier to the actual use of e-books by the students.

Digital Right Management (DRM) and access model

Although the majority of students were able to find the e-books, they were disappointed when they noticed that only three people can access the same e-book title at the same time. This was due to the purchase or access model that the library selected when procuring these e-books. The UNAM Library used a one-to-three access model when purchasing e-books, due to the cost associated with the choice of access model. The higher the number of users accessing the e-book at a certain time, the higher the cost. This means that only three users can use the e-book at the same time. As a

result, the access model blocked other users by giving a blank page of the book after three users were already using the same e-book.

> *I found the e-book that is requested, but when I click on the e-book link for me to be able to read it, it says unavailable, in use by three other users, login [if] you want to reserve the book* (A3), (C6).

Some respondents were also not happy because of the limitation placed on e-books regarding the number of pages one can save, print, or e-mail.

> *I manage to save the first 20 pages to my desktop, but now it is refusing to send pages to my e-mail* (A2).

> *What do they mean "exceed page limit", I thought e-books will offer unlimited access, but this is the same as with print book because if somebody else is using the e-book the other person will not have access? Seriously the library has to look into better access model to accommodate all students* (B4).

> *The e-books are on the database, but the texts are not displaying. What am I have … done, the text is not appearing* (D5).

Students want to manipulate and interact with e-books as much as they can, they want to share e-books among colleagues but the limitations associated with e-books are making it almost impossible.

> *What do they mean "exceed page limit"? I thought e-books will offer unlimited access, but this is the same as with print book because if somebody else is using the e-book the other person will not have access* (B4).

Other studies that support the finding of this research is the research by Vasileiou, Rowley and Hartley (2012:221), as well as McKnight, Dearnley and Morris (2008:176) who confirm the DRM factor that hinders the adoption of e-books.

Factors influencing the adoption of e-books

The think-aloud schedule also tried to align issues identified by respondents when using e-books to the Diffusion of Innovation theory (DIF) perceived attributes of e-books, to determine how it may affect the adoption of this innovation.

The majority of the respondents praised the ease of use and access of e-books, which is aligned to the relative advantages of the e-books.

> *It is that easy, I am using this for the first time but I can easily do it on my own* (B1).
>
> *I got it, that was easy* (A4), (B5), (C3).

Another attribute measured was the complexity of an innovation, based on the statements respondents made when accessing e-books. It is evident that difficulties in using e-books can hinder the adoption of e-books by students.

> *what should I do now? Please show me, how did you get thee* (D5).
>
> *This is good, but its somehow difficult, requires someone with searching skills* (D6).
>
> *I could not find the book, guys how did you search* (D2).

Another attribute that appears significant to positively influence the adoption of e-books is the observability; some respondents observed the benefits of using e-books anywhere, without going to the library.

> *I do not need to go the library, I can use e-books anywhere without visiting the library* (D5).

Some respondents also observed that e-books save them time when doing assignments, which shows the compatibility of e-books with a student's way of searching for information and the significance of e-books for students when doing their school work.

… it saves time because it is searchable, you won't [be]… spending time turning pages, you just search within e-books (B3).

Some of the students who were using e-books for the first time claimed that it was easy for them to use e-books. This confirms that trialability of the innovation can positively influence the use of e-books.

It is that easy, I am using this for the first time but I can easily do it on my own (B1).

Summary of qualitative findings

The findings of the observation and think-aloud method show that the majority of the respondents accessed e-books from the e-resources portal. Respondents used the 'search within' functionality to complete the task. Factors such as ease of access and use, and functionalities such as e-mailing, saving and searching within e-books, were identified as the main advantages of e-books. The limited and/or lack of knowledge about how to access and search for e-books, limitations on access and on e-books' functionalities, such as saving, printing and e-mailing, slow and unreliable Internet and limited and/or lack of relevant e-book titles in the library collection were identified as obstacles to the use of e-books. The findings also confirm that the relative advantages, compatibility, observability and trial ability have positive influences on the adoption of e-books.

4.3 Presentation and analysis of the quantitative data

4.3.1 Introduction

The quantitative data collection served to validate the findings of the qualitative data described above. The questionnaire, which was used to collect quantitative data, was designed based on the themes and data gained in the qualitative data. Some of the questions were added, based on the literature reviewed in Chapter 2. The questionnaire was designed and distributed to the fourth-year students using the Smart Survey software. Smart Survey is an online survey tools that allows one to design questionnaires, collect data and analyse the data. In this study, Smart Survey was used to design the questionnaire and the link of the questionnaire that was distributed to students' mobile phones.

A sample of fourth-year students at the UNAM main campus was used as research population. A total of 159 respondents from a target sample of 367, drawn from a population of 1745 fourth-year students, participated in this study. This study achieved only about 45% of representativeness of the target sample. This is due to the fact that the quantitative data were collected during September and October 2016, the period when students were preparing for the examination. Most students were under pressure with tests, assignments and also with their research projects. What follows is an analysis of the online survey data that was analysed by using SPSS and Smart Survey software. The presentation of figures and table was done in Microsoft Excel.

4.3.2 Demographic information

The age of the respondents in this study ranged between the age of 18-29 (67%) and 30-39 (28%) respectively. Only 1% represented those between the ages of 50-56 and 60 and above. This age representation could be realistic for the reason that the study was intended for fourth-year undergraduate students only. The students in this age category are more technology savvy, and it could be interpreted that they are more inclined to use the new technology e-books, as they spend more time on their devices, using social media.

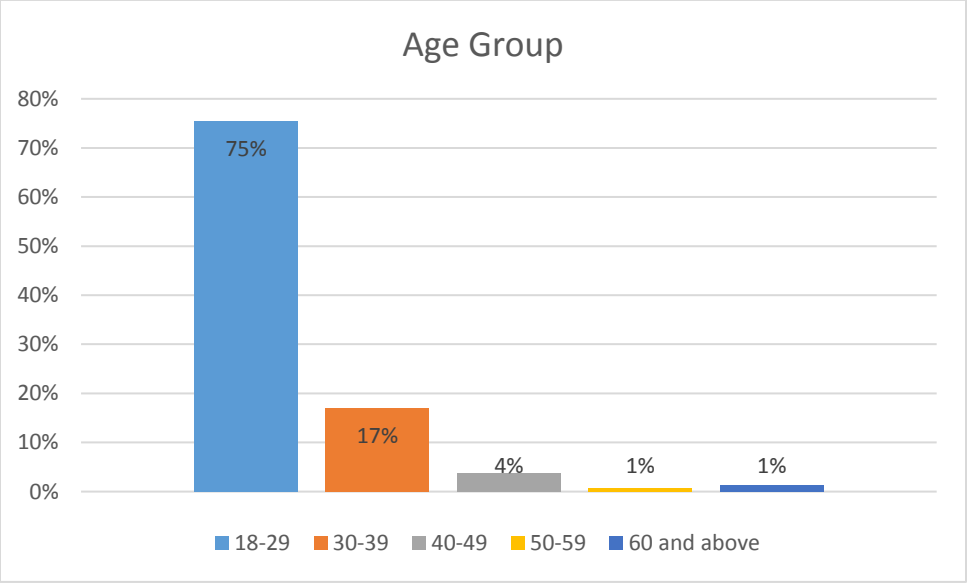


Figure 4.4 Age group

Regarding the gender dispersal of participants in this study, the majority were female, namely 59%, and 41% were male students. The female respondents were also the majority in the qualitative study. This might have influenced the findings concerning the use of e-books in relation to gender.

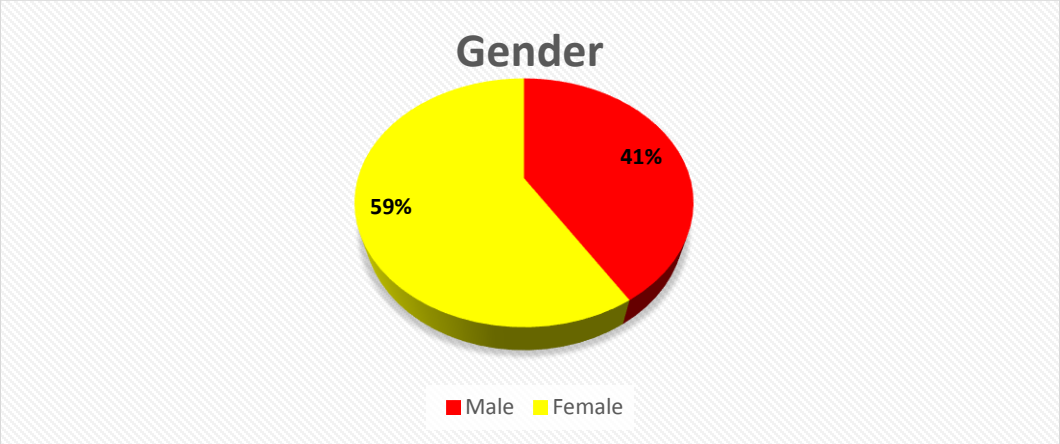


Figure 4.5 Gender distribution

With regard to the faculty distribution of participants in this study, the majority of the students who participated in the study were from the Faculties of Education (35.48%), Humanities and Social Sciences and the Faculty of Business and Economics, with 16.23% and 16.13%, respectively. About 10.97% of students who partook in this study were from the Faculty of Science, while equal percentages of 10.32% each were from the Faculty of Health Sciences and Faculty of Law, as indicated on the chart below.

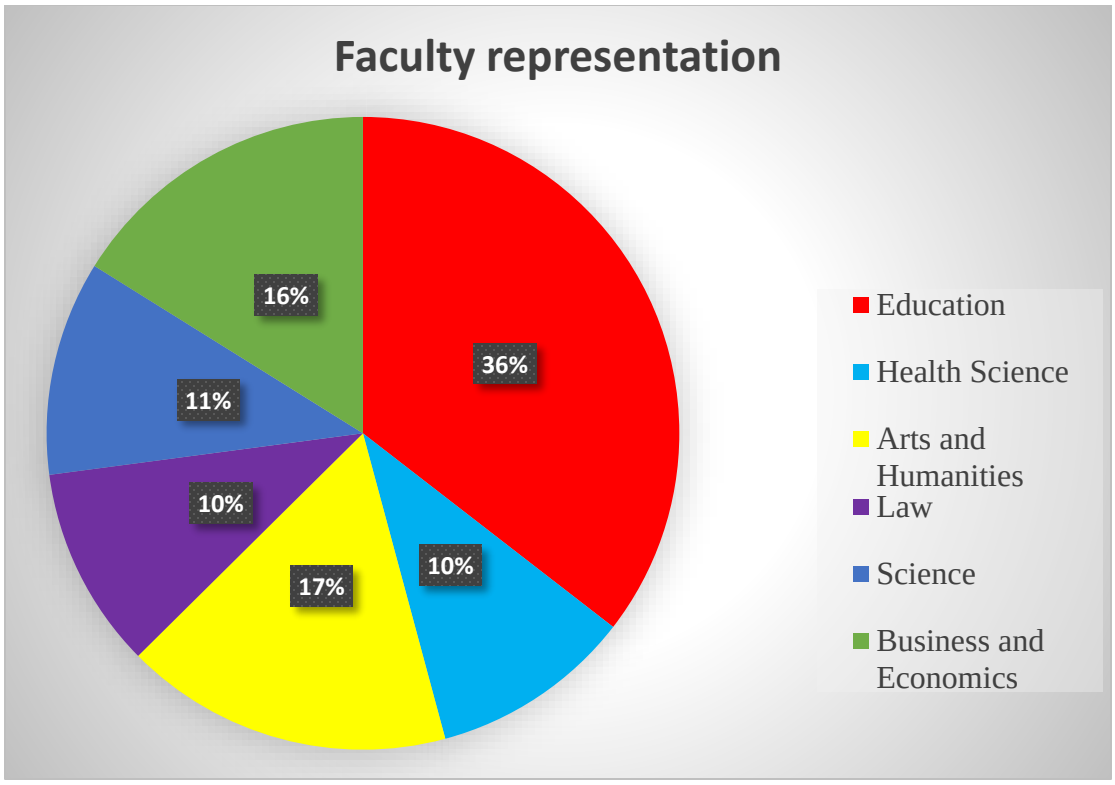


Figure 4.6 Faculty distribution

The faculty representation, as described in the figure above, may influence the knowledge, use and adoption of e-books by field of study.

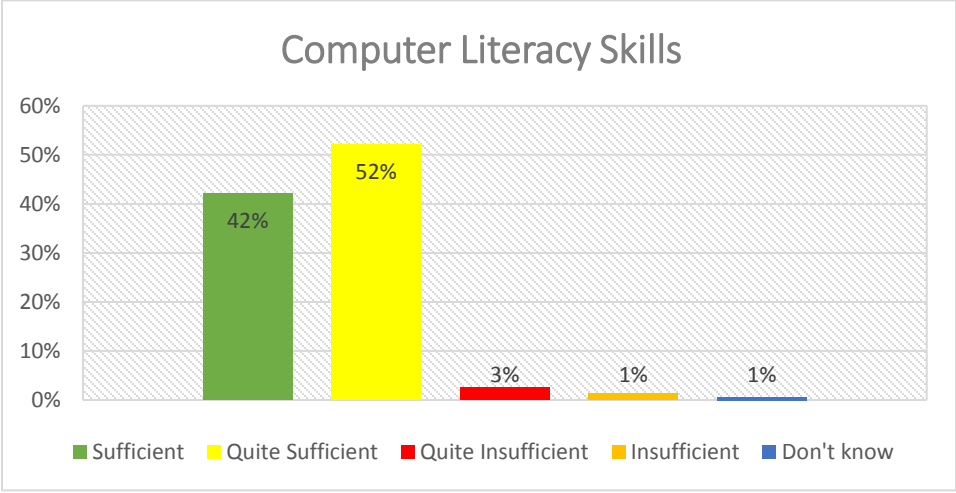


Figure 4.7 Computer skills

The results showed that most of the students who participated in this study consider themselves as computer literate: 52% have quite sufficient computer skills and 42% sufficient computer skills. Only 3% regarded themselves as having quite insufficient skills in computer literacy, and 1% represented those with insufficient skills, as well as those who do not know how to rate their computer literacy level. The effective use of e-books is more reliant on one's ability and skills to use a computer. The sufficient and quite sufficient computer literacy levels of the respondents enabled them to fully utilise e-books.

4.3.3 Knowledge about e-books

The aim of this section was to determine the views and awareness of e-books by students. The majority of the students (76.1%) know what an e-book is, while 14.19% did not know e-books. About 9.68% of the respondents were not sure what e-books are. This is an indication that most of the respondents have an awareness about e-books. These findings correlated with the results of the qualitative findings of this study. The majority of respondents in the focus group discussion were aware of e-books and have described it as an online book or a book in soft copy.

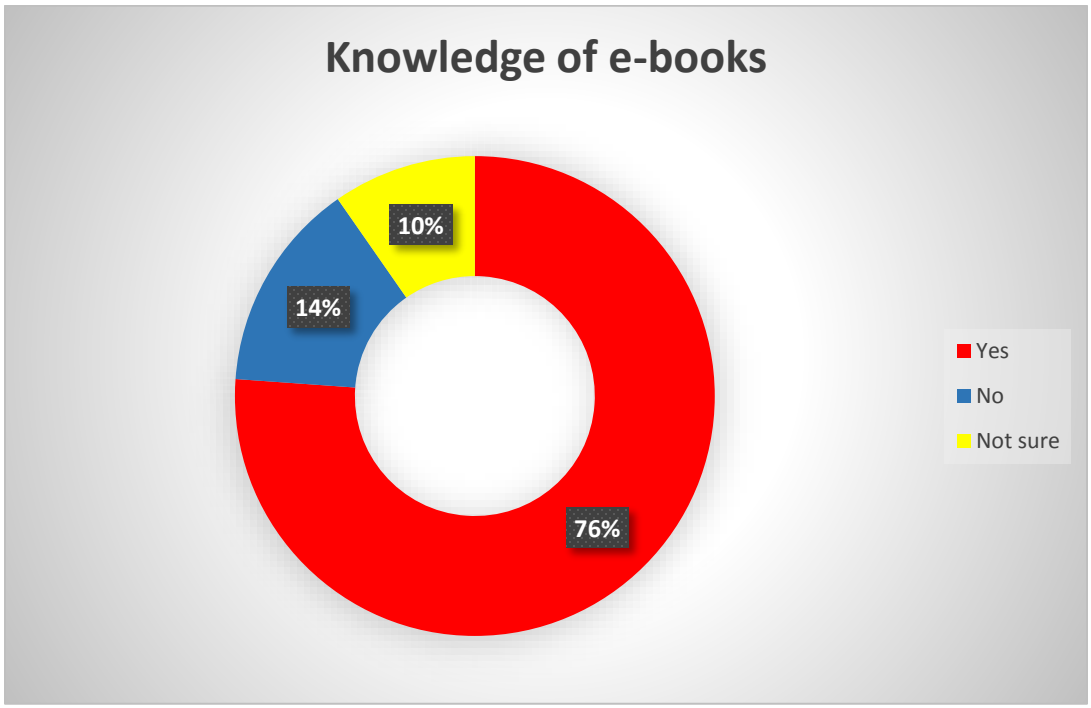


Figure 4.8 Knowledge about e-books

4.3.4 Usage patterns of e-books

Usage patterns of e-books is one of the research questions in this study. The following themes about the usage of e-books were addressed:

- ✓ The use and frequency of e-books, which looks at the incidences or rates at which students use e-books
- ✓ The purpose for which e-books are used
- ✓ The means of access to e-books
- ✓ How students used e-books
- ✓ The reason for using and or non-use of e-books.

Use of e-books

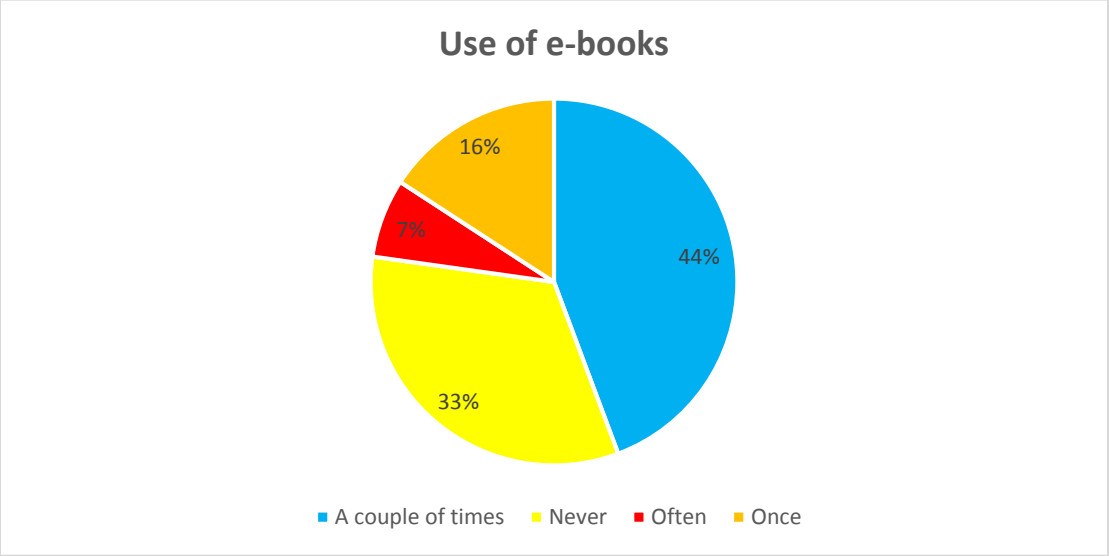


Figure 4.9 Usage of e-books

The results, presented in Figure 4.9, indicate that 44% of the respondents have used e-books a couple of times. In addition, 16% have use e-books at least once; only 7% of the respondents use e-books often. A question was asked about whether the respondents use e-books generally, and not necessarily only those provided by the library. In general, it could be said that the majority of

respondents used e-books. The high usage of e-books could be that respondents were able to find e-books easily when searching for information for their research or course work. It could also be that respondents use the free search engines to search for their needed information, which also link them to e-books and previews of e-books, freely available online.

Purpose for using e-books

People use information for different purposes. This question mainly focused on the respondents' determination for using e-books. This question was only answered by the respondents who indicated that they have used e-books, in order to assess the purpose for which e-books are used.

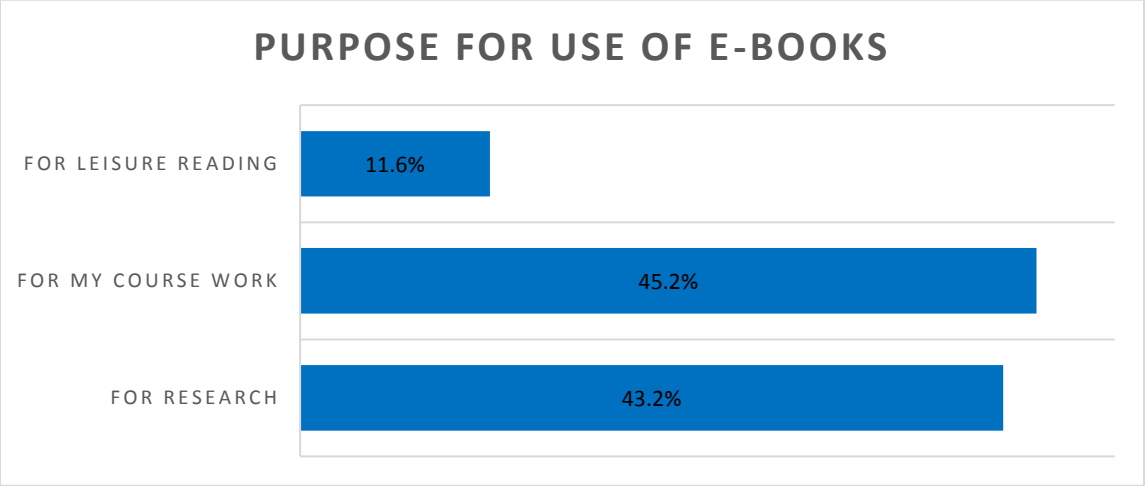


Figure 4.10 Purpose for which e-books are used

As indicated in Figure 4.10 above, 45.2% of the respondents responded that they use e-books mainly for their course work, and 43.2% used e-books for research purposes. A few respondents, a portion of 11.6%, used e-books for leisure reading. It is clear that students rather use e-books for course work and for research purposes, as opposed to leisure reading. These findings correlate with the findings of Corlett-Rivera and Hackman (2014) who also found that about 60% of respondents in their study, conducted at Maryland University, used e-books for research purposes. Camogul et al. (2013) also reports that about 75% of students who participated in their study used e-books for

course work. It disproves the findings of Wang and Bai (2016), who reported that undergraduate students mainly use e-books for recreational reading. These findings show that in Namibia students are likely to use e-books in future, hence they are using them for their study and research purposes. This is an indication for the library collection development team to acquire more e-books that are relevant to the curriculum and research agenda of the university, and not necessarily for their relaxation purposes.

How e-books are used

This section looks at how students use e-books. Do they use e-books for fact finding, or for selective reading? Figure 4.11 describes how respondents in this study used e-books.

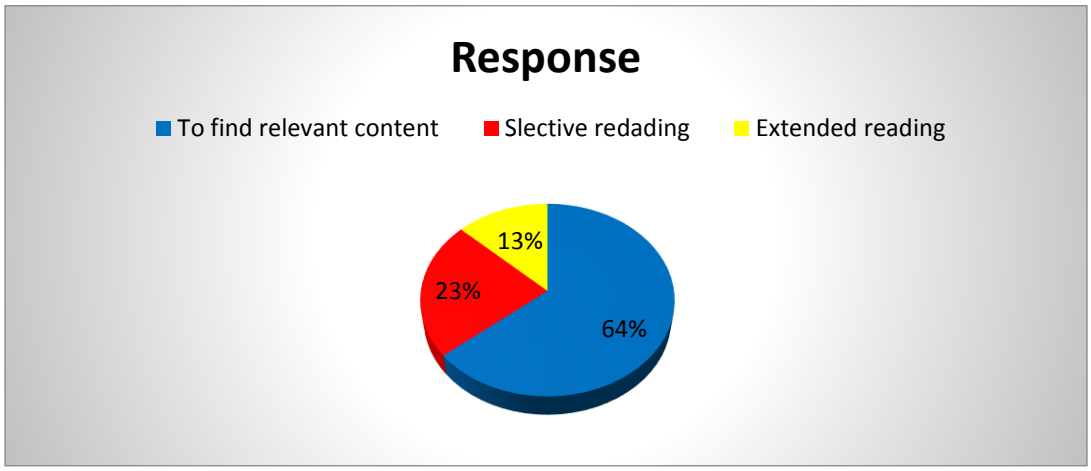


Figure 4.11 How e-books are used

It was found that 62.5% of the respondents used e-books to find relevant contents. This type of reading is characterised by reading a few pages or paragraphs here and there, looking for sketches or graphics, or important information or facts, often using the search function to establish if the e-books contain the relevant information.

On the other hand, 23.1% of the students indicated that they used selective reading, whereby they read at least a whole chapter at a time. A small fraction (12.5%) of the respondents stated that they read extensively in e-books. These could be the students who use e-books for leisure reading.

Means of access to e-books

The respondents who indicated that they have used e-books were further asked to indicate their means of access to e-books. The purpose of this question was to determine if students use the e-books that their library provides or not. The results of this question are indicated in Figure 4.12. The results show that 40.95% of the respondents use the UNAM library website to access e-books. Only 15.24% of the respondents also indicated that they use the library catalogue to search for e-books. In contrast, 29.52% of the respondents use free websites, such as Yahoo and Google to search for e-books, and 9.52% use commercial websites.

Means of Access

		Response Percent	Response Total
1	Commercial site (for example, Amazon, Google eBookstore)	9.52%	10
2	Free Web site (for example, Google Books, Yahoo etc.)	29.52%	31
3	UNAM Library Catalogue	15.24%	16
4	UNAM Library website	40.95%	43
5	I don't use e-books	0.00%	0
6	Other (please specify):	4.76%	5

Analysis							
	Mean:	3.07	Std. Deviation:	1.23	Satisfaction Rate:	41.33	answered 105
	Variance:	1.51	Std. Error:	0.12			skipped 54

Figure 4.12 Means of access to e-books

Looking at Figure 4.12, the overall analysis shows that there are many respondents who use e-books provided by the library (56.19%), while more or less 44% of the respondents who used e-

books from other non-library access tools, such as free and commercial search engines, may be a cause of concern for an academic library. This is really a concern that the library has to look into and this study will further identify contributing factors to this phenomenon and provide recommendations for improvement.

Value of e-books

It was important to get insight into how the respondents, who indicated that they use e-books, decided on the value of e-books, because it may predict the reason why students will use e-books in future.

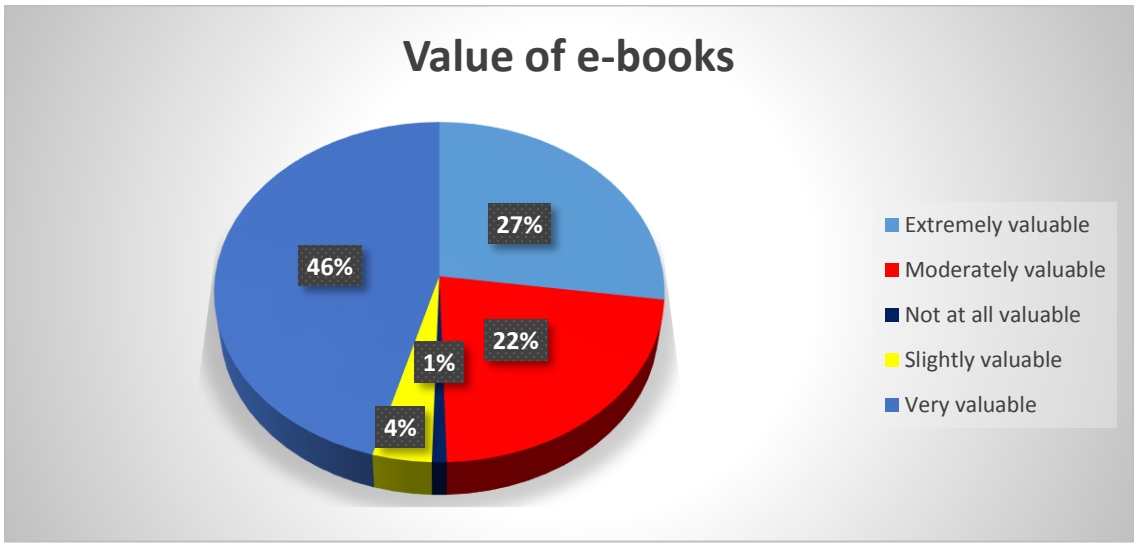


Figure 4.13 Value of e-books

The findings suggested that 46% of the respondents regarded e-books to be very valuable and 27% extremely valuable, while 22% of the respondents found e-books moderately valuable. Only 1% of the respondents indicated that e-books are not valuable at all.

4.3.5 Benefits of e-books

When asked to indicate what the benefits or advantages of using e-books are, the respondents' answers provided the findings as indicated in Figure 4.14 below.

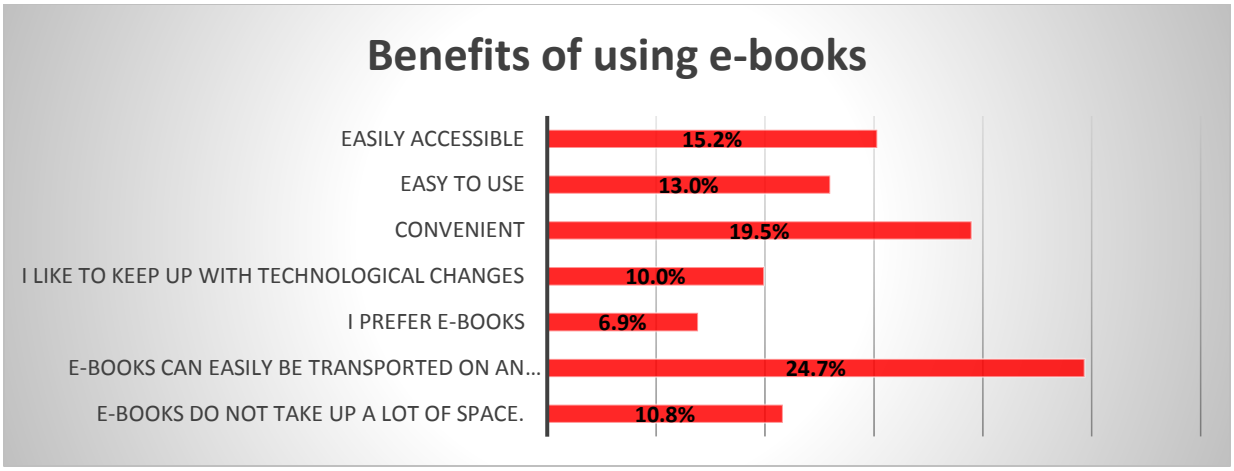


Figure 4.14 Benefits of e-books

This study shows that the majority of the respondents liked the portability of e-books (24.7%), while 19.5% liked the convenience of e-books. Nearly 15.2% of respondents who answered this question, liked the value and the advantage of easy accessibility that e-books provide, while 13% indicated that e-books are easy to use.

4.3.6 E-books or print books

Despite their use of e-books, it was needed to determine whether the respondents preferred e-books or print books. This is important as it can inform the collection development team of the library as to which format of books they should give preference when expanding their collection.

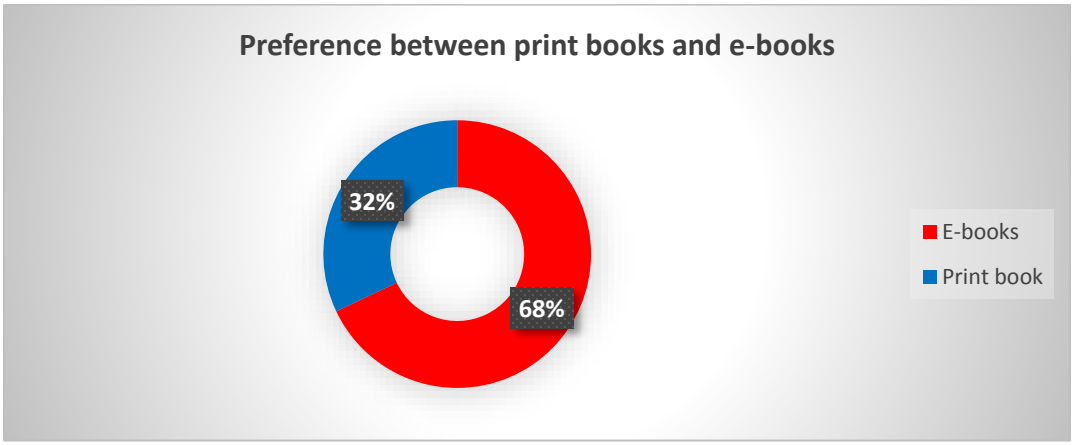


Figure 4.15 Preferences between book formats

Based on the findings presented in Figure 4.15 above, it is evident that the majority of respondents (68%), prefer to use electronic books. This correlated with the findings in the focus group discussion, in which respondents also favoured e-books rather than print.

Reason for e-book preferences

Respondents were further asked to provide reasons for their preferences of one format over the other. This was an open-ended question, thus the data gained from this question were in the form of qualitative data. The comments were organised and categorised into themes and the recurrence of the themes were counted to present the results in quantitative manner, as shown in Figure 4.16, which provides reasons why the respondents indicated a preference for e-books.

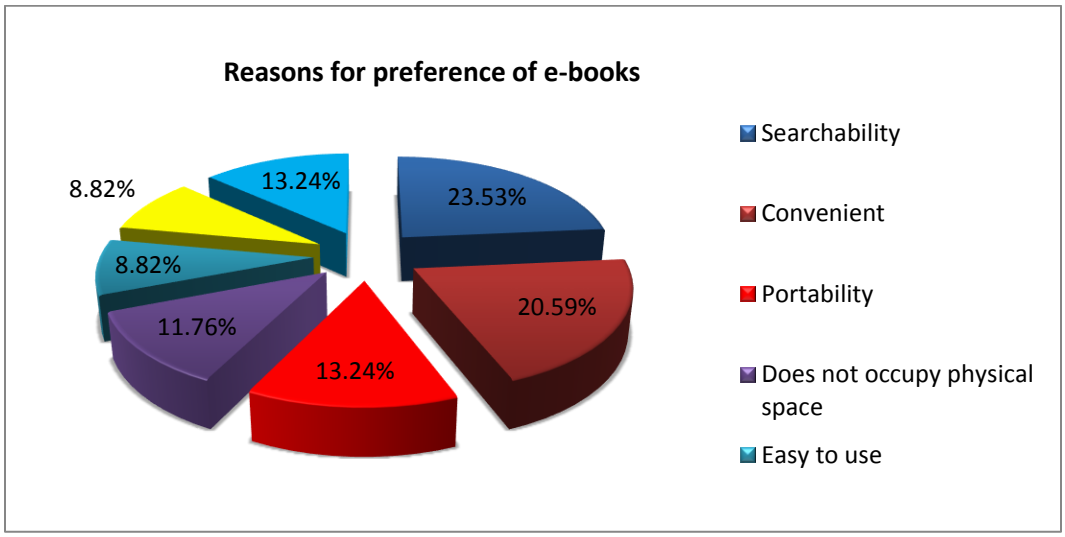


Figure 4.16 Reason for preference of e-books

The results, as indicated in Figure 4.16 above, show that the majority of respondents (23.53%) liked or preferred e-books because of their searchable functionality. About 20.59% of the respondents also liked e-books because they are convenient and 13.24% of the respondents liked e-books both because of their accessibility and portability. Furthermore, 11.76% liked e-books because it does not occupy physical space, while 8.82% of the respondents preferred e-books because they are both cheap and easy to use.

Based on the findings described above, it is clear that students liked e-books because of their ability to search within a book, which allows them to find relevant information easily. Respondents also preferred e-books because they are convenient, accessible and portable. These findings also correlate with the findings in the focus group discussion, where it was found that searchability and convenience are the main factors determining students' preferences. In addition, another factor that was identified from both qualitative and quantitative data, is the significance of portability, ease of use, accessibility and the low cost of e-books.

Reasons for preference of print books

Respondents who stated that they used e-books but preferred print books, based their reasons for preference on factors such as eye strain, difficulty to read on screen, and that it was easier to make notes and highlights when using print books.

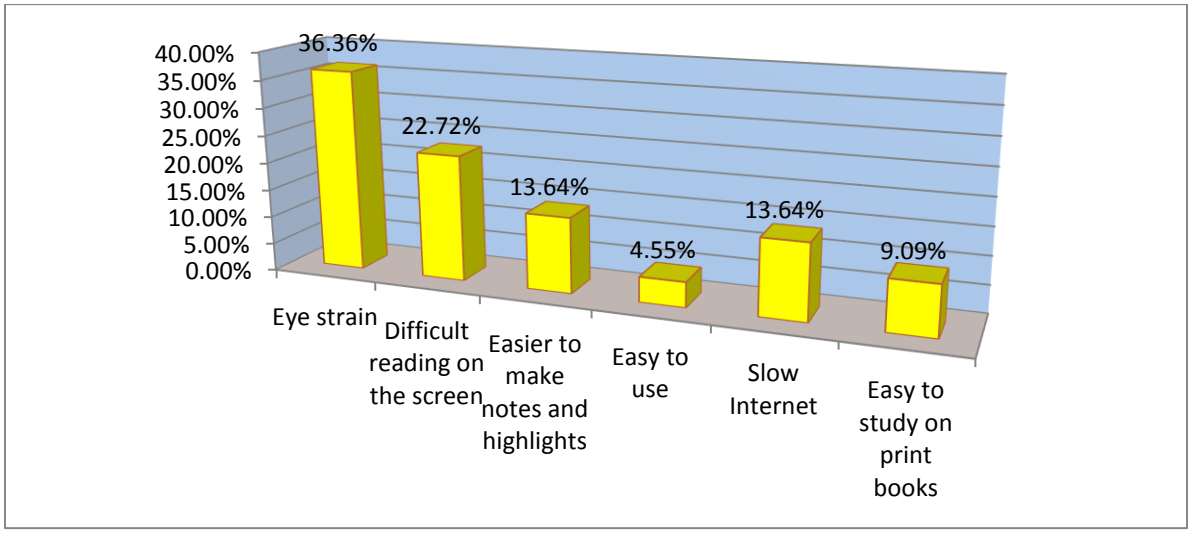


Figure 4.17 Reason for preference of print

Figure 4.17 presents reasons for students' preferences of print books. The results indicate that some respondents (36.36%), preferred print books because of eye strain that they experience when reading e-books. The other reasons for respondents' preference for print books are the difficulty of reading e-books on screen (22.72%), and about 13.64% indicated that they liked using print books because it is easier to make notes and highlights, while another 13.64% liked print books

because of problems slow Internet connections. About 9.09% of the respondents preferred print books because they find it easy to study in print books, as opposed to e-books, and 4.55% liked print books because they are easy to use.

4.3.7 Factors hindering the use of e-books

Another key question of this study was to identify key issues or barriers that are affecting the use of e-books among respondents. The respondents who indicated that they never used e-books were asked a further question to determine why they did not use e-books. The findings show that a lack of knowledge about the availability and where to search for e-books were identified as the main hindrances, as indicated in Figure 4.18.

Reasons for not using e-books

The respondents who indicated that they never used e-books, were asked a further question to indicate their reasons for not using e-books. This question was important to get insights of possible real reasons and factors that prevent students from using e-books.

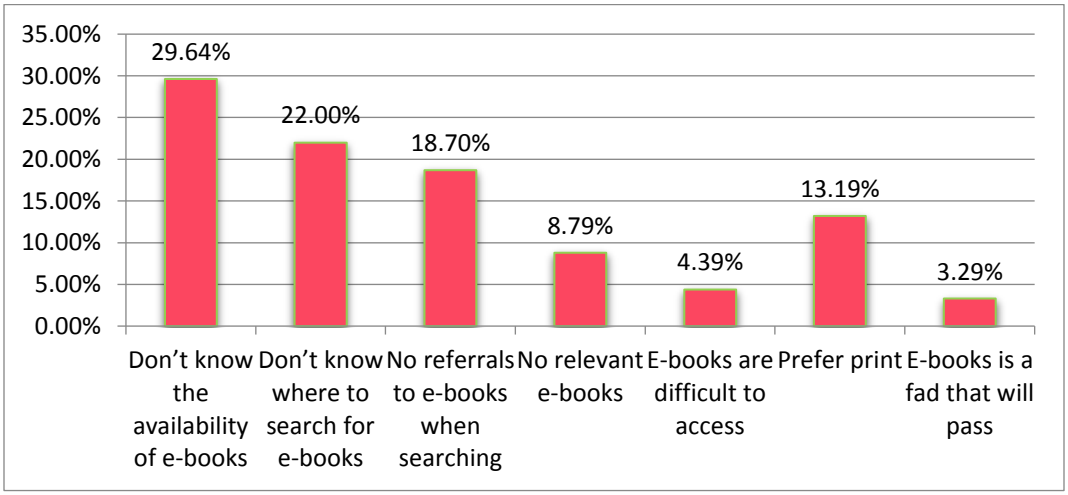


Figure 4.18 Reason for not using e-books

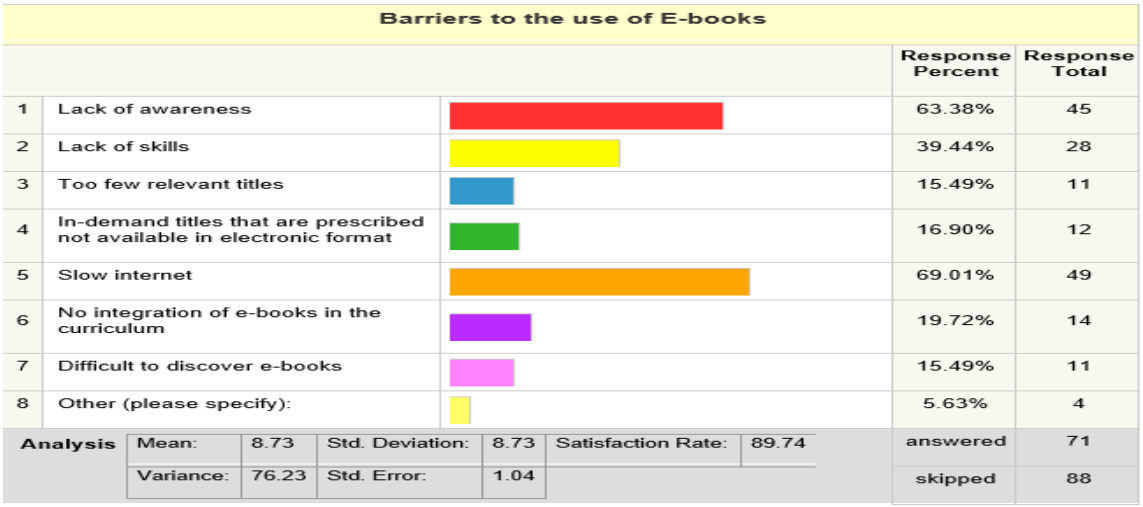
As indicated in Figure 4.18 above, a lack of knowledge about the availability (29.64%) and where to search for e-books (22%), respectively, were the top cited reasons for not using e-books. About 18.70% of respondents indicated that they could not find the e-books when searching, while

13.19% said that they just preferred print books. Another 4.39% said that e-books are difficult to use while a margin of 3.29% believed that e-books are just a novelty that will pass.

Respondents who indicated that they did not use e-books identified the main issue as a lack of awareness about the availability of e-books and where to search for e-books. Some indicated that no references to e-books were found when searching; again, this might be an issue of knowledge. If students do not know how an e-book is displayed in the library catalogue, they will not be able to select it and will not try to click further to get to the full text. Other studies in Africa and locally also indicate similar reasons as the major preventive factors in the use of e-books (Mwiiyale 2016; Hamutumwa 2014; Croft & Davis 2010). If students are not aware of the existence of e-books in the library, they will not make use of them, even those who are aware will not make use of e-books if they lack skills required to fully utilise e-books.

Barriers to the use of e-books

A question was also posed to those students who indicated that they had previously used e-books, to indicate possible factors that may hinder the use of e-books among students at the University of Namibia, based on their experiences when they have used e-books and their own observations. This question was only completed by students who indicated that they have never used e-books, those who have used e-books before have skipped this question. In addition, the question was a multi-response question, therefore the distribution of percentile per answer is beyond the hundred percent.



Barriers to the use of E-books			Response Percent	Response Total
1	Lack of awareness		63.38%	45
2	Lack of skills		39.44%	28
3	Too few relevant titles		15.49%	11
4	In-demand titles that are prescribed not available in electronic format		16.90%	12
5	Slow internet		69.01%	49
6	No integration of e-books in the curriculum		19.72%	14
7	Difficult to discover e-books		15.49%	11
8	Other (please specify):		5.63%	4
Analysis	Mean: 8.73	Std. Deviation: 8.73	Satisfaction Rate: 89.74	answered 71
	Variance: 76.23	Std. Error: 1.04		skipped 88

Figure 4.19 Barriers to the use of e-books

As shown on Figure 4.19, this study identifies three significant major barriers that deter the use of e-books. These are slow Internet speed (39.01%), lack of awareness (63.38%) and lack of skills required to fully utilise e-books (39.44%). Other additional barriers, as per the responses of the respondents, are a lack of the integration of e-books in the UNAM curriculum (19.72%), the absence or unavailability of in-demand titles needed by students (16.90%) and a lack of relevant titles and finding it difficult to find e-books (15.49%) respectively. This means that the university library needs to address the issue of knowledge, searching skills, poor internet connection and collection development as they appear to be the major preventive factors.

4.3.8 Factors that influence the adoption and/or non-adoption of e-books

This section aims at determining key features that influence the adoption and or non-adoption of the e-book as an innovation among students of the University of Namibia. This was done within the parameters of the Diffusion of Innovation theory (Rogers 2003), focusing on the perceived characteristics of the innovation. The statements were designed, based on the data extracted from the qualitative data collected in this study. Some statements were added, based on the reviewed literature.

Relative advantage

The relative advantage is one of the perceived attributes of an innovation that is used to determine the likeliness of an innovation to be adopted. This is actually measured by looking at the advantages and disadvantages associated with the innovation.

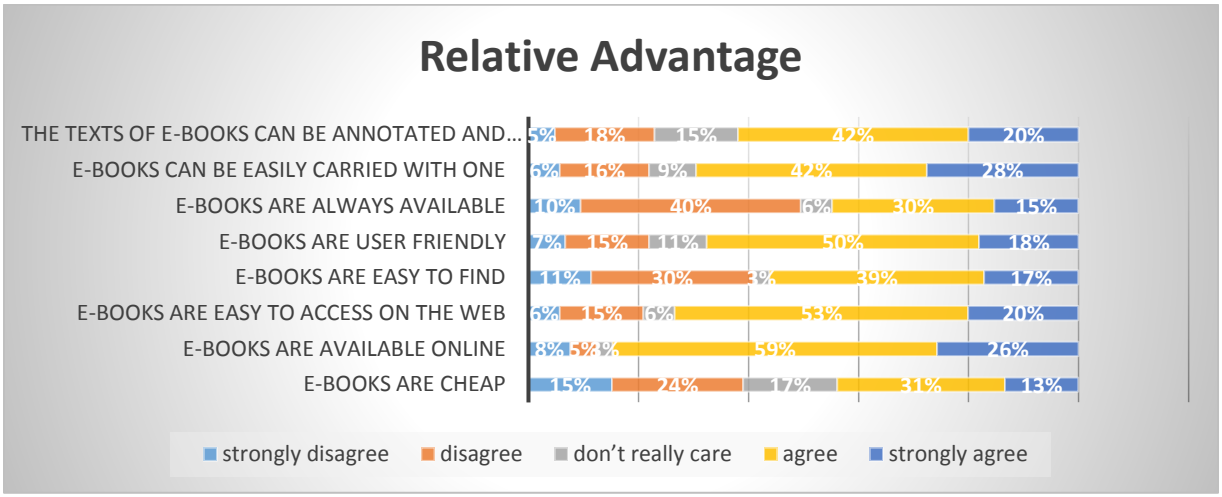


Figure 4.20 Relative advantage and the adoption of e-books

The results of this study, as portrayed in Figure 4.20, indicate that most of the respondents are in agreement with the diffusion of an innovation, that the relative advantage of e-books is an influencer for innovation adoption. Most of the students (59%) concurred that e-books are easily available on the Web; 53% agreed that e-books are easy to access, while 50% were also in agreement that e-books are user friendly. In addition, 42% of the respondents agreed with the advantages of e-books, namely, that it can be annotated and highlighted, as well as with the portability or ability of e-books to be carried along.

In addition, about 40% of the respondents disagreed that e-books are always available, 30% found e-books difficult to access, while 14% claimed that e-books are not cheap. The results also show that 15% of the respondents strongly disagreed that e-books are cheap, and on the same note, 11% opposed the statement that e-books are easy to find, while 10% disagreed on the availability of e-books.

The results presented in Figure 4.20 also show that 17% of the respondents indicated that it did not really matter whether e-books were cheap or expensive. Moreover, 11% were not concerned whether e-books were user friendly, and 15% were not concerned whether they can be annotated and highlighted, or not.

Disadvantages of e-books

Disadvantages is another aspect of the relative advantage of the perceived attribute of an innovation, which may prevent the likeliness of the adopters to adopt the innovation.

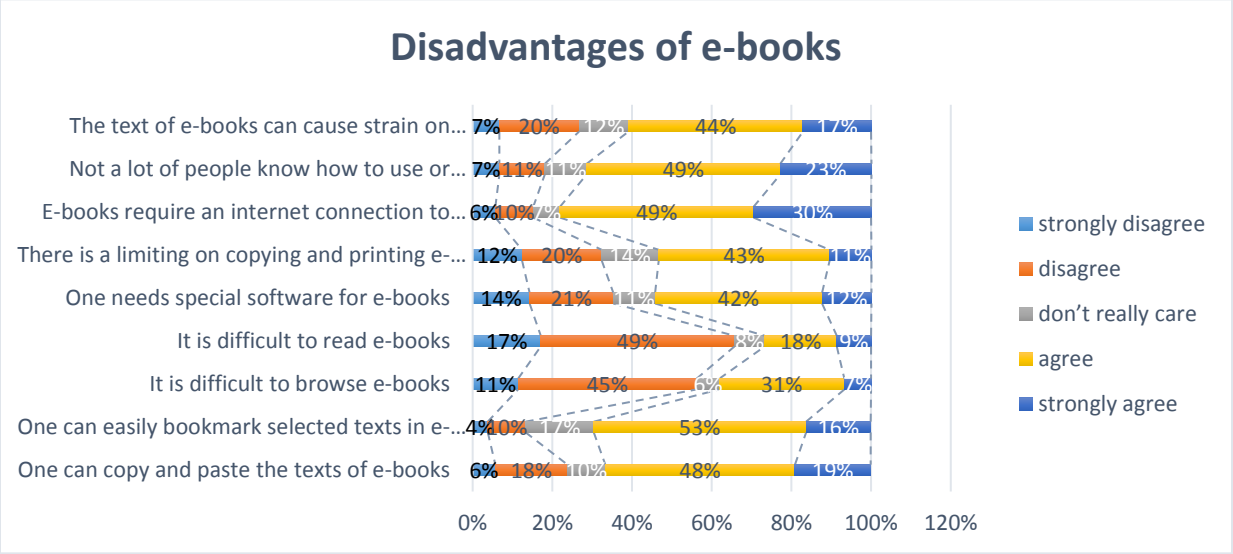


Figure 4.21 Disadvantage of e-books

To further determine the factors that may prevent the adoption of e-books, statements regarding the disadvantages were rated by the participants, based on the rate of 'strongly agree' to 'strongly disagree'. The results, presented in Figure 4.21 above, indicate that the majority of participants agreed with the statements shown in Figure 4.21, with the range from 40-49%. About 45% disagreed with the statement that e-books are difficult to browse and 49% also disagreed with the statement that 'e-books are difficult to read'. However, 44% agreed that the text of e-books cause eye strain, and 43% also agreed that the limitation on copying and printing is a disadvantage. The

findings described above show that the disadvantages of e-books are regarded as factors hindering the adoption of e-books.

Complexities of e-books

Complexities are concerned with the extent to which the innovation is perceived as difficult to understand and use. The easier the innovation, the higher its likeliness to be adopted by intended adopters.

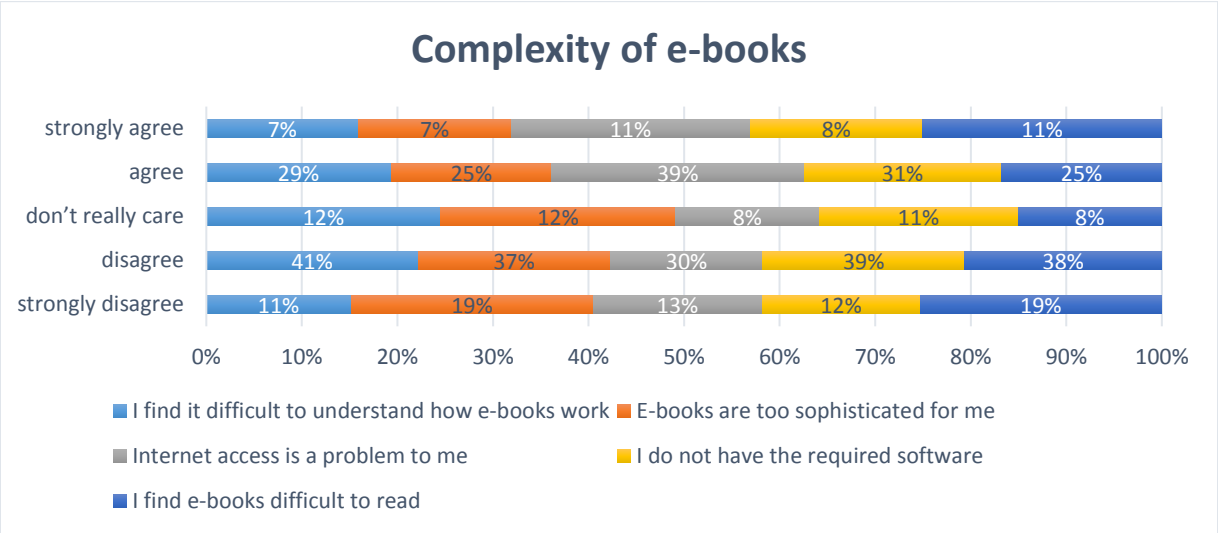


Figure 4.22 Complexity of e-books

In order to understand the complexity factors that prohibit students to adopt e-books, statements presented in Figure 4.22 above were analysed. The results indicated that 29% agreed and 7% strongly agreed that they found it difficult to understand how e-books work. While 41% and 11% strongly disagreed with the statement, they did not find it difficult to understand how e-books work. About 37% disagreed and 19% strongly disagreed that e-books are too sophisticated. Only 25% and 7% strongly agreed that e-books are too sophisticated for them. On the other hand, 38% agreed and 19% strongly disagreed with the statement 'I find it difficult to read e-books'. Participants in this study disproved the complexities of e-books as the basis of their decision to adopt or not to adopt e-books, as indicated in Figure 4.22. This could be due to the fact that most students already spend much of their time online, using social media on their smartphones. The

researcher assumes that adapting to e-books would not be an issue for young students, and they won't experience difficulties as they are used to browsing, linking, clicking, and scrolling when using their smartphones.

Trialability of e-books

Trialability is the degree to which an innovation may be used in experiments on a limited basis. If the innovation can be tried out, or experimented with easily, then it is likely to be adopted.

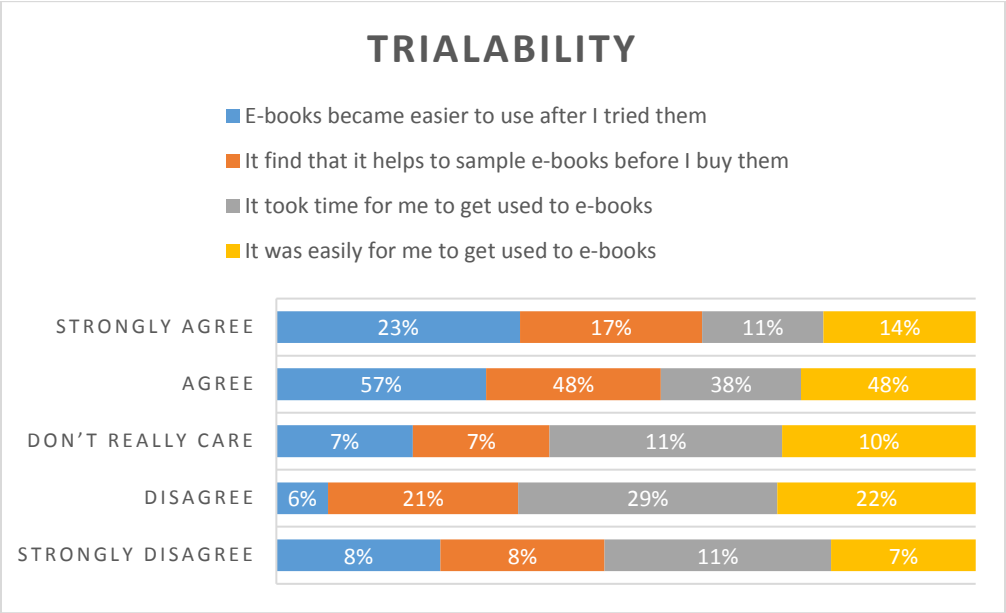


Figure 4.23 Trialability of e-books

The results presented in Figure 4.23 above show that the majority of respondents agreed (57%) and that 23% strongly agreed that it became easier to use e-books after they had tried them. Only 6% disagreed and 8% strongly disagreed with that statement. In addition, respondents also agreed and strongly agreed by 48% and 17%, respectively, that it helps to sample e-books before buying them. While 21% of the students agreed, there were 8% who strongly disagreed, claiming that they did not find it helpful to sample e-books before buying them.

On the other hand, 38% of the respondents agreed that it took time for them to get used to e-books, and 11% also strongly agreed to that statement. About 29% of respondents disagreed and 11%

strongly disagreed with the statement 'it took me some time before I get used to e-books'. About 11% of the participants indicated that it did not really matter to them about the time it took them before they got used to e-books.

On the same note of trialability, some respondents agreed (48%) and strongly agreed (14%) that it was easy for them to get used to e-books. About 22% of the participants disagreed and 7% strongly disagreed with the statement 'it was easy for them to get used to e-books'. However, 10% indicated that it did not really matter to them how easy or difficult it was to get used to e-books. Based on the figure above, the respondents agreed that trialability is the influencer for the adoption of e-books. Students will adopt an innovation that they can try on their own and easily use the innovation, without much struggle. This study corroborates the Diffusion of Innovations theory (Rogers 2003) that the ability of an innovation to be tried, increases the possibility of it to be adopted.

Observability

Observability is the degree to which the results and benefits of an innovation is visible to others. If the benefits of an innovation are visible to the intended audience, it will be adopted easily.

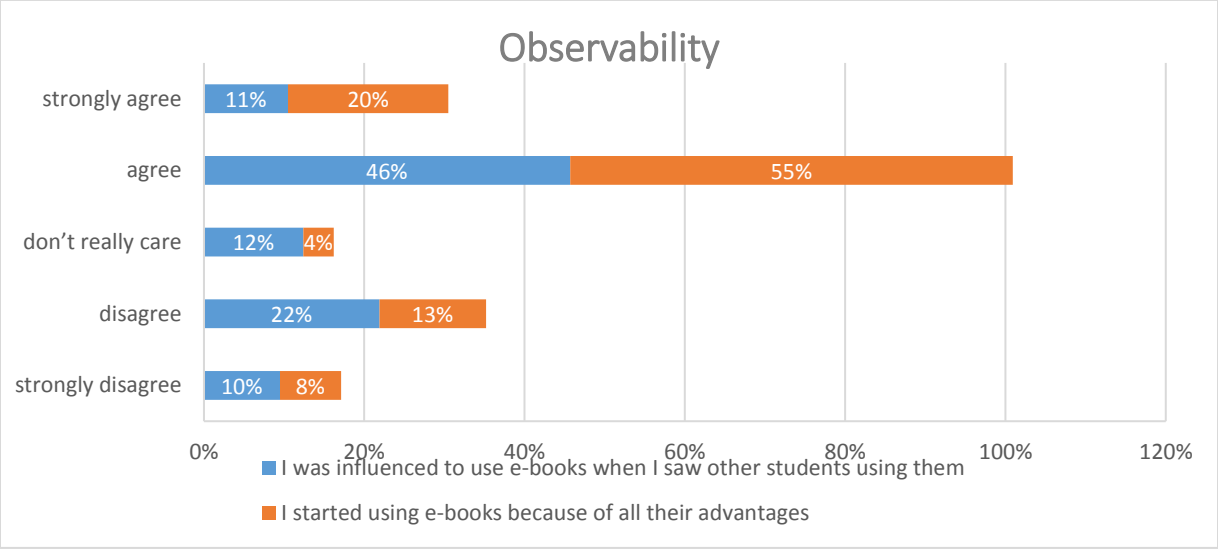


Figure 4.24 Observability of e-books

The results in Figure 4.24 above show that most of the respondents were in agreement with the statements that they were influenced by other students to use e-books and that they started using e-books because of all its advantages. It was interesting to note that 46% of students were influenced to use e-books when they saw other students using them and 66% stated using e-books because of their advantages.

Compatibility

Compatibility is the degree to which an innovation is perceived as being compatible with existing values, past experiences and needs of potential adopters (Rogers 2003:15). If e-books are compatible with students' reading behaviour and compatible with their information needs, they will be likely to adopt the e-book innovation.

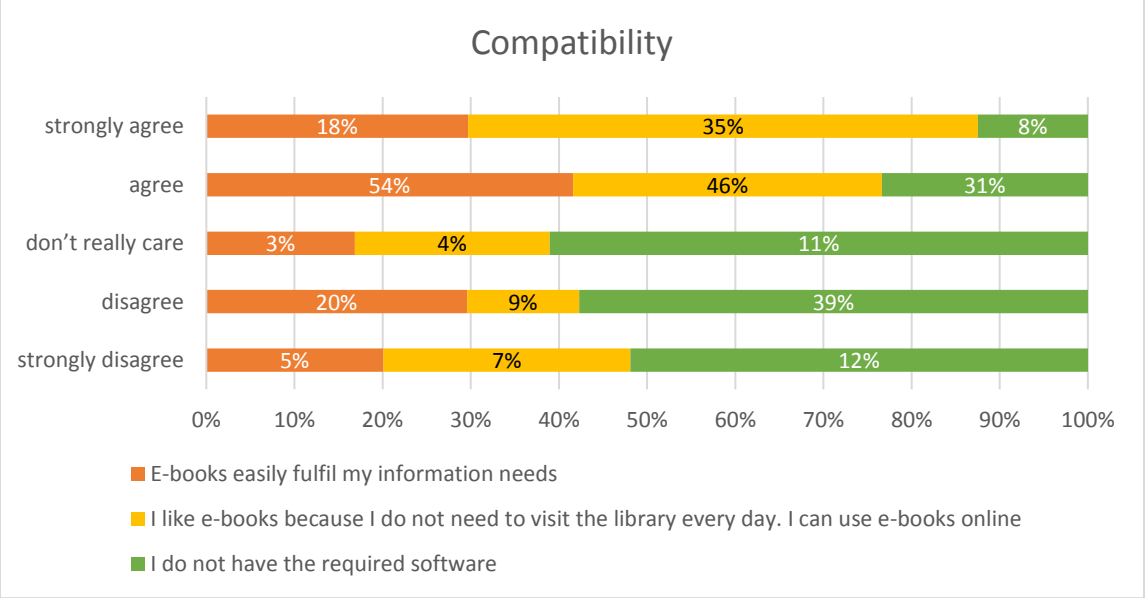


Figure 4.25 Compatibility

Compatibility is another factor that was used to measure the likeliness of an innovation to be successful. It was interesting to note that 54% agreed and 18% strongly agreed that e-books fulfilled their information needs. Moreover, 46% agreed and 35% strongly agreed that they liked

e-books because they did not need to physically visit the library everyday as they could use e-books online. Most respondents were in disagreement with the statement 'I do not have the required software', with a distribution of 39% disagreeing and 12% strongly disagreeing.

The findings on the adoption of e-books in relation to the Diffusion of Innovation theory, as discussed above, revealed that the aspect of the advantages of e-books as part of the relative advantages, observability, trialability and compatibility, can positively influence the adoption of e-books. But the disadvantages and the complexities of e-books negatively influence the adoption of e-books.

4.3.9 What should be done to improve the use of e-books at UNAM?

An open-ended question asked the respondents to express their views on ways to improve the use of e-books at UNAM. The question was analysed by identifying keywords and organising them into major themes which was validated by the respondent's quotes. The respondents' quotes are cited by using "R" and a unique number which represent the a respondent's identification. The results of the analysis to this question identified the ranking of priorities which include the provision of training, the orientation of users on e-books, awareness raising, promotions and the advertising of e-books, the advancement and provision of technological facilities required to use e-books, the improvement of a library's e-books collection and ways to access e-books.

Training and orientation for users

The majority of the respondents recommends that the library should conduct more training and educate students about the benefits of e-books and how to access and use e-books through different access tools in a library.

> *Educate the students about the advantages of using e-books (R48)*
>
> *The library staff should hold training for all level of studies twice a semester to engage with students and give hands on training to enable students to use e-books independently (R 63)*

Respondents indicated that training on e-books and other electronic resources that are critical to the students' learning should be integrated into the university curriculum and should be made part of a mandatory module at the university**.**

> *Integrate e-books training in an existing course (R 55)*
>
> *The use of e-books and other e-resources must be taught as a module or unit integrated in the curriculum.(R 66)*
>
> *The training on e-book should be integrated in the computer literacy course, instead of us to be tough how to save a document they should address things that really matters to us like e-resources, e-books, referencing. (R 85)*

Improve the Internet bandwidth

Improving the internet connection was the second main area suggested for improvement. Some students get discouraged by the slow downloading of e-books because of the slow internet. If the internet connections can be improved, students will be able to timely get access to the content of e-books.

> *Improve internet connection, The use of e-books requires faster and reliable internet, that will make student to use e-books if it does not take up much of their time using e-books.(R 73)*
>
> *More internet access needed to get e-book every time we need it, increase the bandwidth (R 59)*
>
> *It take time for an e-book to download, increase the internet bandwidth. R60*

Awareness and promotion of e-books

Some respondents emphasized the need to raise a greater awareness and conduct regular promotion campaign of e-books to sensitize students on the awareness of e-books at the university.

Raise awareness of e-books, not only to students but the main focus should be lecturer so that they can integrate this new technology in their teaching. 65

Create awareness campaign on e-books in all learning institution.(89)

Put posters around informing students about e-books Advertise e-books with posters around the campus 25

All lecturers should provide information, and recommendation for books in electronic format to motivate students to make use of e-books (51)

More promotion is needed, I never know that the library has such a nice innovation and fantastic source of information for students until this year in the first semester when we were taken to the library for training by the research lecturer. Please conduct more training and ensure that all students are covered.68

Improve the library e-books collection

Another major factor identified as a way to improve the use of e-books that is recommended by students is that the library should acquire the most critical and relevant books in electronic format., They urged the library to acquire the prescribed and recommended books in electronic format.

Get all prescribe e books that correlate with the course a student is doing.(10)

Transform all books to eBook, as it makes reading easier (28)

Try to upload so many academically sources that a crucial to the user (39)

Acquire more e-books that are recommended as prescribed. (70)

E-books should be official introduced in to the e-leading module, it should be recommended as course reading in the course outline. Lectures should focus more on e-books rather than print books when recommending prescribed books (75

Make e-books as a primary source of information within the university and mostly for the lecturers so that they can refer e-books to students.(92)

Improve and or provide the technological infrastructures[2]

A few respondents also asked for the provision of facilities and infrastructure required for students to use the e-books. Some students recommended that the numbers of computers in the library should be increased. Some felt that the library should make provision for the e-books reader devices and applicable software required to use e-books.

Please increase the number of computers at medical resource center, and upgrade internet 74

Come up with an easier and a more affordable and accessible software 83

Provision of e-books devices/raeder and software 88

4.3.10 Summary of the quantitative findings

This section presented and analysed the quantitative results of the adoption of, views about and use of e-books at the University of Namibia**.** The quantitative results identify the key factors that are crucial in understanding the adoption and non-adoption, use and non-use of e-books at the University of Namibia. Key factors, such as lack of skills and slow Internet speed, were the major hindrances for the use of e-books. Students appreciated the advantages of portability and convenient features of e-books.

The integrated qualitative findings are presented in Table 4.1

[2] The comments and respondents quotes presented on section 4.3.9 are presented as they were provided by respondents, no spelling and or grammatical corrections was made.

Table 4.1 Integration of qualitative findings

INTEGRATION OF QUALITATIVE FINDINGS		
Focus group discussions (Categories and themes)	**Observation and think-aloud (Categories and themes)**	**Integration of categories and themes**
Awareness of e-books Understand term and object Experienced use of e-books	**Awareness of e-books** Understand and know about e-books, also called 'online books' and 'books in soft copies'	**Awareness of e-books** Understand term and object Experienced use of e-books
Advantages of e-books Convenience Searchability Portability Accessibility Low cost of e-books	**Advantages of e-books** Ease of use Searchability *Functionalities like e-mail, save and print* Accessibility Convenience Portability Accessibility Low cost of e-books *Does not occupy physical space*	**Advantages of e-books** Ease of use Searchability Accessibility Convenience Portability Accessibility Low cost of e-books *Does not occupy physical space* *Functionalities like e-mail, save and print*
Barriers/hindrances to the use of e-books Lack of knowledge Know-how knowledge Internet availability Limited or lack of relevant content in e-books Limited or lack of the necessary hardware Influence of screens on reading and learning Accessing e-books on the UNAM website Access to e-books Difficult reading e-books (eye strain)	**Barriers/hindrances to the use of e-books** Limited or lack of knowledge Lack of searching skills Digital Rights Management (DRM) causes problems to access e-books Internet availability, Limited or lack of relevant-books titles Difficult reading e-books (eye strain) Limited or lack of the necessary hardware (limited access to a computer and lack of e-reader devices) Lack of integration of e-books in the curriculum Limitation on printing Absence of in-demand, relevant titles	**Barriers/hindrances to the use of e-books** Lack of knowledge Know-how knowledge Internet availability Limited or lack of relevant content in e-books Limited or lack of the necessary hardware Influence of screens on reading and learning Accessing e-books on the UNAM website Access to e-books Difficult reading e-books (eye strain)
Reasons for preferring printed books Eye strain associated with reading e-books Easy to read Slow Internet	**Reasons for preferring printed books** Eye strain associated with reading e-books Easy to read Slow Internet	**Reasons for preferring printed books** Eye strain associated with reading e-books Easy to read Slow Internet
Free search engines Library website Commercial sites	**Medium used to access e-books** Library website Free search engines	Free search engines Library website Library catalogue Commercial sutes

	Library catalogue	
	Searching for e-books Keywords Title search Author search Citation search	
Research/assignment	**Purpose for using e-books** Search for information for assignments.	
	Factors that influence the use of e-books as innovation Advantages: easy to use, ability to copy and paste Disadvantage: eye strain, difficult reading e-books limitation on printing and copying Observability: saves time when doing assignments Complexity: difficult to read Internet problem Complicated steps to access e-books Compatibility: do not need to visit the library, I can use e-books online	Factors that influence the use of e-books as innovation Advantages: User friendly (50% agree; 18% strongly agree) Ability to copy and paste (48% agree; 19% strongly agree) Disadvantages: limitation on printing and copying Observability: saves time when doing assignments Complexity: difficult to read Internet problem Complicated steps to access e-books Compatibility: do not need to visit the library, I can use e-books online Trialability: I can easily use e-books on my own

Table 4.1 shows that there is a very high correspondence between the two sets of data. Observation and think-aloud added one more benefit to e-books, namely that it contains functionalities like e-mail, saving and printing. This was the only deviation in the findings. This could have been expected since the same respondents were used in both data collection processes.

The observation and think-aloud process included questions that were not addressed in the focus group discussions, namely themes associated with the physical activity of finding and using e-books and themes that tested the e-books as a potential successful innovation, according to criteria discussed in the literature review.

4.4 Integration of qualitative and quantitative data

This section will integrate the findings obtained from both research methods used in this study. The key findings of data gathered in Phase 1 will be summarised, and then followed by the data collected in Phase 2. The comparative findings of the two processes will then be presented in table format. A discussion of both data sets will follow in order to provide a comprehensive overview of the findings in the study.

The key themes that were identified during both the focus group discussion, observation and think-aloud method, as listed above, were used to design the questionnaire. The structured statements or phrases that were used in the 'think-aloud' method were then used and converted into the statement that was used to test the five perceived attributes of the innovation and Diffusion of Innovation theory. In addition, the researcher consulted the literature and also the findings of the focus group discussion for additional possible themes that were not apparent from the qualitative data. The question dealing with the frequency and the purpose for which the respondents used e-books was extracted from the reviewed literature. Other themes on the reasons for not using e-books were also obtained from the literature, as almost all the respondents in the focus group discussion indicated that they had never used e-books, and that lack of awareness was the reason for their non-use. The data presented below are the key findings from the questionnaire that was designed, based on the qualitative and reviewed literature.

The quantitative findings on the factors affecting the adoption of e-books in relation to the adoption of innovation theory are presented following the quantitative data presentation. Table 4.2 presents the comparison of qualitative and quantitative data.

Table 4.2 Comparison between qualitative and quantitative findings

Comparison between qualitative and quantitative findings	
Integrated qualitative findings	**Quantitative finding**
Awareness of e-books	**Awareness of e-books**
Understand term and object Experienced use of e-books Prefer e-books to printed books	Have knowledge about e-books (76%) Do not have knowledge about e-books (34%) Have used e-books a couple of times (44%) Have used e-books once (16%) Have often used e-books (in general) (9%) Have never used e-books (33%)
Advantages of e-books	**Advantages of e-books**
Ease of use Searchability Accessibility Convenience Portability Accessibility Low cost of e-books *Functionalities like e-mail, save and print*	Searchability (23.5%) Convenience (20.59%) Portability (13.24%) Accessibility (13.24%) Easy to use (8.82%) Low cost (8.82% Does not occupy physical space (11.76%)
Barriers/hindrances to the use of e-books	**Barriers/hindrances to the use of e-books**
Lack of knowledge Know-how knowledge Internet availability Limited or lack of relevant content in e-books Limited or lack of the necessary hardware Influence of screens on reading and learning Accessing e-books on the UNAM website Access to e-books Difficult reading e-books (eye strain)	Slower Internet (39.01%) Lack of knowledge (lack of awareness 63.38% and lack of skills required to fully utilise e-books, 39.44%) Preferences for print (12.2%) Lack of integration of e-books in the UNAM curriculum (19.72%) Absence or unavailability of in-demand titles needed by students (16.90%)
Print versus e-books	**Print versus e-books**
General use e-books	In total: Prefer e-books (68%) Prefer print books (32%)
Reasons for preferring printed books	**Reason for printed book preferences**
Eye strain associated with reading e-books Easy to read Slow internet	Eye strain (36.36%) Difficult reading on screen (22.72%) Print books are easy to make notes and highlights (13.60%) Easy to use (4.55%) Slow Internet 13.64%) Easy to study in print books (9.0%)

Reasons for not using e-books	**Reasons for not using e-books**
Lack of awareness of the existence of e-books Difficult to access e-books	Not aware of the availability of e-books (27.6%) Lack of skills on how to access e-books (20.4%) E-books are difficult to access (11.2%) Never referred to e-books when searching for information (17.2%) Absence of relevant books (8.2%) Preferences for print (12.2%)
Medium used to access e-books	**Medium used to access e-books**
Library website Free search engines Library catalogue Commercial sites	Library website (40.95%), Free search engines (29.52%) Commercial sites (9.52%) Library catalogue (15.24%)
Searching for e-books	**Searching for e-books**
Keywords Title search Author search Citation search	Was not explored in quantitative research.[3]
Purpose for using e-books	**Purpose for using e-books**
Search information for assignments/ research	Use e-books for course work (45%) Use e-books for research purposes (43.2%) Use e-books for leisure reading (11.6)
Factors that influence the use of e-books as innovation	**Factors that influence the use of e-books as innovation**
Relative advantage	***Relative advantage***
Easy to use, Ability to copy and paste	User friendly (50% agree; 18% strongly agree) Ability to copy and paste (48% agree; 19% strongly agree)
Disadvantages	***Disadvantages***
Eye strain, Difficult reading e-books limitation on printing and copying	Eye strain (44% agree; 17% strongly agree) Difficult reading e-books (49% disagree; 17 strongly disagree) Limitation on copying and printing (43% agree; 17% strongly agree
Observability	***Observability***
	I started using e-books because of all their advantages (55% agree; 20% strongly agree)

[3] The aspect of searching behaviour was not explored in quantitative because it will not give the actual searching behaviour. One may use log analysis to determine the searching behaviour.

Complexity	***Complexity***
Difficult to read Internet problem Complicated steps to access e-books	Difficult to read (37% disagree; 19% strongly disagree) Internet problem (39% agree; 11% strongly agree) e-books are sophisticated (38% disagree; 19% strongly disagree
Compatibility	***Compatibility***
do not need to visit the library, I can use e-books online	I do not need to visit the library, I can use e-books online (46% agree; 35% strongly agree) e-books fulfil my information needs (34% agree; 18% strongly agree)
Trialability	***Trialability***
I can easily use e-books on my own	Easy to get used to e-books (48% agree; 14% strongly agree

Interpretation of integrated data

Knowledge about e-books

Based on the qualitative data, the majority of respondents had knowledge about e-books, this is supported by the quantitative results, as presented in Table 4.1, showing that 76% of respondents have used e-books in general. Some refer to e-books as online books or books in soft copies.

Usage of e-books

In general, the findings of this study, based on both qualitative and quantitative data, revealed that the respondents have used e-books at some point, see Table 4.1 and Table 4.2. It seems that the general use of e-books as is high. The frequency, purpose and how e-books are used was only tested in the quantitative design, based on the reviewed literature. The findings on frequency show that 44% used e-books a couple of times, 16% used e-books once and only 9% used e-books frequently. About 33% never used e-books. The quantitative data show that students mainly used e-books for course work (45%) and for the purpose of research (43%). Only 11.6% used e-books for leisure reading. Based on how they used e-books, these finding correlated with the reasons why they preferred e-books, as they mainly used e-books to find relevant information (62.5%), while others (23.1%) do selective reading and only 12.5% that do extended reading.

However, there is a concern, as 33% of respondents, who indicated that they were aware of e-books, did not use this innovation. This could simply be because students feel more confident

using physical books, which can be flipped freely without having to plug in or turn on anything, which they consider to be more convenient for them. Other students highlighted that, with physical books, they can lie in bed and read and not subject themselves to unnecessary interruptions.

A further question was asked for respondents to indicate the means of access to e-books. The findings show contradictory results as the qualitative focus group discussion data show that the majority of respondents used e-books from free search engines. Whereas, the quantitative data show that about 49.95% of respondents were using the library provided e-books, through the library website, and the findings of the observation also show that the majority of participants used the library e-resources portal to access the e-books required for the task.

However, there is one contradiction when comparing the qualitative and quantitative results. The qualitative findings indicate that the respondents favour accessing e-books from free search engines such as Google and Yahoo, whereas the quantitative data show that 49.95% of the respondents access e-books through the library website and 15.24% accessed e-books through the library catalogue.

This can be an indication that those respondents who do not use the library provided e-books are not aware of the availability of e-books, or perhaps because they do not find e-books that are relevant to their specific information needs. It could also be that respondents preferred the general Internet search engines as their first search point of searching for information.

The general the findings of this study support the findings of other studies such as that of Nariani (2009), Levine-Clark (2006), E-brary (2010), and Croft & Davis (2010), who also found that students consider and value the library website and catalogue as their starting point of searching for information. This is despite the significant number of students that are using non-library e-books. Jones (2008) and Silas (2012) corroborate the findings of this study, in terms of students that rather use the free search engines and commercial sites, as they have also noted that a significant number of students start their scholarly research with open Web. It could be that students use the e-books from free and commercial sites because of lack of knowledge of the

existence of e-books in the library. Respondents prefer to do their scholarly research on the free Web for reasons such as simplicity associated with searching Google.

Respondents might find it complicated and difficult to access and use the e-books provided by the library. Students mainly use resources when it is convenient for them to use that resources; they will use resources that are simple and easy to use and do not consume much of their time. The computers provided in the library for students to access information use a network that regards students as off-campus even if they are on-campus, and it is the same for students using Wi-Fi around the campus. If students use Google as a starting point, they will not be automatically authenticated. Even when they go through the library website and catalogue, if they do not know how to log in and be recognized to use e-books, they will not have access to e-books. Thus, complications of the steps involved and authentication issues when accessing e-books at UNAM could be one of the factors that compel many students to use Google and other free search engines and commercial sites as their first option of interfaces for searching e-books.

Book preferences

It was an unexpected finding to discover that the majority of respondents preferred e-books. The findings of this study oppose the results of other scholars across the globe, such as that of Annand (2008), Woody et al. (2010, Zhang and Kudva (2013) and Miller (2014), who all reported a preference for print books.

The reasons for preference of e-books, as it emerged from the focus group discussions, centred around search ability, convenience, portability, accessibility and the low cost of e-books. The same results were gained from the quantitative data, as ranked in order of importance: search ability 23.5%, convenience 20.389%, portability 13.24%, accessibility 13.24%, ease of use 8.82% and that e-books are affordable 8.82%. The findings of this study concur with that of Wu and Chen's (2011) who also found that accessibility and convenience to use an e-book at any time and wherever, without visiting the physical library, are the most important reasons why the respondents used e-books.

The reasons for the preference of print books attributed to eye strain associated with reading e-books. Some preferred print books because they are easy to use, and some preferred to use print books because of the slow Internet. The quantitative findings mainly supported the qualitative findings and identified the following factors in order of preferences: eye strain (36.36%), difficult reading on screen (22.72%), print books are easy to make notes and highlights (13.60%), easy to use (4.55%), slow Internet 13.64%), and easy to study in print books (9.0%). This question was posed as an open-ended question, therefore all the themes listed above were from the actual responses of the respondents that were presented quantitatively from the qualitative data.

Factors hindering the use of e-books

Based on the qualitative data, the following factors were identified as major preventive factors for the use of e-books: lack of knowledge (awareness) searching skills, Internet availability, limited or lack of relevant content in e-books, limited or lack of the necessary computers and/or e-reader devices. The factors below will be addressed in more details

Slow Internet

Students appreciated the university's effort in providing access to a Wi-Fi network around the campus and also the student data and modem devices for connecting to the Internet, however, they asserted that the Internet access was unreliable, at times it's either too slow or totally unavailable. The issue of Internet connectivity was also the main reason why students preferred print books instead of e-books.

The issue of the Internet as a barrier to the use of electronic resources is also a problem for other African countries, since the use of e-books requires reliable and fast Internet access. Unlike studies in Europe, the findings of this study are similar to other studies in the developing world, specifically studies conducted in Africa, such as the study of Aharony (2015), Maduka (2015), Ajayi et al. (2014), Aharony (2014), Allen and Kaddu (2014) showing that unreliable and slow Internet connection is the key factor deterring the use of e-books by students.

Internet access is also an issue in Namibia, and this study supports the findings of other researchers such as Ndinoshiho (2010), Hamutumwa (2014), Nakanduungile et al. (2012), and Mwiiyale (2016) who also observed that slow Internet is the major factor preventing students to use electronic resources at UNAM.

Lack of knowledge

Knowledge is the most important factor that may hinder the use of e-books. This study reported the lack of awareness and searching skills as factors hindering the use of e-books. Other studies, such as that of Ajayi, Shorunke and Aboyade (2014), and Ismail and Zainab (2007), also found a lack of awareness as the major preventing factor to use e-books. Searching, and retrieval skills are important requirements for using library resources, including e-books. Akpojotor (2016), in his study about the awareness and usage of electronic information resources in Nigeria, also observed that a lack of information retrieval skills for exploiting electronic resources contribute to the low use of the electronic information resources.

Lack of integration of e-books in curricula

Respondents would like to see e-books in course outlines as a recommended reading or as references. The issue of integration of e-books in the curriculum is not the responsibility of the academic staff but the library also needs to make provision for selection of different book formats. The library should acquire all the prescribed textbooks in electronic format as well. Mckeil (2007) conducted a study among 300 higher education institutions from 38 countries and propose the following strategies on how to integrate e-books in the curriculum: encourage students to use e-books as a viable source, use chapters/sections for course reading, include links to e-books in course management software, recommend e-books for entire text reading as prescribed or recommended textbooks. This requires the library and faculties to work together to ensure recommended and prescribed textbooks are available in electronic format.

Content coverage

Respondents also reported limitations in terms of in-demand and relevant titles to meet their information needs as hindering them to use e-books. At some point the relevant books required by users are not available in electronic format. Manolapa (2015), in investigating the subscription to e-books in university libraries in India, reported that all the academic titles required were not available in digital or e-book format and that the content that might meet users' needs was not uniformly distributed across disciplines. For African countries, including Namibia, there are limited e-books on African content (Linn & Longdown (2011); Treptow & James (2011). Dewan (2012) observed that the lack of relevant academic content is the biggest obstacle in the use of an e-books collection.

Preference for print books

Although this study reported a high preference for e-books among the respondents, there is also significant preference for print books, for instance, 12.2% of the respondents who indicated that they have never used e-books, indicated a preference for print books as the reason for not using e-books. This supported the findings of Woody et al. (2010) and Corlett-Rivera and Hackman (2014), who also reported that a preference for print books is a deterrent for the use of e-books. People are used to reading print books and some people love the look, smell, and feel of books and may not want to give up the sensory experience of reading from a paper book. Other people like to read while lying in bed, but it is difficult to read e-books when lying down.

Limited computers and lack of e-book reader devices

Limited availability of computers and/or a lack of e-reader devices is another inhibiting factor that deters the use of e-books. Unlike the developed world, where computers and e-reader devices are easily accessible, the situation is not the same in developing countries. In Africa, studies on the use of e-books and other electronic resources identified the issue of limited availability of computers and e-reading devices as a hindrance to the use of e-books (Alison, Kiyingi & Baziraake 2012; Dlodlo & Foko 2012; Gakibayo, Koja-Odongo & Okello-Obura 2013; Khana 2013; Allen & Kaddu 2014).

Difficulty to access e-books

Another hindrance for the use of e-books, which is revealed in this study, is the difficulty to access e-books provided by the library. The difficulty of access could be due to a lack of knowledge on how to access e-books. It could also be the result of limited searching skills to fully utilise information resources in electronic format. The findings of this study correlate with the findings of Jamali, Nicholas and Rowland (2008). The issue of difficulty of access is related to complicated steps involved in accessing e-books, and the lack of knowledge on how to access e-books on-campus and off-campus.

Suitability of the mixed methods approach

This study used the mixed methods approach. Observation linked with the think-aloud method added to the complexity of the mixed approach. Nevertheless, the complexity of using a mixed approach helped to yield in-depth data in understanding the use of e-books at the University of Namibia. Some pertinent issues were identified that may help the library to improve the collection and its provision of the electronic collection. The mixed-methods approach used in this study was suitable in investigating the use and perception of students about e-books as well as identifying possible factors that are deterring the use of e-books.

Chapter summary

This chapter gave an analysis and interpretation of the results in this study. Based on the analysis, the study reported high awareness and general use of e-books. Factors that hinder the use of e-books were also identified as well as factors that positively influence the use of e-books. Additionally, factors that influence the adoption of and non-adoption of e-books were also identified. Based on the results presented in this chapter, the research questions of the study will be answered in Chapter 5.

CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this chapter is to discuss the conclusions of this research relating to the research questions formulated in Chapter 1, as well as the limitations of this study. Recommendations to improve the use of e-books at the University of Namibia, and recommendations for further research are also presented, and is followed by a discussion on the value of this study. Lastly, a summary is given.

5.2 Conclusions on whether the research questions were addressed

This study is based on the following research question: What are the factors affecting the use of e-books at the University of Namibia? This main question was subdivided into a number of sub-questions presented below. These research questions were answered in this study in order to address the factors which influence the use of e-books among undergraduates at the University of Namibia. The sub-questions will be used to address the findings of this study in an organised manners.

5.2.1 What is the level of awareness among students regarding e-books at UNAM?

The first research question of this study was: What is the level of awareness among students regarding e-books at UNAM? Both the qualitative and quantitative findings of this study indicated that the majority of the students are aware and have knowledge of e-books. It can be concluded that there is a high awareness of e-books among undergraduate students at the University of Namibia.

The results of this study are in confirmation with what Borchert, Tittle, Hunter and Macdonald (2009) found in their study about the awareness, acceptance and usage of e-books among students

and staff at two Queensland universities, which reported high awareness levels of e-books. Furthermore, Asunka (2013) in his study to determine the use of e-books at academic institutions in Ghana, Adubika (2011) in a study conducted at a Nigerian institution of higher education, and a study by Wang and Bai (2016) among students at universities in China, also reported high awareness levels of e-books.

The high level of awareness of e-books identified by this study could be the result of work done by librarians to make students sensitive to e-books. The awareness of e-books as an innovation is high, however, that does not necessarily translate to the actual use of e-books in academic libraries.

5.2.2 What are the use patterns of e-books among students at UNAM?

The second research question was: What are the adoption level and user patterns of e-books among students at UNAM? The findings of this study show that most respondents have used e-books at one time or another. Therefore, the use of e-books in general is high. Students access e-books through the library's website and catalogue, through free websites, such as (Google and Yahoo, and through commercial sites.

The findings of this study correlate with the findings of the following researchers regarding high usage levels of e-books among students in specific countries: Nicholas et al. (2008) in United Kingdom; Basil (2012) in Nigeria; Romero-Otero, Iglesias-Fernandez & Gimenez-Toledo (2013) in Spain; Asunka (2013) in Ghana; Walkinson (2015) in Queensland, Australia, and Wang and Bai (2016) in China.

The reported high usage level of e-books in general at the University of Namibia could be due to the fact that the University of Namibia provides an Internet data modem at the beginning of the academic year, and Wi-Fi is made available to every student across the campus, which makes it easier for students to use the Internet and to search for information from any place – not only within the university's premises but also from their homes.

The study also highlighted that 33% of the respondents have never used e-books despite high levels of awareness of e-books. The reasons could be that e-books are highly dependent on electricity and some places where these respondents live do not have access to electricity which makes it

difficult for respondents to work from home in their spare time. Others may not even have laptops or e-reader devices at home – hence their reliance on computers from university libraries, which may not be enough to cater for all students. Other studies conducted in the Namibian context also reflected on issues such as limited computers and slow Internet access as the main hindrances to use electronic resources provided by the library (Ndinoshiho 2010; Hamutumwa (2014).

5.2.3 What are the students' perceptions about e-books?

This research question addressed the perceptions that respondents have about e-books, which is determined by the purpose for which they use e-books and the way they use e-books. Identifying the preferences and non-preferences for e-books was another way of identifying the perception of students regarding e-books. The results indicated that respondents use e-books mainly for their course work and for research purposes. In addition, they use e-books to find relevant content, and they do selective reading.

It can therefore be concluded that respondents at the University of Namibia have a preference for e-books as they prefer e-books over print books and they use e-books mainly for course work and research purposes. They mainly use e-books to find relevant information and not to read extensively.

Considering the purpose for which e-books are used, the results of this study correlate with findings of Letchumanan and Tarmizi, (2011) and Corlett-Rivera and Hackman (2014) who also stated that students use e-books for coursework and research purposes and do not use e-books for leisure reading. The purpose for which e-books are used could also in a way be determined by the way students engage with e-books. Wang and Bai (2016 conducted a study in China, assessing university students' awareness, usage and attitudes towards e-books. The findings of their study contradict the findings of this study as they found that students, and particularly undergraduates, used e-books mainly for leisure purposes.

Based on the findings of this study, pertaining to how students use e-books, it is evident from the data that students mainly use e-books to find relevant information, which is characterised more by browsing, searching, and getting abstracts or fragments of information. They do not read e-books

in their entirety, but instead search in e-books to get to the paragraphs and pages with the relevant information that they need. These findings are in agreement with studies by Noorhidawati and Gibb (2008a; 2008b) Shelburne (2009), Nicholas, Rowlands, Clark, Huntington, Jamali and Olle, (2010) and Camaoglu et al. (2013), who reported similar results. It is clear that students use e-books differently from how they use print books. According to Gregory (2008), students use e-books in the same way that they use journals, a behaviour which Appleton (2004) and Staiger (2012) describe as 'use' rather than 'read'. This explains why students use e-books mainly for research purposes.

5.2.4 What are the factors affecting the use of e-books?

This section will discuss the factors influencing the use of e-books at the University of Namibia. It will discuss both the positive and the negative factors affecting the use of e-books as per the summary of the findings presented below.

5.2.4.1 Factors hindering the use of e-books

The findings of this study, based on qualitative and quantitative data, identified the following factors as hindrances in the use of e-books: slow Internet, lack of awareness, lack of skills, in-demand titles that are prescribed but not available in electronic format, too few relevant titles, respondents finding it difficult to discover e-books. Other barriers identified are limited availability of computers, lack of modern electronic devices for students, and limited possibilities for printing and saving e-books.

Slow Internet access

The major factor that is hindering the use of e-books is slow Internet access. The issue of the Internet as a barrier to the use of electronic resources is also a problem to other African countries. The effective use of e-books requires reliable and fast Internet access. Unlike studies that have been undertaken in developed countries, the results of this study are similar to studies that have been done in developing countries, and specifically studies conducted in Africa, for instance, Ajayi et al. (2014), Aharony (2015) and Maduka (2015) have all shown that unreliable and slow Internet connection are the key factor that deter the use of e-books by students.

Lack of knowledge

Another factor that is often cited as hindering the use of e-books is the lack of knowledge. The lack of knowledge includes a lack of awareness about the availability of e-books, a lack of searching skills, and a lack of knowledge on how to access and use e-books. According to Rogers (2003:172), "knowledge of the existence of an innovation can create a motivation to learn more about it and, ultimately, to adopt it …". Awareness and promotion programmes and information literacy training are the primary methods that can be used to enhance students' awareness about and skills to use e-books. Hayati and Jawkar (2008) and Minic-Obradovic (2011) also found that lack of awareness is an obstacle for the use of e-books. In addition, Hayati and Jawkar (2008) also reported that a lack of sufficient experience in using computers and searching skills are the main hindrances in the use of e-books.

Limited e-books coverage

Limited coverage of e-books is another factor that is preventing the use of e-books. The issue of limited coverage may differ from country to country. The developed world is more advanced with regard to electronic publishing, therefore libraries in the developed world have a wide selection of titles with more relevant content. However, this might not be the case in developing countries because electronic publishing has not yet been fully developed. The findings of this study support the finding of Nicholas (2008) who also reported that limited content coverage and lack of relevant titles hinder the adoption and use of e-books.

The coverage of relevant content in different disciplines will encourage the use of e-books. If a student tries to use e-books and cannot find books that are relevant to a topic, it is unlikely that he or she will use e-books again. However, if the content is covered sufficiently and more relevant titles are available for students to do their coursework and research, it will encourage them to use e-books more often.

Preference for print

Another factor that appears to prevent the use of e-books is the preference for the traditional books. Some of the respondents indicated that they never use e-books and one of their reasons was a preference for print books. However, respondents who indicated a preference for print books, also identified factors such as eye strains, difficulty reading on the screen, slow Internet and the ease of making notes and highlights in print book as factors that contribute to their preference for print books. Walton (2008:33) concludes that cultural norms regarding to reading print books make the widespread adoption of e-books a very slow process. The respondents who are used to reading print books and who are resistant to change, will not easily embark on using e-books.

Eye strain and difficulties of reading on screen

Eye strain and difficulty reading on screen seem to be associated with e-books and are to some respondents one of the major factors that stop them from using e-books. The readability problem associated with e-books is experienced globally. Wu, Lee & Lin, (2001), Dockrell et al. (2010), Woody et al. (2010), Rose (2011) and Marques de Oliveira (2012) also identified that eye strain and the difficulty of reading on screen are preventing the use of e-books, even in the developed world.

Limited numbers of computers and lack of e-book reader facilities

The findings of this study correlate with that of Khan (2013), who investigated issues related to the use of e-books and reported that unavailable hardware and software, which enable the reading of e-books, is one of the issues that prevent the use of e-books. The use of e-books is reliant on the availability of ICT required to use e-books. Even if many students have smartphones, the screen of a smartphone is too small to read an e-book, and therefore libraries should make sure that they provide all the necessary facilities required to enable students to fully optimise the reading of books in electronic format.

Digital rights management (DRM)

Digital rights management also prevent students from using the e-books. Restrictions on copying, printing, saving and downloading e-books appear to be very unfavourable and therefore discourage students from using e-books.

5.2.4.2 Factors influencing the use of e-books

The factors influencing the use of e-books were identified by asking respondents to provide reasons for using e-books and also the reasons for preferring e-books.

Searchability was identified as the reason why the majority of respondents preferred e-books. This reason also supports the way they have used e-books. Students like the possibility provided by e-books to search within an e-book because this feature enables them to find relevant and precise information as quickly as possible.

This finding correlates with other studies which reported that students like to use e-books because of the text search functionalities. Research by Romero-Otero et al. (2014) on the use, acceptance and expectations for e-books in a research library also reported that searching within the text is the dominant factor that influences students to use e-books. Research by Anuradha and Usha (2006) on the use of e-books in an academic and research environment in India reported similar findings, namely, that about 71,6% of the respondents liked the search tool to locate words or quotes.

Other highly cited reasons for a preference for e-books were convenience and accessibility. This means that students like the feature that they can use e-books at their convenience. This is in confirmation with Ismail and Zainab (2005) and Walton (2014), who also found that students preferred to use e-books because they are more convenient than print books.

Portability is another highly-cited factor that influences the use of e-books by students. This result correlates with findings by Gregory (2008), who investigated undergraduate students' usage and attitudes towards electronic books. His findings show that portability, among other factors, was rated high as one the advantages that influences students' use of e-books. The advantage of portability of e-books was also observed by Corlett-Rivera and Hackman (2014) in their study

about the use of e-books and attitudes towards e-books in the humanities, social sciences and education. Their findings resemble findings of this study, namely, that one of the advantages of e-books frequently mentioned is that e-books do not have the size and weight of print books.

Other reasons for students' preferences for e-books are that e-books are cheap, easy to use and the fact that e-books do not take up physical space. Students did not only consider the price of e-books when they said that e-books were cheap, but they also considered time and transport costs and convenience of using e-books in general, since several e-books can be accessed simultaneously.

5.2.5 Factors influencing the adoption of e-books

The factors that influence the adoption of e-books were determined, based on the five perceived attributes of the Diffusion of Innovation theory by Rogers (2013), namely, relative advantage, complexity, compatibility, trialability and observability. The findings of this study, presented in Figures 4.20-4.25 provide proof that factors such as relative advantages, observability, trialability and compatibility associate positively with the adoption of e-books. The relative advantages of an innovation over existing print books are the compatibility of e-books with students' needs and reading behaviour, and trialability, which influence students to adopt e-books.

> *It is that easy, I am using this for the first time but I can easily do it on my own … I got it, that was easy ...*

The findings of this study are supported by that of Jin (2014) on the adoption of e-books by college students, integrating TAM and Diffusion of Innovation theory. He also found that the relative advantages and compatibility of e-books positively influence the adoption of e-books by students. Another study of Walton (2008) investigated the perceptions of faculty and students about the use of e-books in a small academic institution. His findings revealed that the relative advantages of e-books had a significant positive influence on the adoption of e-books among faculty members and students.

5.3 Conclusive findings

The aim of this study was to investigate the adoption of, views about and use of e-books. The results revealed a high awareness of e-books. Additionally, the use of e-books in general has been reported in the literature as high, and is confirmed by the results of this study. However, the use of e-books provided by the library was moderate, since about 44% of respondents gained access to e-books from free search engines and commercial sites. Furthermore, the results also showed that respondents preferred to use e-books over print books because of their searchability, convenience and portability. However, slow Internet connections, lack of knowledge and skills, limited relevant titles, high demand for certain titles, preference for print, limited computers and lack of e-reader devices were identified as the main reasons for preventing respondents from using e-books. Overall, the research reported that respondents have ample knowledge of e-books and make much use of e-books for coursework and research purposes.

5.4 Validity and reliability

Validity and reliability are very important issues in ensuring the trustworthiness and replicability of research. In order to measure the validity of this study, the researcher used three methods of data collection, namely, a focus group discussion, observation and a questionnaire. These instruments were reviewed by the research supervisor and a fellow librarian who is also an expert in the field. The findings were also reviewed by the research supervisor and a fellow librarian, and the findings were validated by three respondents in this study.

The findings of the qualitative data were used to design a questionnaire which helped to explore the themes that emerged from the first phase of the research, in combination with the themes identified in the literature review. The fact that the themes obtained from the qualitative data were also used in the quantitative phase, and the fact that all research questions of this study were answered, are indications that validity was achieved in this study.

Reliability deals with the consistency, dependability and replicability of the results obtained in research. The reliability and dependability of the results in this study was gained by the use of triangulations, where three methods were used to collect data and similar results were consistently

achieved. Peer examination of the results was also done, where comparisons of the findings of this study were compared with the findings of other research on the same topic to either support and/or disprove the findings.

5.5 Limitations

This study used the following methods to investigate the views about, adoption and use of e-books, and the perception of students towards e-books: a focus group discussion, observation (think-aloud), and a questionnaire. Although the methods used were appropriate to get insights into the students' views and use of e-books, and their perceptions towards e-books, it was not possible to record the actual behaviour of respondents when they used e-books. This is because it was difficult to record all the clicks, scrolling and other activities when observing the respondents, and also because respondents were aware that they were being observed when doing the practical assignments. This may have influenced the results in one way or the other.

Furthermore, the study was conducted only among fourth-year students at the Windhoek Campus. The generalisation of the findings could be compromised because fourth-year students from the other 11 campuses were not included and they might have had different views about e-books.

Lastly, since the study was only conducted among fourth-year students, the findings of this study cannot be generalised to students of other year-groups at Windhoek and the other 11 campuses of the University of Namibia.

5.6 Recommendations

In view of the findings, conclusions and other comments provided by respondents of this study, the recommendations emanating from the results and conclusions of the study should be adopted in an effort to improve the use of e-books at the University of Namibia. These will be presented according to the objective of the study. Therefore, the library should do the following:

To determine the awareness and perception of undergraduate students about e-books:

- There is need to constantly conduct awareness and promotional campaigns regarding the existence of information resources (including e-books) and services.

To determine the usage pattern of e-books

- It is essential that the library develop its electronic e-book collection to provide relevant and in-demand titles needed by students and in line with the curriculum.
    - Acquire all prescribed textbooks and recommended readings in electronic format.
    - Involve lectures in the selection and acquisition of e-books.
- The library should to make access to e-books easier, by making the authentication process to electronic contents on campus automatic through Internet protocol (IP) for students.

To determine identify factors that influence the use and non-use of e-books

- The University of Namibia should improve the Internet facilities available for students because this will enhance the use of e-books by students.
- There is also a need to constantly conduct training for students on all academic levels as well as for academic staff to provide them with skills to use e-books effectively.
    - Integrate the training on e-books with courses such as computer literacy and research methods.
- The library needs to improve the provision of computers in the library in order to accommodate the number of students who need to use the library's laboratory to do their assignments.

- The library should lend e-readers to students who do not own laptop computers and who want to use e-books.

Other recommendation

- There is a need to repeat the same study which will focus on the other 11 campuses and postgraduate students. The researcher also recommends that a further study should be conducted to investigate the actual behaviour of students when using e-books and other online resources, by using log analysis as a method of collecting data.

5.7 Chapter summary

This chapter discussed in detail the findings of this study, which were presented in Chapter 4. The discussion referred to other studies that had findings similar to this study. Based on the findings, the awareness and use of e-books were discussed in detail and a comparison was made between the findings of this study and the findings reported in the literature review. In addition, this chapter discussed in detail the factors that were identified as hindrances of the use of e-books, namely, slow Internet connection, lack of skills, lack of integration of e-books into the curriculum, limited coverage of e-books, and DRM. Factors that influence students to use e-books were also discussed. They are: functionality to search within text, accessibility, convenience and portability.

The reasons why students preferred e-books were also discussed, and were aligned with the applicable academic discipline in order to determine which students had preferences for e-books. Finally, in this chapter the researcher also discussed the adoption of e-books, based on the findings presented in Chapter 4, based on the five perceived attributes of an innovation. The relative advantages, compatibility, observability and trialability are factors that were discussed as positive influences for the adoption of e-books.

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APPENDIX A

06 May 2015

To: Research Committee

Research and publications Office

University of Namibia

P.O. Box 13301

Windhoek

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN UNAM

My name is Anna Leonard and I am an Information Science student at the University of South Africa. I would like to conduct a study for my Master's dissertation with the titled "A study on the adoption of, views about and usage of e-books at the University of Namibia''. This project will be conducted under the supervision of Prof Maritha Snyman an associate professor at the University of South Africa.

I am hereby seeking your permission to approach students at the University of Namibia to collect data through focus group discussions, observations and questionnaires.

I have read and understood the requirement of conducting a research at UNAM and as a UNAM staff as stipulated in the Research policy of 2013 and have paid special attention to section 7.4, 7.5

and 7.7 and the research ethics policy section 3.1,3.2,4.1,4.3,5.3 and 6.4. I understand the scholarly communication policy, as I use it every day when getting articles for uploading on institutional repository, and I understand that the research output of the university (by UNAM staff and postgraduate students) should be made accessible and visible through the repository.

Based on that, this study will adhere to the UNAM research, policy & the research ethics policy, and will only be conducted upon the receipt of permission from UNAM Research Committee. The students will not be forced to participate in the study, and they will only participate voluntarily once they signed the consent form. Participant's confidentiality will be maintained and no identifications of the participants will be revealed in the study. The information that will be provided through all types of data collection will be used anonymously in the study and will only be used for the purpose of this study.

Upon completion of the study, I undertake to provide the University of Namibia Library with a bound copy of the full research report and a link to the full text will be made available on the institutional repository.

I have provided you with the following documents required:

- Research proposal
- Approval letter for the Proposal from UNISA
- The signed research ethics received from the University of South Africa Research Ethics Committee

If you require any further information, please do not hesitate to contact me on 0817427845; or e-mail: 46503676@mylife.unisa.ac.za.

Thank you for your time and consideration in this matter.

Yours sincerely,

…….

Anna Leonard (student number: 46503676)

University of South Africa

UNAM RESEARCH & PUBLICATIONS OFFICE
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UNAM
UNIVERSITY OF NAMIBIA

27th May, 2015

Ms Anna Leonard
ILRC
UNAM

Dear Ms Leonard

RE: APPLICATION FOR PERMISSION TO CONDUCT RESEARCH AT UNAM

Your application for permission to conduct research at UNAM entitled *A study on the adoption of, views about and usage of e-books at the University of Namibia* for Masters Degree studies registered at the University of South Africa was received. It was evaluated by our experts in accordance with the relevant UNAM Policies and related guidelines. Permission is hereby granted with the following conditions:

(a) You will notify and fully consult with the relevant Deans of the selected Faculties at Main Campus from which students will be selected.
(b) During the course of your research at UNAM, you will observe the required procedures, norms, and ethical conduct in accordance with the relevant policies and guidelines. If not sure, please consult the relevant Offices at UNAM for guidance. Any deviations from the proposed approach will have to be approved first before implementation.
(c) No inconveniences, disturbances or disruptions to the normal duties of the participants/respondents, the functioning and operations/processes of the concerned Faculties and Departments will be caused.
(d) The results/findings of your research will be shared with the PVC (AA&R) and/or his nominees before they are disseminated or published in the public domain.
(e) On completion, a copy of the Thesis should be lodged with the UNAM Library for our reference, notwithstanding the conditions and regulations of University of South Africa.
(f) Proper/full acknowledgement of the University of Namibia and all participants/respondents shall be done in the thesis and any subsequent publications arising from this research.

If you are agreeable to the above conditions, please sign and date a copy of this letter and return to the Research & Publications Office (RPO) at your earliest convenience. If you have any queries, do not hesitate to contact the RPO. I wish you all the best in your studies.

Yours faithfully

Prof. I. Mapaure
UNAM RESEARCH COORDINATOR
Cc. Prof. O.D. Mwandemele, PVC: ACADEMIC AFFAIRS & RESEARCH

I **accept and agree to** the above conditions.

FULL NAME & SURNAME	SIGNATURE	DATE

APPENDIX B

Consent research form

Title of research project: **A study on the adoption of, views about and use of e-books at the University of Namibia**

I……

hereby voluntary grant my permission for participation in the project as explained to me by Ms Anna Leonard (University of Namibia Library). Participation will include a focus group discussion and observation (think aloud). I agree to the discussion and the think aloud being tape-recorded.

The nature, objective and implications have been explained to me and I understand them.

I understand that the project is aimed at acquiring an insight into the adoption and use of e-books by undergraduate students at the university of Namibia, Windhoek campus. The intention at this stage is not to provide undergraduate students with the actual information about e-books.

I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication or conference presentations.

Upon signature of this form you will be provided with a copy.

Signed …… Date ……..

Researcher …… Date ……

APPENDIX C

Qualitative data collection instrument

Focus group discussion guide/interview schedule

- What are your views about e-books?
- What are your experiences of e-books?
- What is good about e-books?
- What do you think is your preference format of e-books? And why?
- What are your thoughts about the content of the e-books platform?
- What do you think are the barriers that affect the adoption and use of e-books? And what are the enablers?
- In your view, what should be done to improve the use of e-books?

Demographic questionnaire:

Please answer the following questions in the spaces provided, circle or tick the most appropriate options.

1. Age: ……

2. Gender □ Male □ Female

3. What is your faculty? ----------

4. What is your course of study? ----------

5. How would you evaluate the level of computer skills?

[ ] Sufficient [ ] Quite sufficient [ ] Quite insufficient

[ ] Insufficient [ ] Don't know

Thank you for taking the time to complete this questionnaire

Observation and think-aloud activity

Please search the e-books platform and find the provided titles and do your task accordingly.

1. Bless Claire; Sithole, Sello Levy; Higson-Smith, Craig (2013) *Fundamentals of social research methods: an African perspective*.

   Task one. Go to Chapter 10: Research planning and design.

   Task two: Search the text for the term "content analysis" and determine how many times this word is used in the book and on which pages.

   Task three: Save 20 pages of the chapter on your desktop.

   Task four: E-mail the portion of the chapter to your e-mail to read later.

2. Go to Chapter 3 of the same book

   Task five: Read from pages 71 to 73.

   Explain the two types of variables discussed on these pages.

3. Dumas, Alexandre. (1999). *Twenty years after. Project Gutenberg*

   Task six: Go to Chapter 22, titled "Saint Denis". Read from pages 125-128.

   Task seven: Who takes care of the horse and gives Raoul a sword?

4. Task eight: Now browse through the subject content to see what is relevant for your field of study. Name a few useful books that you found.

Observation Checklist

Date: ---------- Time ……

Observer: ……. Second Observer: …….

Topic	1.	2	3	4	5	6	7	8	9	10	
Task 1: Respondent is able to get on the e-book platform:											
Task 1: How did the respondent navigate to get there?											
Task 1&3: Respondent is able to retrieve the book title as requested:											
Task 1, 5, 6: Respondent can move across chapters:											
Task 5 & 6: Respondent is able to search within the text:											
Task 7: What is respondent's expression when browsing the books contents?											
Task 3 and 4: Respondent is able to save text and e-mail the extract from the e-book:											
Respondent completed the task successfully:											
Task 5 & 6: What was the expression when reading the story book, compared to the subject specific book?											
Observation overall summary:											

Think-aloud Checklist

Recorder: …….. Date: …….

Group no: ……. Time: ……

Strategy: think-aloud	Mark for each time strategy used	Cue words
Knowledge		I do not know where to start… Where should I click ...? How did you get here ...? I wish I knew about this before. I think I should go here.
Relative advantage		This is easy. This can save time. I think it is convenient. I think we should use e-books, rather than print books.
Complexity		I don't know how this works. Where should I begin? I cannot even go the next page. Where should I click? This is difficult. Oh, I don't know what to do. I don't like this. How can I search within the book?
Compatibility		I do not like this. I do not like reading on the screen. I think the print books works better for me
Trialability		Wow, I find my way around this. I managed on my own to … I did it.
Observability		This will be more useful to me. Wow, I do not need to come to the library, I can use e-books at home. This will save me time.

APPENDIX D

Quantitative data collection tool: Questionnaire

I am Anna Leonard, a Master student at the University of South Africa. I am conducting research on the "A study on adoption of, views about and use of e-books at the University of Namibia". The result of the survey will be used to help attempt to understand the UNAM students' views and perception about e-books and therefore help in library planning. All responses will be treated confidentially.

1. Demographic data

1. I am:

- ☐ male
- ☐ female

2. I am

- ☐ 18-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 and above

3. I am a student in the following areas:

- [ ] Education
- [ ] Health and Medicine
- [ ] Arts and Humanities
- [ ] Law
- [ ] Science
- [ ] Business and Economics

4. How would you evaluate your level of computer skills?

- [ ] Sufficient
- [ ] Quite sufficient
- [ ] Quite insufficient
- [ ] Insufficient
- [ ] Don't know

5. E-books awareness and use

Tick the relevant box next to the statement that refer to your own usage of e-books

5. I know what an e-book is:

- [ ] Yes
- [ ] No
- [ ] Not sure

6. I have used an e-book:

- [ ] Once
- [ ] A couple of times
- [ ] Never
- [ ] Often

7. If you do not use e-books, make a tick in the boxes next to all the statements that you agree with

- [ ] I do not whether my university's library stocks e-books
- [ ] I do not know where to get e-books
- [ ] When searching for information I have never been referred to e-book
- [ ] I could not find e-books that I needed for my research

- [ ] E-books are difficult to access
- [ ] I prefer print books
- [ ] I think e-book is a fad that will pass
- [ ] Other (please specify):

8. If you use e-books make a tick in every box next to all the purpose for which you have used e-books

- [ ] For research
- [ ] For my course work
- [ ] For leisure reading

9. Please mention reasons for using e-books

- [ ] E-books do not take up a lot of space.
- [ ] E-books can easily be transported on an electronic device.
- [ ] I prefer e-books

- [ ] I like to keep up with technological changes
- [ ] Convenient
- [ ] easy to use
- [ ] easily accessible
- [ ] Other (please specify):

10. When you use e-books how do you mainly use them? Tick all the relevant boxes

- [ ] To find relevant content. I read a few paragraphs or pages her and there, looking for important information or rather I use the Search function to establish if the e-book contains relevant information
- [ ] Selective reading: I usually read a whole chapter at a time
- [ ] Extended reading: I often read the whole (or most) of an e-book.
- [ ] Other (please specify):

11. How valuable did you find this eBook content to be?

- [ ] Extremely valuable

- [ ] Very valuable
- [ ] Moderately valuable
- [ ] Slightly valuable
- [ ] Not at all valuable

12. If you are given an option to choose between print book and e-book, which one would you prefer and motivate your answer

- [ ] E-books
- [ ] Print book

Comments: Why

13. In your view, what are the mayor barriers to the adoption and use of e-books

- [ ] Lack of awareness
- [ ] Lack of skills
- [ ] Too few relevant titles

- [ ] in demand titles that are prescribed not available in electronic format
- [ ] Slow internet
- [ ] No integration of e-books in the curriculum
- [ ] Difficult to discover e-books
- [ ] Other (please specify):

14. How did you access e-books:

- [ ] Commercial site (for example, Amazon, Google eBookstore)
- [ ] Free Web site (for example, Google Books, yahoo etc)
- [ ] UNAM Library Catalogue
- [ ] UNAM Library website
- [ ] I don’t use e-books
- [ ] Other (please specify):

5. Adoption of e-books as a technological innovation

15. Please make a tick in every line under the appropriate number using the key below: *

	1 I strongly disagree	2 I disagree	3 I don't really care	4 I agree	5 I strongly agree
E-books are cheap	☐	☐	☐	☐	☐
E-books are available online	☐	☐	☐	☐	☐
E-books are easy to access on the web	☐	☐	☐	☐	☐
E-books are easy to find	☐	☐	☐	☐	☐
E-books are user friendly	☐	☐	☐	☐	☐
E-books are always available	☐	☐	☐	☐	☐
E-books can be easily carried with one	☐	☐	☐	☐	☐
The texts of e-books can be annotated and highlighted	☐	☐	☐	☐	☐
One can copy and paste the texts of e-books	☐	☐	☐	☐	☐
One can easily bookmark selected texts in e-books	☐	☐	☐	☐	☐
It is difficult to browse e-books	☐	☐	☐	☐	☐
It is difficult to read e-books	☐	☐	☐	☐	☐

	1 I strongly disagree	2 I disagree	3 I don't really care	4 I agree	5 I strongly agree
One needs special software for e-books	☐	☐	☐	☐	☐
There is a limiting on copying and printing e-books	☐	☐	☐	☐	☐
E-books require an internet connection to be downloaded or read	☐	☐	☐	☐	☐
Not a lot of people know how to use or access e-books	☐	☐	☐	☐	☐
The text of e-books can cause strain on one's eyes	☐	☐	☐	☐	☐
I find it difficult to understand how e-books work	☐	☐	☐	☐	☐
E-books are too sophisticated for me	☐	☐	☐	☐	☐
Internet access is a problem to me	☐	☐	☐	☐	☐
I do not have the required software	☐	☐	☐	☐	☐
I find e-books difficult to read	☐	☐	☐	☐	☐
I do not have an e-reader	☐	☐	☐	☐	☐

	1 I strongly disagree	2 I disagree	3 I don't really care	4 I agree	5 I strongly agree
E-books became easier to use after I tried them	☐	☐	☐	☐	☐
I find that it helps to sample e-books before I buy them	☐	☐	☐	☐	☐
It took time for me to get used to e-books	☐	☐	☐	☐	☐
It was easily for me to get used to e-books	☐	☐	☐	☐	☐
I was influenced to use e-books when I saw other students using them	☐	☐	☐	☐	☐
I started using e-books because of all their advantages	☐	☐	☐	☐	☐
E-books easily fulfil my information needs	☐	☐	☐	☐	☐
I like e-books because I do not need to visit the library every day. I can use e-books online	☐	☐	☐	☐	☐

16. In your view what should be done to promote the use of e-books?

Thank you