GROWTH IN USE OF E-BOOKS COLLECTION AMONG UNDERGRADUATE STUDENTS IN TWO ACADEMIC LIBRARIES IN KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF LIBRARY AND INFORMATION SCIENCE, DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF NAIROBI

2015

DECLARATION

This research project is my original work and has not been submitted for examination to any other university.

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ACKNOWLEDGEMENT

I wish to thank the University of Nairobi, in particular the Department of Library and Information Science for granting me the permission to pursue my study. My special appreciation also goes to my supervisors Dr. George King'ori and Dr. Elisha Makori for their guidance and encouragement. To all the helpful people who provided insights and information for this research, thank you very much, as without your help, this could not have been achieved. I am also thankful to my colleagues at the Technical University of Kenya for their moral support and encouragement. Finally, l am extremely grateful for the support and encouragement from my family, am honoured by the fact that you understood my plight when sometimes l had to be away from you working on school assignments. May God bless and reward you all.

DEDICATION

I dedicate this work to the Almighty God for all the blessings He has bestowed upon me and to my beloved husband, George Mugenya and the children Tamika and Paul for their prayers and encouragement.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMECEA	Association of Member Episcopal Conferences of Eastern
CD-ROM	Compact Disk Read Only Memory
CHE	Commission for Higher Education
CHIEA	Catholic Higher Institute of Eastern Africa
CUEA	Catholic University of Eastern Africa
DRM	Digital Rights Management
E-BOOKS	Electronic Books
E- RESOURCES	Electronic Resources
IDPF	International Digital Publishing Forum
INASP	International Network for the Availability of Scientific Publications
JISC	Joint Information Systems Committee
KLISC	Kenya Libraries and Information Services Consortium
NIST	National Institute of Standards and Technology
OCLC	Ohio College Library Centre
PDA	Personal Digital Assistants
PERI	Program for the Enhancement of Research Information
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TUK	Technical University of Kenya

ABSTRACT

The study focused on investigating the growth in use of e-books collection among undergraduate students in academic libraries in Kenya with particular interest to Technical University of Kenya and Catholic university of Eastern Africa. The objectives of this study included to determine the level of awareness of the undergraduate students of the available e-books in the two libraries ,establish the level of accessibility of e-books by the undergraduate students in the Technical University of Kenya and Catholic University of Eastern Arica library; identify the factors that influence e-book usage; establish the challenges experienced by the users in accessing the e-books in the two academic libraries; and suggest possible solutions to address the challenges faced by the users in accessing the e-books in the two academic libraries. The study will be significant as it will contribute to knowledge on the topic of the adoption of e-books collection in academic libraries at the Technical University of Kenya and the Catholic University of Eastern Africa and the result of this study could be used as a guideline to enhance utilization of E-books by students in institutions of higher learning in Kenya. In terms of scope, the study was limited to undergraduate students of Technical University of Kenya and Catholic University of Eastern Africa. The study adopted descriptive survey research design, which was also used to obtain information on the current status of phenomenon. The target population in this study was 6,000 students from Technical University of Kenya and 4,000 from Catholic University of Eastern Africa selected randomly. Stratified random sampling technique was used to select the sample size. Research data collected through semi-structured questionnaires as the major data collection instrument. The quantitative data collected was analyzed using descriptive statistics via Statistical Packages for Social Sciences Version 21 and presented through percentages, means, frequencies, pie charts, tables and graphs. The study established that students in the two selected universities were aware of the availability of e-books in the libraries, e-book education, distribution and promotion should be intensively conducted to enhance usage, Provision of electronic devices for e-books reading should be considered to ensure students get access to computers to enhance usability. Increased bandwidth and provision of remote access promotes great use of e-books. The study recommends provision of adequate computer/mobile devices, high speed and reliable internet accessibility, and arrangement for adequate awareness campaigns.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter introduces the concept and history of e-books including use and usability in academic libraries for reference as well as exploring the benefits and challenges of e-books. It also highlights the context of study, statement of the problem, research questions, objectives, assumptions and significance of the study.

1.2 Background to the Study

The developments in the communication systems and wide area networks, particularly, the emergence of the internet has made online information retrieval more popular. The components of the online information retrieval include information providers' database producers and publishers who publish electronic documents and e-journals. This has hence led to the libraries' environment being in a state of transition in terms of resources and users. Many information sources once available only in print are now available in electronic format. Relating to research, mobile devices has enabled Kenyan students to access information materials from anywhere and anytime as long as they are logged onto the web. As the market for portable computing devices continues to expand, e-books and e-journals are predicted to grow altogether. In response, University libraries have increased their holdings of e-books and e-journals through subscription. These resources help students and staff who are researching to find whatever information they are looking for and also benefit from the high speed capabilities of the devices.

A great number of factors at different levels are expected to influence adoption and usage of mobile devices in public and private universities as a substitute or complementary tool within or off-campus. Adoption or usage may be determined by behavioural factors; Walton (2012), for instance, aligns the substitutive or complementary values of a typical mobile handset to the goals and intentions of the users, especially students. Information is a sought after commodity, and although some of the publishers offer their online publications free of charge, many have access or subscriber fees. Information has therefore become a resource or a product and the mobile devices are the information source. They enable Kenyans to gather information, wherever and whenever they need it once they are logged onto the web. They are also able to perform tasks such as information management. Students are able to conduct research for papers from the comfort of their homes. Education is also moving more towards e-learning and open learning platforms thus encouraging use of laptops and other hand-held devices which all enable access to major online search engines such as Wikipedia, Google Chrome, Yahoo.com, Ask.com and Flipora.

E-book is the electronic book that can be read digitally on the computer screen, special e-book digital reader, personal digital assistance (PDA) or even mobile phone. E-books are exactly like print books or paper books except they are bound electronically and come in variety of formats that can be downloaded in PDF, html, plain text and rich text formats. In the modern academic libraries, print and electronic books coexist and complement each other. More and more academic material is now digitized and made available to users as downloadable e-resources (Nelson, 2008). Moreover, Durbin et al (2002)

emphasized that increasing e-book availability, access and usage was inevitable and librarians would therefore have to provide access to faculty and students.

Many scholars have written on the history of e-books. The concept of e-books begins with Alan Kay's Dynabook through to Vannevar Bush's Memex and onto the Rocket e-book. E-book is 'the 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 (Vasileiou et al., 2008: 173). E-books have different features, such as hypertext links, bookmarks, multimedia objects, interactive tools, annotations, highlights, and search and cross-reference functions. With regard to e-book readers also called Personal Digital Assistants, the Amazon produces the Kindle™; Barnes and Noble produces the Nook™ while Apple produces the iPad™ (Walters 2013). Moreover, e-books can be classified as hardware dependent (usable only on Kindle® or Nook®), or hardware independent (accessed via any computer, using various Internet browsers).E-books have been hosted by EBSCOHOST/Netlibrary; JSTOR; Project Muse; Ebrary. Project Gutenberg, a collection of free online texts, was established in 1971, invented by Michael Hart, a student at Illinois University. The Oxford Text Archive, the first large-scale digital repository of scholarly works, was developed five years later, and the first prototype e-book reader, Dynabook, was introduced at about the same time.

Commercial publishers later began to sell e-books in the late 1990s (Connaway and Wicht, 2007). Net Library, the first library e-book vendor, was founded in 1999. The company nearly went bankrupt in 2001 but was acquired by OCLC in 2002, then by EBSCO in 2010. Ebrary, established in 2001, originally sold e-books directly to end users but now operates solely as a library vendor. Early studies focussing on the relationships

between academic pursuit, and mobile devices centred on the use of Kindle. The JISC Observatory Techwatch Report introduced some key concepts related to e-books in general and discussed the technical, cultural and legal challenges that need to be addressed for the successful adoption of e-books in education. Furthermore, it also offers scenarios showing effective use of e-books in libraries and in teaching and learning across institutions (JISC, 2012). Five areas must continue to develop and improve with regard to e-books: Content creation and publication, e-book software, e-book reader hardware, book standards formation and e-book education, distribution and promotion (Nikam and Rai, 2009).

The history of academic libraries in Kenya is fairly recent and can be traced back to the 1940s which is closely tied to the development of academic institutions in the pre-independent Kenya. Some of the earliest academic institutions in this era included Egerton College (now Egerton University) which was established in 1940; the Royal Technical College (now the University of Nairobi) which was established in 1951 and the Kenya Polytechnic (now the Technical University of Kenya) which was established in 1961. These three institutions had well equipped libraries which were then managed by British expatriates (Kimani, 1982). Later in the post–independent Kenya, more institutions of higher learning and academic libraries were established. Currently there are more than 36 institutions of higher learning in the country and they all have academic libraries (CUE, 2014).

1.2.1. E-Books in the Kenyan Context

The majority of scholarly information is currently published outside of Africa, with its electronic form (online or e-journals and e-books) also hosted outside of the continent

(Harle, 2009). The extent to which African universities are able to develop digital libraries, therefore, largely depends on the access to international broadband networks and the speed and reliability of this. It has been pointed out that, similar to the rest of Africa, adoption and usage of e-books in Kenya may be constrained by factors such as affordability of the reader gadgets and limits to bandwidth as well as the fact that mobile access remains mainly urban, but mobile entrepreneurship and the e-book market will continue to grow rapidly (Hunt, 2012).

In Kenya, the Program for the Enhancement of Research Information (PERI) project was launched in the year 2000. This is a charitable project initiated by the International Network for the Availability of Scientific Publications (INASP) to make available scientific information to developing countries and especially scholarly electronic resources. Due to this realization, librarians and other information professionals in Kenya formed Kenya Libraries and Information Services Consortium (KLISC) in 2002. The Kenya Library and Information Services Consortium (KLISC), which began as a small group of six public universities, resulted in the subsequent formation of KLISC. And by 2014, the consortium had grown to over 100 paid up member institutions including public and private universities, research institutes, National Library and Archives, and tertiary colleges. Their main aim being, to enable members to come together and pay for and have access to more and more full-text e-journals and e- books as well in all subject-areas to support research. This is done through direct negotiation and licensing with some international publishers and by 2012, the consortium members had so far been able to access over 35,000 full-text e-journals plus over 50,000 e-books. They enable the members to facilitate access to the electronic journals and electronic books in academic

and research institutions in Kenya. The purpose was to make electronic journals and electronic books accessible at an affordable cost, enhance use through training, support electronic publishing and market the electronic databases.

1.2.2 Context of the Study

The Technical University of Kenya (TUK) is located in the Central Business District of Nairobi City, along Haile Sellasie Avenue. It was first established in 1960 as the Kenya Polytechnic to train middle-level technical personnel for both public and private sectors. On 23rd August 2007, it was upgraded to a degree awarding institution and reconstituted as a constituent college of the University of Nairobi by Legal Order Notice number 159 of the year 2007 and renamed the Kenya Polytechnic University College. On 15th January 2013, it was granted a charter and designated the Technical University of Kenya in line with the provisions of the proposed Universities Act, 2012. The vision of the university is "to be a top rated university of technology" and mission, "to provide technological education and training and to contribute towards the advancement of society through research and innovation." The core values that TUK has adopted towards the achievement of its mission and vision include creativity and Innovation, excellence**,** respect, integrity and impartiality, customer focus, social responsibility, professionalism, team spirit as guiding principles.

The current Library building was opened in 1960 and comprises two floors with a collection of 45,000 print materials. It is divided into four sections that include Circulation, Information desk, Periodicals/special collection and Technical Services Section. The mission of the Technical University of Kenya Library is to promote intellectual growth and creativity by facilitating effective access to information in support

of the technological training research and learning needs of the Technical University of Kenya Community. Its quality objectives include providing access to information for teaching, learning and research within the framework of the programs, training users on information literacy skills in order to facilitate full exploitation of information resources and services, establishing collaboration and partnership for information sharing, preserving and conserving information resources for future purposes and lastly providing adequate and conducive environment for users. The Library has subscribed to over 40,000 peer reviewed, full text, electronic journals in all disciplines. The Library has also subscribed to about 50,000 electronic books while continuing to evaluate other databases with a view to accessing additional titles. The Technical University of Kenya Library and the Catholic University of Eastern Africa Library like other academic libraries subscribe to e-books and e-journals through the Kenya Library and Information Services Consortium. Through this consortium they ensure electronic publications are accessible to learning, teaching and research.

The Catholic University of Eastern Africa (CUEA), like most other universities started in a modest way. It commenced as a graduate school of theology identified as Catholic Higher Institute of Eastern Africa (CHIEA) in 1984 having been founded by the regional ecclesiastical authority known as the Association of Member Episcopal Conferences of Eastern Africa (AMECEA). Eritrea, Ethiopia, Kenya, Malawi, Sudan, Tanzania, Uganda and Zambia are the member countries of AMECEA. On May 1984, CHIEA was authorized by the Congregation for Catholic Education to offer two- year Licentiate/MA programmes in theology. On 3rd September of the same year, it was officially inaugurated by Rt. Rev. Bishop Madaldo Mazombwe the then Chairman of AMECEA. On 18th

August 1985, it was formally opened by Pope John II. In 1986, the Graduate School of Theology started negotiations with the Commission for Higher Education (CHE) in Kenya towards the establishment of the Catholic University of Eastern Africa (CUEA). In 1989, the Institute obtained the "Letter of Interim Authority" as the first step towards its establishment as a private university. After three years of intensive negotiations between the Authority of the Graduate School of Theology (CHIEA) and the Commission for Higher Education, the Faculty of Arts and Social Sciences was established. The climax of the negotiations was a granting of the Civil Charter to CHIEA on 3rd November 1992. This marked the birth of the University as a private Institution. Currently CUEA has a student population of 6000 and 500 staff members with campuses in Lang'ata, Kisumu, Gaba-Eldoret and City campus. The CUEA Library plays a significant role in meeting the University's core missions of research, teaching and community service. The massive component of the library is located online through subscriptions to more than 100, 000 journals and 54,000 e-books. The library is fully automated with a sitting capacity of 3000. The library is divided into Technical section, Information systems section and Readers advisory section. The mission of the library is to support scientific research, relevant and comprehensive collection of printed and electronic information equipping itself with appropriate information communication technologies by linking up with other institutions within and outside the country so as to facilitate resource sharing. Its core values include integrity, impartiality and dedication to service.

1.3 Statement of the Research Problem

Libraries have consistently improved the availability of academic or educational collections through e-books in the recent past in Kenyan academic libraries. But information is needed on the characteristics of the e-books, including collection size, quality and usability as well as factors influencing user uptake or adoption trends and the possible ameliorative effects on overall academic performance and the impact on library services. Uniformity remains unlikely across institutions and their academic libraries (due to a variety of reasons such as budgets, scale of investment and staff training). There are many recognized advantages that accrue from the e-books just as there are many factors associated with high or low adoption, uptake and use-continuance of e-books in such libraries. University libraries that expect to satisfy their academic differential through e-books therefore properly invest in proper e-book collection size, quality, accessibility, usability, and reliability for their patrons (JISC, 2012).

Previous well-structured studies in Kenyan academic libraries have focussed on other e-resource tools such as Web 2.0 in Makori (2012) and Gichora and Kwanya (2015) and the implementation of digital repository which are relatively well-settled in Kenya. Research also shows many crosscutting factors that affect usage of e-books such as academic needs, ease of use (usability issues such as comfort and ease for reading for long periods); display, functionality, battery longevity; to the availability of broadband connection (Hunt, 2012:14, Dearnly, McKnight and Morris; 2004:175). Since expansion of the availability of e-books is recurrent and endemic, researchers need to correlate e-book user patterns with the specific set of factors that promote adoption and use

continuance across a particular set of circumstances within comparable Kenyan institutional libraries.

Over the years, research has been conducted on the availability, accessibility, uptake and use of e-books and e-book readers in public or academic libraries by faculty and students, such as in Bennett & Landoni (2005); Rowlands et al (2007); Rodenhiser & Glackin (2011); Walton (2014); as well as library and information professionals (McKnight, Dearnley and Morris 2008; Aharony, 2014). Other studies have been conducted on faculty acceptance and usage patterns, e-book user perceptions (Kim, 2011; Jae Young et al, 2014; Watters, 2011; Al-Suqri, 2014). Evidence suggests that, no comparative studies have been done on the adoption and use of e- books collections in both private and public Kenyan university libraries that expect to satisfy the academic scholarly needs. Most of the Kenyan universities especially the newly created ones still grapple with issues of lack of adequate budgetary allocations that would enable proper investment in proper e-book collection size, quality, accessibility, usability, and reliability for their students as compared to private counterparts. It is this gap that has given this study the impetus to conduct a comparative study on the adoption and use of e-books collection by undergraduate students in Technical University of Kenya and Catholic University of Eastern Africa academic libraries. The purpose of this study is to examine the penetration of e-books in the selected academic libraries.

1.4 Aim of the Study

The aim of the study was to analyze the growth in use of e-books among undergraduate students in two academic libraries of the Catholic University of East Africa and the Technical University of Kenya.

1.5 Objectives of the Study

The objectives of the study were to:

1. Determine the level of awareness of the availability of e-books among the undergraduates in the two selected libraries.
2. Establish the level of accessibility of e-books by the undergraduate students in the two selected university libraries.
3. Examine the factors that influence utilization of e-books in the two selected university libraries.
4. Establish challenges experienced by the users while accessing e-books in the two academic libraries.
5. Find out the possible solutions to address the challenges faced by the users in accessing e-books in the two academic libraries.

1.6 Research Questions

The study was guided by the following research questions:

1. What is the level of awareness of the availability of e-books among the undergraduates in the two libraries?
2. What is the level of accessibility of e-books by undergraduate students in the two libraries?
3. What are the factors that influence utilization of e-books in university libraries?
4. What are the challenges faced by the users in accessing e-books in the two academic libraries?
5. What possible solutions can help in resolving the challenges faced by users in accessing e-books in the two university libraries?

1.7 Significance of the Study

The study findings will contribute to knowledge on the topic of the growth in use of e-books collection in academic libraries. Specifically the study will be useful to the; Management of the two Universities namely Technical University of Kenya and Catholic University of Eastern Africa who may use the recommendations from the study to improve on the number of undergraduates' usage of e-books collection in their respective academic libraries, researchers and students seeking information on the topic of the growth in use of e-books collection in academic libraries in Kenya, Other Universities or institutions of higher learning of similar nature can use the findings of this study to benchmark their e-book access and use against their peers and competitors and university planners, administrators and other stakeholders to device measures that could ensure massive accessibility of e-books by undergraduate students in their respective universities.

The findings of this study moreover, may be used as a guideline to enhance accessibility of e-books by students in institutions of higher learning in Kenya as well as the researchers and academicians interested in the subject of growth in use of e-books. Higher institutions of learning may also use the research findings to formulate the basis for further research which will contribute to the growth of the academic libraries since a great deal of scholarly communication is moving to electronic format.

1.8 Scope of Study

The study was limited to undergraduate students of Technical University of Kenya and Catholic University of Eastern Africa. The institutions were selected for this study because they show the totality of the outlook of universities based on usability and

availability of e-books among undergraduate students. To this end, the responses received were likely to be representative of the picture for all the library functional systems for the universities in focus.

1.9 Assumptions of the Study

The study assumed that; all the target respondents participated and provided reliable responses, the administration of the two Universities gave authorization to carry out the study, there is underutilization of e-book potential/capacity in the university libraries and there are challenges faced by users in accessing e-books in academic libraries.

1.10 Limitations of the Study

This study was conducted only among undergraduate students of Technical University of Kenya and Catholic University of Eastern Africa which may not reflect true situations in other institutions of higher learning in Kenya. In addition, the results of the study would be specific to Technical University of Kenya and Catholic University of Eastern Africa due to the unique nature of their academic libraries and may not be generalized in entirety to other academic libraries in other Universities in Kenya.

1.11 Operational Terms and Concepts

Academic library

Library that is an integral part of a college, university, or other institution of post-secondary education, administered to meet the information and research needs of its students, faculty and staff.

Accessibility

Ease of being able to locate and use needed information because of having usable quality.

E-books

There has yet to be an official definition established for the word “e-book”. Sometimes it means the content itself, and sometimes it means a reading device, depending on the circumstances. The International Digital Publishing Forum (IDPF), which is the agency currently responsible for e-book standardization, defines an e-book as content transmitted via CD-ROM, personal digital assistance (PDA) or one of various e-book viewers in a digitalized format; that is, IDPF limits the meaning of an e-book to the digital content in certain formats. Meanwhile, according to the National Institute of Standards and Technology (NIST), the term is defined as digital content displayed on the screen in a similar way to a paper-based book or a device displaying such digital content; that is, NIST’s definition includes the device. Digital version of traditional print book designed to be read on a personal computer or an e-book reader

Information staff

Information professional trained in library and information science, which includes the organization and management of information services or materials for those with information needs.

University Library

Library or library system established, administered, and funded by a university to meet the information, research, and curriculum needs of its students, faculty and staff. It usually has the capacity to influence teaching and learning.

Usage

The number of times a bibliographic item is used by library patrons during a given period of time.

1.12 Chapter Summary

The chapter gave the context of study and conceptual introduction of e-books, then a description of the research problem, study objectives, justification, and the scope and limitations. In the next chapter, findings from previous studies were reviewed and concepts identified and defined.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature and theories relevant to the study. The chapter begins by reviewing the theories that informs the discussion on e-books adoption in academic libraries and goes further to dwell on the empirical literature on studies done by various scholars, organized as per the research objectives that discuss the growth in use of e-books in academic libraries of universities. Specific research findings on the use of e-books in academic libraries are reviewed, so that a conceptual framework is derived for the study. This framework helps establish the importance of the study as well as a benchmark for comparing the results with other findings. Empirical evidence from numerous studies cited thus far demonstrates that there exist significant relationships between user and usage characteristics of e-books in higher education.

2.2 Theoretical Foundation of E-Books and Academic Libraries

Many theories explain different attributes of information technology adoption. Innovation Diffusion Theory (IDT) by Rogers (1983) and the technology acceptance model by Davis (1989) are used to explain possible consumer behaviour on adoption and acceptance patterns of new technologies and innovations. The technology acceptance model is established on the premises that the perceived usefulness and perceived ease of use in relation to systems characteristics (external variables) and the probability of system use (an indicator of system success) are fundamental determinants of Mobile devices adoption and use. Perceived usefulness is the "degree to which a person thinks that using

a particular system will enhance his or her performance whereas, perceived ease of use is "the degree to which a person believes that using a particular system will be free of effort." (Marumbwa and Mutsikiwa, 2013:504). They indicate how research has sought to develop constructs on consumers' behaviour when deciding on the adoption of mobile services by applying these existing information system theories and models. The intention to use a specific technology can be seen as a determinant of actual usage such that behavioural intentions rather than actual usage are deemed more relevant when considering the adoption process. Innovation diffusion theory by Rogers (1983) has received similar attention by scholars in explaining consumer behaviour towards new technology. It is suggested that diffusion of innovation is achieved by how a social system accepts and begins to use an idea or a technology. Rogers asserts that consumers' adoption of certain tech-products depends on product characteristics; the degree to which the product is perceived as being better than the practice it supersedes (perceived relative advantage). Therefore, adoption of e-books will depend on consumers' expected gains or losses from the service which could be research, teaching and learning.

Shin (2011) contrives a model, the UGT expectancy concept, from a fusion of the uses and gratification theory (UGT), expectation confirmation theory, and the diffusion theory. Factors derived from the concept confirm the significant roles played by e-book user's cognitive perceptions and the importance of affective factors. Cognitive factors are defined as perceived service quality, perceived content quality operating through confirmation; perceived usefulness and perceived ease of use operating through gratification; and leading to emotional factors, continuance intention operating through

intimacy and familiarity. The study confirms the importance of usability and further clarifies that usability can be enhanced by perceived service and content quality.

The technology acceptance model according to Davis et al (1989) is the most proven model in the adoption of innovative technologies. It is the model used in this study. The technology acceptance model (TAM) provides a valid and reliable measure that predicts the acceptance or adoption of new technologies by end-users. The Model postulates that the use of an information system is determined by the behavioural intention, but on the other hand, that the behavioural intention is determined by the person's attitude towards the use of the system and also by his perception of its utility. According to Davis et al (1989), the attitude of an individual is not the only factor that determines his use of a system, but is also based on the impact which it may have on his performance. Therefore, even if an employee does not welcome an information system, the probability that he will use it is high if he perceives that the system will improve his performance at work. Besides, the technology acceptance model hypothesizes a direct link between perceived usefulness and perceived ease of use. This means that people are more likely to use technology that they believe will help them perform their job better. Figure 2.1 of a modified technology acceptance model below illustrates how the theory suggests that behavioural intention to use is jointly determined by perceived usefulness and attitude and emphasizes two factors; perceived usefulness and perceived ease of use. Besides the variables, perceived usefulness and perceived ease of use, perceived cost is also an important variable because libraries are facing challenges such as shrinking budgets.

2.2.1 The Technology Acceptance Model

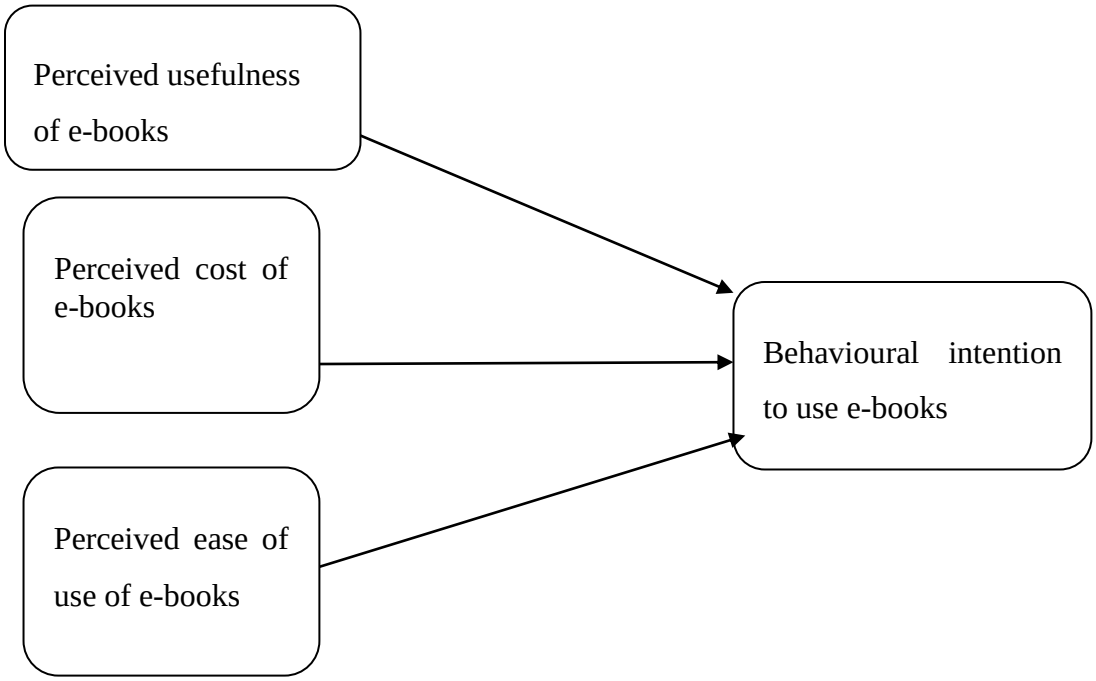

Figure 2.1: Modified Technology Acceptance Model

These concepts are variously defined in the TAM model as follows: The potential user identifies their need and compares that need to the ease of use and the usefulness (perceived relative advantage). This coupled with acceptance by the social system leads to adoption and usage of the e-books for research, learning and educational purposes;

- Perceived Relative Advantage: specific product usage characteristics or benefits; is the degree to which the product is perceived as being better than the practice it supersedes i.e., SURF is better than tutelage/ or visiting the library
- Perceived Usefulness: this is the intention to use a specific technology or the degree to which a person thinks that using a particular system will enhance his or her performance.

- Perceived ease of use is the degree to which a person believes that using a particular system will be free of effort
- Social Acceptance: this is the volume of campus use that is observed
- Needs: refers to how and what the potential user intends to do with the tools
- Expected Gains and Losses: these are the costs current and expected of the service or of the tools;
- Adoption and Usage: refer to intention to use a specific technology
- Extent of usage of the mobile devices in the institution by lecturers and students
- Types of tools used by the members of the institution for research, learning and teaching
- Available ICT facilities and resources in the institution
- What tools the fraternity uses in the course of their educational activities

2.3 Adoption of E- Books in academic libraries

Academic libraries are the centre of both learning and research activities in the universities. According to Walton (2010), the objectives of the university library are to:

- Support and facilitate the research, learning, teaching and administrative activities of the university, by organizing, maintaining and providing access to appropriate literature and information resources in such a way as to provide optimum benefit for library users.
- Supply services and expertise designed actively to promote the effective exploitation of library and information resources, including the teaching of transferable information handling skills; and

- Provide an appropriate and comfortable environment; accommodation and facilities for the use of library resources and for individual and group study.

To fulfill its mission of supporting educational objectives of its parent bodies, which include teaching, research and cultural development, the university library has to develop and maintain standard books, journals, multimedia, electronic resources and information and communication technologies and services.

E-books have demonstrated advantages in the areas of accessibility, functionality, and cost-effectiveness, although still in the early stages of adoption (Kobi, 2008). The survey by Kobi (2008) on e-books users at four academic institutions to understand the users' adoption of e-books, their e-book usage behaviour, and their perceptions of e-book advantages and disadvantages revealed that; most of the users surveyed were aware of their existence and had used them at least once, whether through their libraries or through another source. The study found that between 52 percent and 84 percent of respondents at each institution were aware of the availability of e-books through their libraries. Moreover, between 58 percent and 80 percent of respondents at each institution had used e-books at least once, whether through their library or other sources.

Variables significantly affecting the use of e-books in academic libraries have been tested under a variety of circumstances in different studies. The JISC (2012: 25) presents the initial importance of e-books from the library perspective: Firstly, integrating e-books into the catalogues offers the students library resources at a time and place to suit them through an online interface allowing learners to access recommended reading and texts from any location using an Internet-connected computer or device. This is made

particularly easier when the lecturer supplies the link to a relevant part of an e-book collection through an institutional platform, when the learners can use a single catalogue interface for both print editions as well as e-books; secondly, providing an e-book copy ensures that access is possible even for those students who find it difficult or impossible to travel to the library. There is also the strategic role of the library whereby students and teachers will always expect the university library to provide them with access to course text e-books to support their studies (JISC2008:28). E-books have demonstrated advantages in the areas of accessibility, functionality, and cost-effectiveness although still in the early stages of adoption (Kobi, 2008).

Table 2.1 Usage of E-books through the Consortia in Kenya

No	Organization	Total Usage		
		2013	2014	2015(July)
1	Daystar University	73,949	49,673	2,084
2	Kenya Methodist University	46,099	31,001	2,429
3	JKUAT	33,107	26,837	9,590
4	University of Nairobi	22,324	25,379	8,923
5	USIU	29,727	18,492	8,266
6	Kenyatta University	16,500	13,567	6,509
7	KCA University	11,670	12,770	9,743
8	Strathmore University	13,454	13,100	6,184
9	Technical University of Mombasa	6,442	6,784	5,944
10	Mount Kenya University	8,825	8,934	1,207
11	Moi University	8,184	8,192	2,565
12	Egerton University	4,230	5,948	3,244
13	Others	58,465	56,453	32,170

Source: Consortia and Deal Usage (KLISC, 2015)

From the above statistics, it is clearly evident that despite the high adoption levels of e-books at the onset in most institutions of higher learning, the usage has declined over time and this could be attributed to factors mentioned above.

2.3.1 Accessibility and Usability of E-books by Students in Academic Libraries

E-books provide easy access to information which is available on 24 /7 basis. A recent Joint Information Systems Committee (JISC, 2012) study in the UK, found that 60 percent of users surveyed had used e-books. The JISC study also found that while 46 percent of users obtained the last e-book they used through their library, nearly the same number (43 percent) obtained their last e-book via the Internet. Respondents described the primary obstacle to e-book usage as a lack of awareness of e-book resources available through their libraries. Most users indicated that they access e-books on a weekly or monthly basis. Users also said that they primarily use e-books for research or study purposes, rather than for leisure or teaching purposes. The study concluded that libraries can expand e-book usage to an even larger population of users by raising awareness of e-book availability and ensuring that e-book content is easy to find and use.

Studies by Durbin et al (2002) emphasized that increasing e-book availability, access and usage was inevitable and librarians would therefore have to provide them to faculty and students.On that note, there have been several changes related to electronic books in recent years; the market scale of e-books expanded quickly, new technologies and business models for e-books have been introduced, such interested parties as mobile carriers and portal site companies emerged, and new systems and content formats surfaced. These trends were enough to attract not only e-book industries but also libraries, which compose the highest e-book consumer group. Results of the PcW (2011), indicated that the global market scale of the book publishing industry was estimated at $109.5 billion in 2011 and it will reach $119.2 billion by 2016 with a projection of 1.9 per cent increase per year on average.

Research by Walton (2014) examined 8 possible decision factors relating to the choice to use e-books by undergraduate students: leisure reading; use as textbooks; conducting research; use for assigned extra reading; reading aloud in class; accessibility to information; convenience and forced adoption. The study majorly examined factors associated with the acceptance and uptake of e-books in academic libraries. In Kenya, the previous studies on academic libraries mainly focused on e-resource tools such as Web 2.0 (Makori, 2012; Gichora & Kwanya, 2015), and the implementation of digital repository which is relatively well-settled in Kenya. And from the findings it emerged that the other crosscutting factors affecting usage of e-books range from ease of use (usability issues such as comfort and ease for reading for long periods); display, functionality, battery longevity; to the availability of broadband connection (Hunt, 2012: Dearnly, McKnight and Morris; 2008). Additionally, studies by McKnight, Dearnly and Morris (2008), relating to public libraries and e-books users positively highlighted the importance of portability, ease of use and saving on time and effort, and negatively rank download times, lack of sensory experience, need for a constant power supply, DRM technology; dislike of reading and inability to use the e-books in certain environments such as the bath.

Survey by Kobi (2008) on international e-books users at four academic institutions to understand the users' adoption of e-books, their e-book usage behaviour, and their perceptions of e-book advantages and disadvantages; additionally, revealed that most of the users were aware of the existence and had used e-books at least once, whether through their libraries or through another source. The study also found out that between 52 percent and 84 percent of respondents at each institution were aware of the availability

of e-books through their libraries. Moreover, between 58 percent and 80 percent of respondents at each institution had used e-books at least once, whether through their library or other sources.

Investigation on the use and usability of e-books by Anuradha and Usha (2006) from the perspective of users in an academic and research environment involved an e-mail questionnaire to survey researchers in the academic and research environment of the Indian Institute of Science regarding their use of e-books. The responses indicated that the students tend to use this new technology more often than faculty members and staff. Those who did use e-books mostly used reference and technical material. The highest response was from the Centre for Ecological Science, followed by the Supercomputer Education and Research Centre, and then the Department of Molecular Reproduction and Development and Genetics. The majority of the respondents had used computers for over five years for a variety of purposes including e-mail communication, internet browsing and text processing as well as for other advanced uses such as numerical computing and DNA sequence analysis. However, the use of e-books appears to be very low, indicating a requirement for creating awareness and user education about both software and hardware related to e-books. Only 37 of the 104 respondents had used the free trial offer from Kluwer and Edutech e-books in July 2004.

Early survey by Brook and Salter (2012) utilized three preliminary questions (professional status, institution type, etc); twelve e-book questions (purchasing habits, statistics, policies, access, availability, and usage); and eight e-book reader questions (equipment, statistics, procedures, availability, and usage).The survey was administered by email to list serves that emphasized the target audience. Students were found to the

primary users of e-books for reference. E-books were likely to be used more when readers were given a choice and good reading equipment. The entry of EBSCO and Wiley and the round the clock availability of the service enhanced usage alongside the "portability, accessibility and navigability" of the e-book reader, which was the primary focus of the online survey.

Review by Walters (2013) on e-book sharing and use in post-secondary libraries, exploring current restrictions on viewing, printing, downloading, circulation, and interlibrary loan. He also discusses the ways in which these restrictions influence the library lending of e-book readers and other mobile devices. The most fundamental problems include restrictive license provisions, proprietary software and file formats, Digital rights management (DRM), and the single-user business model adopted by many e-book vendors. It covers the academic e-book landscape: early e-books, the current e-book market, and the acceptance and use of e-books by students, faculty, and librarians; restrictions on the use of e-books by library patrons: restrictions on viewing, printing, downloading and transferring files; digital rights management; restrictions on library circulation and interlibrary loan: restrictions on the number and type of users; other restrictions on circulation; restrictions on the use of e-books for course reserve and interlibrary loan; lending of e-book readers (devices) in academic libraries: the need for continual Internet access and the potential for withdrawal of content from users' devices; and other considerations in the lending of e-book readers.

The study also reveals that faculty are more likely to own, or plan to purchase a reading device for e-books. Nearly half (45 percent) of student responders indicated that they have no plans to purchase a reading device. Furthermore, those who own a device

(faculty) are far more likely than those who do not, to read at least a full chapter from, if not an entire in the e-book. This data seems to support the idea that wider device ownership or usage could unlock a much larger adoption of e-books. From the studies above; the authors conclude that, results from the survey seem to show that the faculty have a slightly higher acceptance of e-books, and students a slightly higher preference for print books. The faculty at Wellesley are much more likely than students to either own or plan to purchase a mobile device, particularly tablets. By analyzing responses from those who own or plan to purchase a mobile device we can further clarify this difference in format preference.

2.4 Awareness on the Availability of E-books in Academic Libraries

The JISC (2012) presents the initial importance of e-books from the library perspective: Firstly, integrating e-books into the catalogues offers the students library resources at a time and place to suit them through an online interface allowing learners to access recommended reading and texts from any location using an Internet-connected computer or device. This is made particularly easier when the lecturer supplies the link to a relevant part of an e-book collection through an institutional platform, when the learners can use a single catalogue interface for both print editions as well as e-books; secondly, providing an e-book copy ensures that access is possible even for those students who find it difficult or impossible to travel to the library (Walton 2010:25). There is also the strategic role of the library whereby students and teachers will always expect the university library to provide them with access to course text e-books to support their studies (Walton 2010: 28). Veeramani and Vinayagamoorthy (2010:18) on their part conducted a study to examine the need and necessity of electronic collections at University libraries and its

impact on management graduates, and also identify the level of awareness among the graduates and their usage pattern on using digital information. Relationship between age and awareness and department and training were tested and from the findings only 46% of the 250 sampled respondents obtained rich knowledge about e-books. They defined the term 'rich' as the users who possess the habit of accessing and using the e-books regularly. There was no correlation between awareness and use although knowledge of e-book format was almost universal.

Findings from yet another comparative study of two campuses by Rodenhiser and Glackin (2011), revealed that e-books were used mostly because of portability, convenience, for educational purposes and even for leisure. The sources of e-books that were used the most were library catalogues or guides, and the Amazon Kindle. The most common reasons in both campuses for usage were educational for class work, and convenience. Reported benefits of e-books were access, accessibility, portability and the higher cost of print books; while drawbacks were difficulty to read; limited selection of books; cost of e-reader device; reliance on battery power and internet connection; inability to highlight text or annotate margins; and inability to sell or trade the books.

Studies by Jae-Young et al. (2014), conducted to investigate usage and user perceptions across five public universities in South Korea, using a sample of 959 users and a diverse analysis across user characteristics revealed that; most functions remained unutilized and higher education was the most significant predictor of e-book usage patterns. Particularly, Al-Suqri (2014) used the technology acceptance model on a sample of 332 faculty members to investigate the effects of language, gender, age field of study, against usefulness, ease of use and acceptance of e-books. The findings revealed that perceptions

of easier to use, younger age, first language, and faculty characteristics are all positively related to higher usage. Higher usage was observed in Arts and Humanities, business, law and the physical sciences while lower usage was observed in the Social, Life and Health scientists. This affirms that the acceptance of e-books is affiliated with the availability of e-reader equipment.

2. 5. Factors that Influence E-book Usage

Even though e-books are like any other technology, their unique characteristics differentiate them from websites or other related Internet technology (Bansal, 2010). Velde & Ernst (2009) in their study suggested that electronic book or e-book is similar to a print book but with a different type of medium; either paper or electronic. The issue of students adopting e-book as learning tools is very crucial especially to the newer generation of students. These millennial generation or "Net Generation" who were born after 1981 was stated by Gregory (2008), as the generation that possesses "the information age mindset". It is more surprising to note that even while the internet is continually gaining popularity, the usage of e-books especially among this newer generation of students is still very slow (Anuradha & Usha, 2006).

Conventional wisdom holds that the availability of e-books and their inherent utility full text search ability, ease of access, and the like, are what drive use and acceptance. Past studies and new survey of users at Wellesley College to uncover some interesting insights for undergraduate librarians and institutions revealed that 73 percent of faculty and 70 percent of students reported having used e-books. What's more, is that in comparing this against 2007 Wellesley-use data, the number of unique titles that were accessed jumped by 40 percent. While this may be due to the increased availability of e-books, total pages

viewed increased by 184 percent, and surprisingly, the number of pages printed dropped by 11 percent. However, this new survey indicated that the increased adoption of e-books as a result of availability and convenience is only part of the story.

Studies by Aharony (2014) using structural equation modeling, on data from a sample of 169 respondents, confirmed that perceived usefulness, perceived ease of use, personal innovativeness and other personal characteristics, are predictors of behavioral intention to use e-books. Results highlight the importance of individual characteristics when considering technology acceptance. The study objectives were: (a) the extent to which the TAM explains information professionals' intentions to use e-books, (b) the extent to which personal characteristics such as motivation and cognitive appraisal explain information professionals' intentions to use e-books, and (c) the extent to which differences in demographic variables such as age and education explain information professionals' intentions to use e-books. The concepts of threat and challenge as facilitators and inhibitors of performance were tested. The following list according to Walters (2013) summarizes the tabulation of the positive and negative e-book attributes, as derived from responses of individual users:

i) Access: Positively it provides access at any time and from any place provided there is Internet connection. Negatively there is need for a display device , infrastructure (Internet connection, power) to support the display device and passwords or access codes specific to each platform or vendor and recurring expenses (platform charges, device-related expenses, etc.)

ii) Portability: Positively it has capacity for multiple books on a single device, light weight and small size, if an appropriate device is used. Negatively there is the fragility of most display devices and need to recharge the display device, if a mobile device is used.

iii) Content: Positively updating of content and inclusion of audio and video content is possible. Negatively there is inability to show content produced in non-compatible file and formats instability of content due to frequent updating.

iv) Display: Positively it has availability of spoken-word output and customization of display characteristics (fonts, etc.). Negatively it has limited colour range and intensity, lower contrast and resolution than print, need for multiple devices to support reading and comparison of multiple texts, page size limited by device size and poor resolution for compatible but non-native file formats (PDF, in particular).

v) Navigation**:** Positively it has hyper linking, internally and from one document to another, searchable full text. Negatively, its inability to flip through pages quickly exists.

vi) Annotations**:** Positively it has the ability to share notes with other e-book users. Negatively there is the limited annotation mechanisms (no drawings, diagrams, etc.)

vii) Content-transfer capabilities: Positively it has the ability to copy and paste text. Negatively there is difficulty saving entire documents, inability to transfer files from one device to another and limited or restricted ability to print.

viii) Environmental considerations: Positively it enables reduced consumption of paper and binding materials, and also reduction in environmental costs associated with shipping. Negatively it causes increase in environmental costs associated with battery use and increased consumption of energy and of rare earth minerals.

2.6 Challenges and Risks of Accessing E-books in Academic Libraries

Users encounter challenges that may affect access and usage of e- books in academic libraries which include limits to number and type of users, availability of the service; and reluctance (Dewan 2012; Nyirenda 2012; Wawire and Messah, 2010). Digital rights management restrictions, personal characteristics, other restrictions on library circulation and interlibrary loaning are other challenges as noted by Walters 2013. E-book vendors employ different version of digital rights management with their product and it is incumbent upon the library to investigate the portion of the contract and its implication for e-book accessibility before licensing. Portability, accessibility and navigability of the reading devices are factors to be considered in ensuring usability of e-books (Brook and Salter, 2012). Studies have also shown that limits to adoption of e-books may arise from cultural resistance and skepticism or from difficulties associated with differing authentication processes and compatibility issues for different platforms that confuse users (JISC, 2012).

Additionally, Walters (2013) positively avers that the effective use of e-books requires more than acceptance by students. E-books cannot be considered a success in the academic context until they have been integrated into the system of scholarly communication and information delivery, until they have been accepted by authors, publishers, and librarians. Many institutional e-book licenses place major restrictions on the viewing, printing, saving, transferring, and copying of files by individual library patrons. Some are hard restrictions, which prevent unauthorized use, while others are soft restrictions that discourage the use of a function or eliminate the advantages it would otherwise provide. Digital rights management, instituted by publishers and vendors to prevent the unauthorized use of e-books and other online materials, shifts the burden of proof from vendors to users. Instead of requiring publishers and vendors to demonstrate that violations of copyright have occurred, the law now requires users to prove that certain kinds of use (viewing, printing, saving,) are permissible.

E-book licenses restrict not just the activities of individual patrons, but the ways in which e-books can be circulated and shared by university library. Common restrictions include limits on the number of simultaneous users; prohibitions on use by community (walk-in) patrons; limits on the number of times any particular title can be viewed; and limits on the use of e-books in course packs, as reserve readings, and in fulfilment of interlibrary loan requests. The lending of e-book readers is subject to additional restrictions, many of which arise from attempts to adapt single-user licenses to the multi-user environment. Proprietary software and file formats are especially challenging, since they make e-book access contingent on the sustainability of formats that may be obsolete in years or even months. E-book readers require continual access to the Internet that gives vendors'

permanent control over the content that has been downloaded to users' devices. Many licenses grant vendors the right to alter or withdraw files without notifying the customer. The management of e-book readers requires an extensive investment in staff time and equipment, much of it employed in attempts to provide multiuser access while adhering to single-user license restrictions.

Other relevant predictors of behavioural intention to use e-books could be lack of competence of the users, lack of knowledge, negative attitudes and poor practices and inadequate and limited infrastructure. Therefore higher usage patterns of e-books in academic libraries were observed when there was adequate content and service quality; knowledge and access to the technology and availability of the requisite gadgetry; perceived ease of use and perceived usefulness; and individual's personal characteristics such as innovativeness or level of education. These factors may be summarised as institutional, personal and technical.

2.7 Conceptual Framework

The selected independent variable in this study was growth in e-books adoption and usage and undergraduate students. The dependent variables were divided into three, the institutional factors, the personal factors and products/service factors. The institutional factors included improved utilization of e-books in terms of access to users, content capability and student engagement. Personal factors were awareness creation on the e-books, users' levels of knowledge and computer literacy which is related to the users' ability to use the service, and personal characteristics of user including age, gender, educational attainment, innovativeness and area of study and how these characteristics have influenced the usage of e-books. The product and service factors led to ease of

access to e-books, in terms of service availability, ease of use, usefulness and the availability of the facility and the equipment to use the service with the expected outcome being improved e-books usage, high degree of acceptance (adoption), improvement in the way e-books are delivered, introduced and hosted, usage continuance intention patterns and increased purchases of e-books. Correlations were sought between these characteristics while controlling for the foregoing challenges. Hence the following conceptual framework shows how undergraduate students will be influenced by institutional, personal and product and service factors to accept, use and continue to use e-books in their academic pursuits. The increased usage rate indicates rapidly expanding interest.

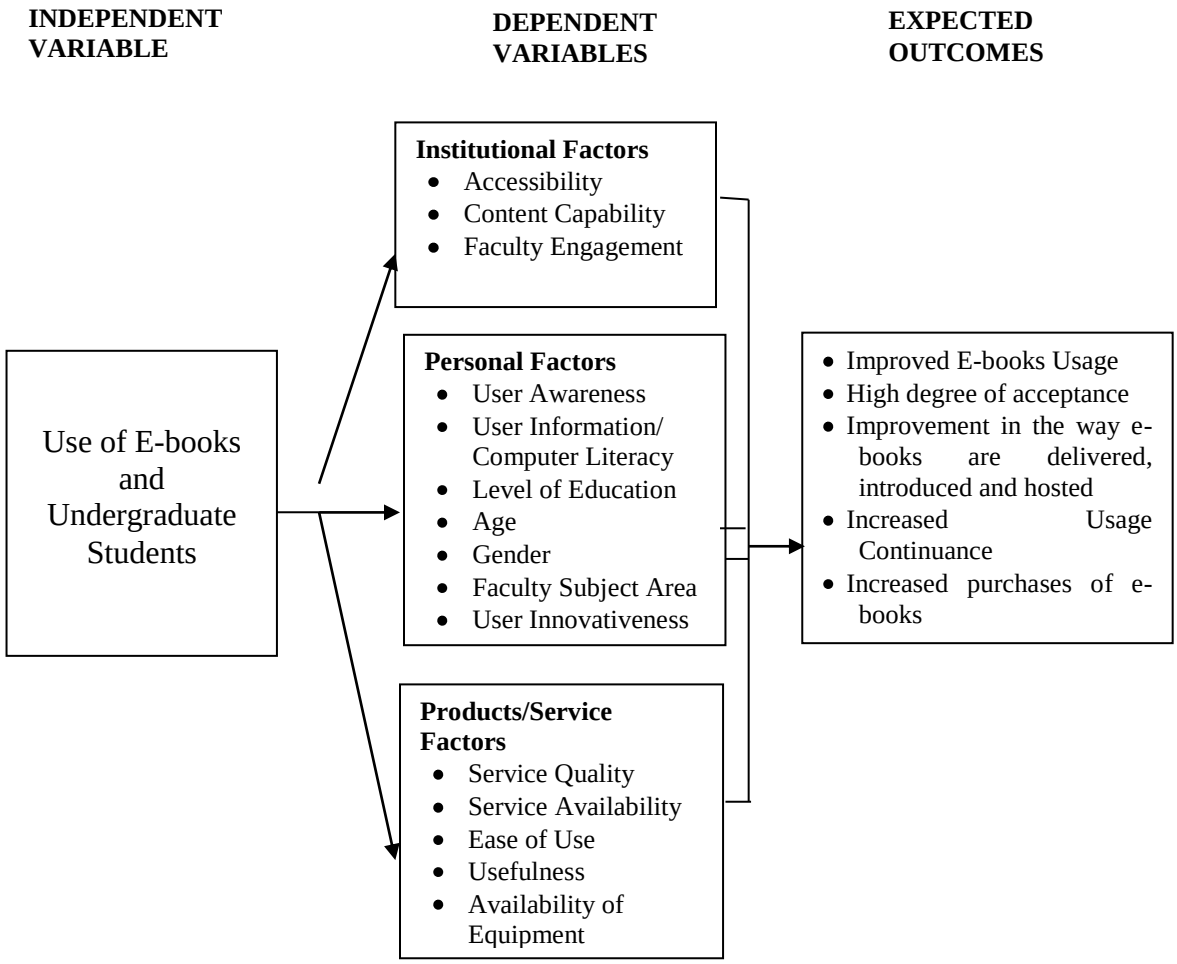

Figure 2.2 Conceptual Framework

2.8 Chapter Summary

The chapter reviewed the findings from other studies and described the factors affecting the use of e-books in academic libraries. A conceptual framework was derived and study variables selected which represented the independent, dependent and expected outcome for the study, namely e-books adoption and acceptance by undergraduate students against diverse institutional, personal and product-centred factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the techniques that were used in data collection and analysis to inform the findings so that recommendations are prudent. These include the research design, target population, description of the research instruments, data collection methods and procedures, data analysis techniques and ethical considerations.

3.2 Research Design

The study adopted a descriptive survey research design. According to Kothari (2011) descriptive design describes the status of phenomenon, determining the nature of the prevailing conditions, practices, attitudes and seeking accurate description. The design was therefore effective for this study as it helped describe the factors that contributed to the adoption and use of e-books in academic libraries in the two universities. The design allowed the researcher to assess variables as they were, in a short period and therefore, less expensive, according to (Polard 2005) descriptive survey design is an appropriate means of gathering information when goals call for qualitative and quantitative data. The study used both qualitative and quantitative data. This approach was considered to be valuable in assessing and collecting data for this particular study because it is suitable for an in depth study of the target population.

The design was also able to show the causal effect relationship between variables in question and hence a researcher was able to tell how one variable explains or is explained by another variable. The attitudes, experiences, perceptions and decisions of e-book

adoption and utilization and challenges faced by users were studied. This research design was also used to obtain information on the current status of phenomenon.

According to Cooper and Schindler (2003), a descriptive study is concerned with finding out the what, where and how of a phenomenon. This study was therefore able to generalize the findings of the research. This method concerned the intense investigation of problem solving situations in which problems are relevant to the research problem.

3.3 Area of Study

The study focused on the Technical University of Kenya and Catholic University of Eastern Africa, one being a public university and the other private, both located in Nairobi County. The two areas of study were chosen purposively as the study sites to bring out the similarities and differences given the different set ups of the university and availability of resources. For instance; the Catholic university of Eastern Africa has a big modern library with enhanced facilities and technology whereas Technical university of Kenya Library is working towards modernising its services fully. Consequently, the two university libraries have experience in providing information services over a substantial period of time.

3.4 Target Population

According to Kothari (2011), population is the total sum of items about which information is desired. The target population in statistics is the specific population about which information is desired. The target population is defined as the population to which a researcher wants to generalize the results of a study (Saunders, 2009). The target population should be comparable on many characteristics with those of an accessible

population herein defined in all the e-book users at CUEA and TUK. The target population in this study included 6000 undergraduate students from TUK and 4000 from CUEA selected randomly. The study sampled 10% of the total population of the target population, adding up to 10,000 undergraduate students. The respondents were drawn from different years of study in the respective universities.

3.5 Sample and Sampling Techniques

3.5.1 Sample Size

Sampling is a process of selecting some part of an aggregate or totality on the basis of which a judgment or inference about the aggregate or totality is made (Kothari, 2011). Sampling helps select a small group of the total population in such a way that the data collected is representative of the total population under study. Stratified random sampling technique was used to select the sample size. The technique produces estimates of overall population parameters with greater precision and ensures a more representative sample is derived from a relatively homogeneous population. The study grouped the population into three strata i.e. the university, year of study and student status, whether fulltime or part time. This in turn increased the precision of any estimation methods used.

It is argued by Mugenda & Mugenda (2003) that if well chosen, samples of about 10% of a population can often give good reliability. Stratified random sampling technique was used since population of interest was homogeneous and could be subdivided into groups or strata to obtain a representative sample. Furthermore, owing to the big number of target population and given the time and resource constraints, the sampling of at least 30 elements is recommended by Mugenda & Mugenda (2003). This generated a sample size of 320 respondents which the study covered hence forming the total population sample

size representing 10% of the target population of the study .This made it easier to get adequate and accurate information necessary for the research, according to Kothari (2011), any sample is good enough to represent the entire population. The study employed both probability and non-probability sampling procedures. This is as shown in Table 3.1 below:

Table 3.1: Sample Size

ORGANIZATION	TOTAL POPULATION	SAMPLE SIZE
TUK	6,000	190
CUEA	4,000	130
TOTAL	**10,000**	**320**

Source: (Researcher, 2015)

3.5.2 Sampling Technique

Sampling is an important aspect for data collection. Sampling is defined as the process of selection of the appropriate number of subjects from a defined population. The researcher divided the target population into categories as this sampling method helped group population subjects with similar characteristics on the strata (Mugenda & Mugenda, 2003). Stratified random sampling technique was used since population of interest was homogeneous and could be subdivided into groups or strata to obtain a representative sample. This random sampling technique was suitable since it avoided biasness when selecting the sample size.

3.6 Data Collection Methods

Research data was collected through semi-structured questionnaires, with closed ended questions. Five point Likert scale was also used to help the respondents to choose their

preferred answer from a rank high of (5) to a least rank of (1).The data was analyzed using simple means, percentages and frequency counts through the SPSS (Statistical Package for the Social Sciences) which is a proven software for statistical data analysis.

3.6.1Questionnaires

The content of the questionnaire was informed by the purpose and objectives of the study. Questions were formulated to specifically solicit for the information the study required to address .Semi-structured questions were used in the questionnaire. It offered the respondents a range of answers to choose from, with the respondent being asked to tick the appropriate answers. Since it was not possible to exhaust all the categories of the possible answers, the questionnaire included a category called 'any other'.The questionnaire was divided into two parts. The first part solicited respondents' demographic information such as age, gender, university of respondent and student status on whether fulltime or part time whereas the second part sought to respond to the research questions of the study.

To facilitate quantification and analysis, mainly closed-ended questions were used along with likert scales. The questionnaires were self-administered and picked at the respondents' convenience. Questionnaire was the main instrument used for collecting raw data. This instrument was preferred since it is economical in terms of the researchers time, finances, confidentiality is upheld and information can be collected from a large sample and diverse areas.

3.6.2 Document Review

This involves reviewing literature dealing with the chosen topic (Welman, Kauger & Mitchell, 2009). The document review was used to identify findings of previous researchers that helped the researcher to develop good understanding and insight of the previous studies and relate to this study.

3.7 Research Instruments

These are the instruments that were used to collect data for the study. This study mainly used the questionnaire to obtain information from the respondents. This questionnaire was pretested in a different institution identical to where the study was conducted. This helped the researcher make meaningful observations.

3.7.1 Pilot Study

The researcher carried out a pilot study to pre-test and validate the questionnaire before the actual research. Cronbach's alpha methodology, which is based on internal consistency, was used. Cronbach's alpha measures the average of measurable items and its correlation. This was in line with the qualitative research design methodology employed in this research project.

The study selected a pilot group of 15 students in the Universities of Nairobi and Kenya College of Accountancy which are outside the target population to test the reliability of the research instrument. The pilot was important because it allowed the pre-testing of the research instrument in order to check their clarity and accuracy in answering the research questions.

The clarity of the instrument items to the respondents was established so as to enhance the instrument's validity and reliability. The pilot study enabled the researcher to get familiar with research instruments and its administration procedures as well as identifying items that required modification. The result helped the study to correct inconsistencies arising from the instruments, which ensured that they measured what was intended.

3.7.2 Reliability

Reliability refers to whether scores to items in an instrument are internally consistent (that is, are the item responses consistent across constructs?), stable over time (test re-test correlations), and whether there was consistency in test administration and scoring (Cresswell, 2011: 190). In other words it is the measure of the degree to which a research instrument will yield the same results or data after repeated trials. To ensure the reliability of the research instruments, piloting was conducted at Kenya college of Accountancy and the university of Nairobi main campus. Reliability of the research instrument was tested using the test- retest technique so that where ambiguity and double barrelled questions or anything that would bring confusion to the respondents when framing questions and instructions were identified and removed or streamlined.

Reliability of the study findings was also strengthened by the fact that data was collected from varied respondents representing undergraduate students' population from the two target universities. The two Universities which were the study sites for this study are well established institutions of higher learning and thus suitable representation of academic universities. This gave credibility to this study as the researcher made as many call backs

as possible to ensure completeness of responses and improved on response rate. Probing was used as a tool to ensure correct responses as fairly large number of questions in the questionnaires were closed- ended

3.7.3 Validity

Kothari (2011) describes validity as the extent to which difference found with a measuring instrument reflects true difference among those being tested. In this case, the researcher was concerned with how accurate the data obtained in the study represented the variables of the study. If the data was truly reflecting the variable, the inference based on such data was accurate and meaningful. To ascertain validity of the research instruments the researcher consulted experts in coding and data analysis. The experts inputs were incorporated during administration to the actual respondents aimed at by the study.

The researcher carried out document reviews on the subject study, so as to compare gathered information with information from the literature. Reading extensively in the study area also ensured that the researcher acquired valuable knowledge that enabled her to develop valid data collection instruments to suit the study.

3.8 Data Collection Procedures

The data was collected by use of a semi-structured questionnaire .The closed-ended questions were used to test the rating of various attributes and this helped in reducing the number of related responses in order to obtain more varied responses. To ensure that there was no delay; the researcher made appointment with respective target respondents. This was done at their own convenient time so that the respondents could concentrate more and give accurate information. During the study, the researcher endeavoured to -

create a conducive environment of communication by avoiding personalized questions. The researcher and the research assistant explained the purpose of the study and the significance of the target respondents.

Each item was developed to address a specific objective and answer the research questions of study. The closed ended questions were used. Likert scale of 1 to 5 (Matrix type of question) was used to test the various levels of responses. The questionnaires were self- administered that is, the respondents were asked to complete the questionnaires and send them back to the researcher. The data gathered included both qualitative and quantitative data from both primary and secondary sources, primary sources involved direct description of any occurrences as observed by the researcher through the questionnaires. Secondary data was collected for this study from various sources like the list of undergraduate students from the Registrar's office and other related materials such as periodicals, journals, magazines. This data was useful for generating additional information for the study from already documented data or available reports.

3.9 Data Analysis

The process of data analysis involves making sense out of text and image data (Cresswell, 2011:183). It forms a crucial part of any research as it allows significant points and data patterns to be analyzed upon which a researcher can make concrete arguments and draw valid conclusions. Data analysis is the whole process, which starts immediately after data collection and ends at the point of interpretation and processing of data. Before processing the responses, the completed questionnaires were counter checked for completeness and consistency. The quantitative data collected was analyzed using descriptive statistics via Statistical Package for Social Sciences (SPSS) Version 21

and presented through percentages, means, standard deviations and frequencies in tables, pie charts and graphs (bar and column). While qualitative data was analyzed through identification of common themes from the responses and assigning them codes before analyzing using descriptive statistics.

The identified common themes were used to foster arguments, discussions on observations made from responses contained in the filled-out questionnaires.The data was done by tallying up responses, computing percentages of variations in response as well as describing and interpreting the data in line with the study objectives and assumptions through use of SPSS to communicate research findings.

3.10 Ethical Considerations

Before setting on to collect the data, a letter of introduction was obtained from the Department of library and information science, University of Nairobi for identification purposes.The researcher ensured that the information given by the respondents was treated in complete confidentiality for the purpose of the research study only. The researcher was open and honest in dealing with other researchers and research subjects therefore the researcher would not in any way change the agreement without the subject consent. The researcher explained the purpose of the research in advance. The researcher also let the respondents to voluntarily respond to the research instrument according to (Kombo and Tromp, 2006). By this the researcher achieved the aim of the study by guarding against manipulating respondents or treating them as objects or numbers rather than individual human beings which enhanced cooperation from the respondents.

3.11 Chapter Summary

This chapter highlighted the research methodology that was used in carrying out the study, the methods and instruments of data collection, data analysis and ethical considerations.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis, results and discussions of the study. It begins by describing demographic characteristics of the respondents and thereafter, the results and discussions corresponding to the study objectives are presented.

4.2 Response Rate of Respondents

The study targeted a total population of 320 respondents 190 from TUK and 130 from CUEA. From the total population, the researcher distributed 190 questionnaires to TUK where 159 were responded to and returned while 31 were missing. From the total population, the researcher distributed 130 questionnaires to CUEA whereby 102 were completely filled and returned while 28 were missing. In general the overall filled questionnaires were 261 with a response rate of 81.56% which is deemed adequate for analysis. The response rate is as demonstrated in Table 4.1 on page 50.

Table 4.1: Response Rate of Respondents

ORGANIZATION	DISTRIBUTED	RETURNED	PERCENT %
TUK	190	159	83.68
CUEA	130	102	78.46
TOTAL	**320**	**261**	**81.56**

4.3 Background Information of Respondents

The study inquired to look at the demographic details of the respondents in terms of name of the university, age, sex of the respondent, year of study and student status (part-time or full-time). This information was necessary in gaining insight on the answers given in relation to the study and helped differentiate from which specific university the respondents were from as the respondents differed in their experience of use and opinion of e-books in the universities.

4.3.1 Age of the Respondents

The study established that majority of the respondents were of between ages 18-24 years (72.8%) which may be attributed to the age that most undergraduate students join universities. Those between 25-31, 32-36, 37-41 and 42-46 were 14.6%, 8.4%, 3.8% and 0.4% respectively as shown in Figure 4.1 pg 51.

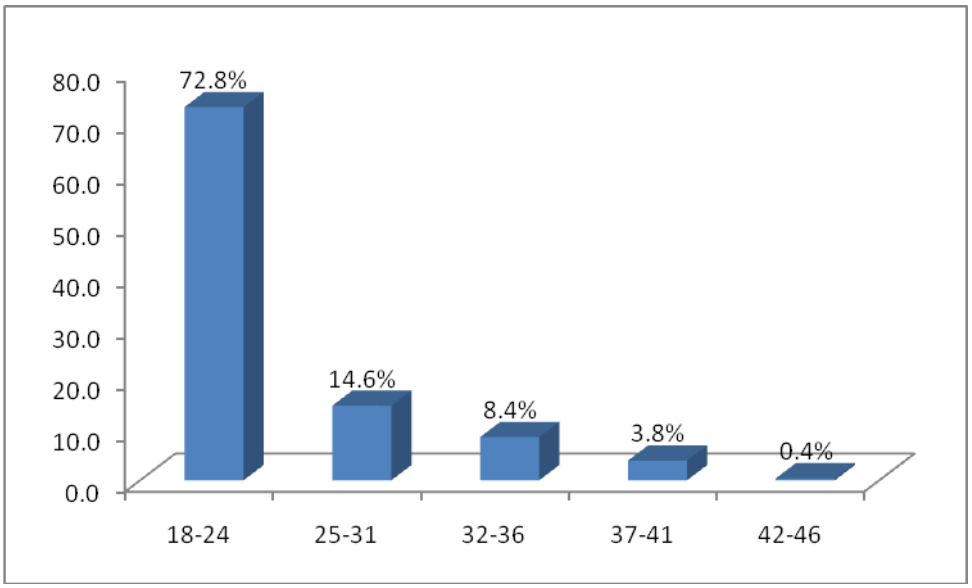

Figure 4.1: Age of the Respondents

4.3.2 Sex of the Respondents

Majority of the respondents in the study were female. From the total number of respondents, male respondents were 49% while female respondents were 51%. This illustrates that the disparity between male and female in the two select universities is narrowly close and no inclination is geared towards either gender. This is as shown in Figure 4.2 pg 52.

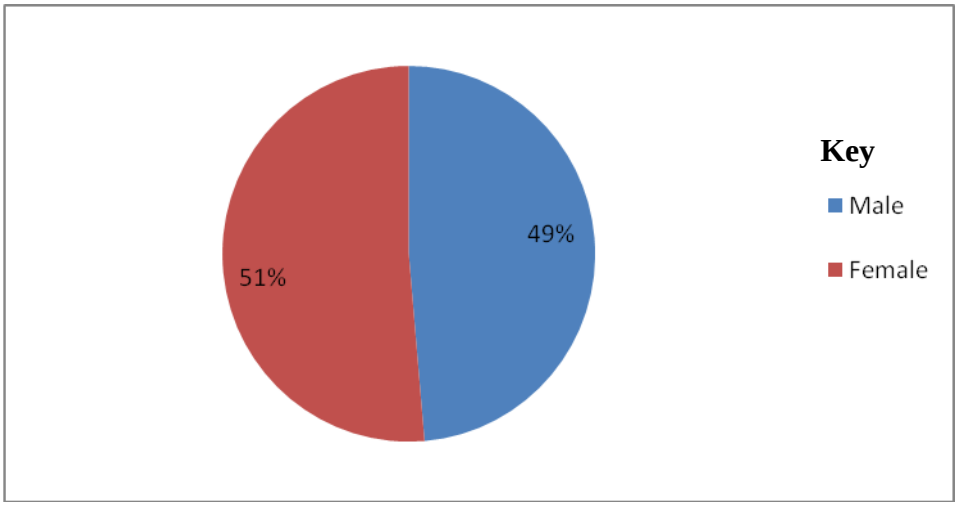

Figure 4.2: Sex of the Respondents

4.3.3 Year of Study

In line with the year of study of the two select universities, majority of the respondents from TUK were second years (94) while third and fourth years were 43 and 22 respectively. First year students did not participate in the study as they had not undergone information literacy which includes discussions on use of e-books in the library. CUEA on the other hand noted a high response rate from 2nd years (38) followed by 3rd years (33), 1st years (16) and 4th years (15). This raises the likelihood advantage that data was obtained from students who had exposure to information literacy initiatives that have incorporated the use of e-books in their respective university libraries, which placed them at a prime position to express their views and opinions regarding the libraries' accessibility and use of e-books. The results are illustrated in table 4.2 pg 53.

Table 4.2: Year of Study

YEAR OF STUDY	TUK	CUEA	TOTAL
1st year	0	16	16
2nd year	94	38	132
3rd year	43	33	76
4th year	22	15	37
TOTAL	**159**	**102**	**261**

4.3.4 Student Status

The study also sought to find out the status of the respondents whether part time or fulltime. The study established that most respondents were full time (76%)which reflects the nature of university scenario for undergraduates who most of them pursue their studies fully without having jobs while minority were part time (24%). The findings are illustrated in figure 4.2 pg 52.

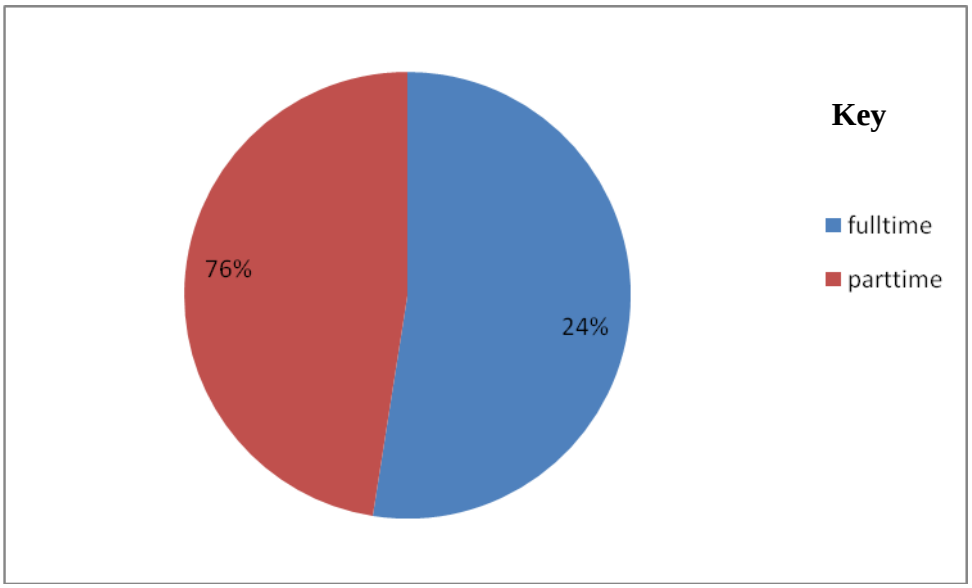

Figure 4.3: Student Status

4.4 E-Book Awareness and Availability

4.4.1 Extent of Availability of E-books

The respondents were asked to rank the level of awareness of availability of e-books in the library using a likert scale, the findings revealed that both universities (TUK and CUEA) students were aware of the availability of e-books in the library. Variations arose whereby students from CUEA 46 (45.09%) seemed to have great awareness on the availability of e-books in the library unlike students from TUK 29 (18.23%). In general students from CUEA had more awareness of availability of e-books in the library than TUK as shown in Table 4.3 pg 55.

Table 4.3: Extent of Availability of E-books

UNIVERSITY	NO EXTENT	LITTLE EXTENT	MODERATE EXTENT	GREAT EXTENT	VERY GREAT EXTENT	TOTAL
TUK	0	42	82	29	6	**159**
CUEA	0	8	30	46	18	**102**
TOTAL	**0**	**50**	**112**	**75**	**24**	**261**

4.4.2 Awareness of Availability of E-books

Rather than mere awareness of availability of e-books in the library, the respondents were further asked to note the level of agreement on the availability of e-books using a likert scale. The first statement was to check whether e-books were integrated into the library catalogue, the findings noted that students from CUEA (mean=3.97), were more inclined to the knowledge of e-books being integrated in the catalogue allowing learners to access recommended readings unlike students from TUK (mean=2.98). Students from TUK noted to a great extent that library provides brochures listing e-books available for students (mean=3.10) which was followed closely by CUEA (mean=3.94) implying that both institutions provide brochures to the students. Students from CUEA (mean=3.94) and TUK (mean=3.42) at the same level also noted at a moderate level that the librarians provide both students and faculty access to e-books to support learning. The most agreed upon response to a great extent by both institutions was that most common reason for e-book use is educational, CUEA (mean= 4.30) and TUK (mean=3.75). Students from CUEA (mean=3.55) to a great extent noted lack of awareness on availability of e-books leads to underutilization of the resources unlike TUK students (mean=2.74) who to a

moderate level noted lack of awareness as a challenge in utilization of e-books in the university. The findings are as illustrated in Table 4.4 below.

Table 4.4: Extent of Awareness of Availability of E-Books

AWARENESS OF AVAILABILITY OF E-BOOKS	MEAN TUK	MEAN CUEA	MEAN TUK AND CUEA
E-books are Integrated into the Catalogue	2.98	3.97	3.37
Library Provides Brochures Listing E-books Available for Students	3.10	3.94	3.43
Librarian Provides Students with access to e-books course texts to support learning	3.42	3.94	3.62
Most Common Reasons for E-book Use in our University is Educational, Class work and Convenience	3.75	4.30	3.97
Due to Lack of Awareness most of our E-books in our Library Remain Underutilized	2.74	3.55	3.05

4.4.3 Support from the University Administration

The study also sought to find out the technique that can be used by the two universities to enhance usage of e-books. The findings revealed that most students from TUK advocated for e-book education, distribution and promotion (86), unlike students from CUEA (29). This implies that more of e-book education should be conducted at TUK to market use of e-books in learning and research. In CUEA the most cited response was to provide electronic devices for e-book reading (30) which was relatively a challenge proposed by TUK respondents (32). This implied that CUEA University provides adequate support in

enhancing use of e-books as compared to TUK which needs to enhance the practice. In summary the findings are illustrated in Table 4.5 below.

Table 4.5: Support to Enhance Use of E-books

SUPPORT FROM THE UNIVERSITY	TUK	CUEA	TOTAL
Arrange for Adequate Awareness Campaigns	5	20	25
Provide Electronic Devices for E-book Reading	32	30	62
E-book Education, Distribution and Promotion	86	29	115
Ensure high Speed & Reliable Internet Accessibility	33	26	59
TOTAL	**156**	**105**	**261**

4.5 Accessibility and Usability of E-books

4.5.1 Extent of Usage of E-books

The study also sought to find out the level of student usage of e-books in the library. The study established that students from both universities use e-books with no extent of usage mentioned. This implies that all the students use e-books with variations. Students from TUK noted a high level of moderate usage of e-books 76 (47.79%) while students from CUEA 40 (39.22%) noted a great extent of usage of e-books. Little extent was represented by 12 (7.55%) from TUK and 6(5.88%) from CUEA. Summary of the findings are shown in Table 4.6 pg 58.

Table 4.6: Extent of E-book Usability

EXTENT OF USE	TUK		CUEA	
	Frequency	Percent	Frequency	Percent
Very Great Extent	27	16.98	21	20.58
Great Extent	44	27.67	40	39.22
Moderate Extent	76	47.79	35	34.31
Little Extent	12	7.55	6	5.88
No Extent	0	0	0	0
TOTAL	**159**	**100**	**102**	**100**

4.5.2 Accessibility and Utilization of E-books

In finding the level of accessibility and utilization of e-books by students at the selected universities, the study used a likert scale of 5 to establish the extent of agreement and disagreement with the statements. The study established that CUEA library leads in library automation (mean=4.43) and broadband connectivity (mean=4.04) in regard to accessibility and usability of e-books. TUK on the other hand leads in providing access to students to read for longer periods (mean=3.23) this may be attributed to the fact that in TUK remote access to e-books is not provided hence students have to make maximum use of the hot spots within the institution so as to access e-books. The latter is not the case in CUEA as students have access to e-book portals even outside the university (mean=3.95) which could be attributed to the findings that many students prefer the use of e-books as opposed to print materials in CUEA (mean=3.72) unlike in TUK (mean= 3.05). In general the most agreed upon response by the two universities was that both libraries are automated and have adequate print and electronic materials (mean=3.65). The findings are illustrated in Table 4.7 pg 59.

Table 4.7: Level of Accessibility and Utilization of E-books

ACCESSIBILITY AND UTILIZATION OF E-BOOKS	TUK MEAN	CUEA MEAN	TUK AND CUEA
Library has been Automated and has Adequate Print and E-book Materials	3.14	4.43	3.65
Most Students in the University Prefer Using E-books as Opposed to Print Materials	3.05	3.72	3.31
Students Use E-books in the library with comfort and Ease for Reading for Long Periods	3.23	3.87	3.31
Broadband connectivity in the Library is strong and hence Enhances the Use of E-books by students	2.94	4.04	3.29
Library Provides Access to E-book Portals even out of the Library	2.81	3.95	3.51

4.6 Factors that Influence E-book Usage

4.6.1 Factors Influencing E-book Usage in the Two Universities

The study also looked at the factors that influence e-book usage in the selected university libraries. The study established that ability to work from any location (33.3%) and access to more readings (30.8%) lead in CUEA and TUK respectively. The least noted factor was access to more reading in CUEA (12.7%) and the availability of e-books in TUK (8.2%). In general the ability to work from any location was the most agreed upon factor that influence e-book usage by both institutions (29.9%) and the least cited one was easy access (12.6%). The findings are illustrated in Table 4.8 pg 60.

Table 4.8: Factors Influencing E-book Usage

FACTORS	TUK PERCENT	CUEA PERCENT	TUK AND CUEA
Easy Access Through Keyword Searches	10.7	15.7	12.6
The Availability of E-books 24hours a day/7days a week	8.2	21.6	13.4
Ability to Work from Any Location	27.7	33.3	29.9
Save Time in Information Searches	22.6	16.7	20.3
Access to More Readings	30.8	12.7	23.8
TOTAL	100.0	100.0	100.0

4.6.1.2 Factors in Support of E-book Usage in the University

The study also sought to find out the factors that support e-book usage in the universities selected. The findings revealed that respondents from CUEA noted the ability to share notes with other users (mean=4.21), high portability (mean=4.19), increased levels of usage in the newer generation (mean=4.18) and increased accessibility to e-books at any time (mean=4.12) as factors that support e-book usage by the students. On the other hand TUK noted a moderate extent of increased accessibility at any time (mean=3.53), content available in both audio and visual (mean=3.52), use of internet gaining popularity (mean=3.48) and high portability (mean=3.23) as factors that support usage of e-books. Ability to share notes (mean=2.96) and the content being available in audio and visual format (mean=3.90) were the least cited response in TUK and CUEA respectively. In general increased accessibility of e-books at any time for convenience (mean=3.76) was

the most supported factor by both universities. The findings are shown in Table 4.9 below.

Table 4.9: Factors in Support of E-book Usage

FACTORS	MEAN TUK	MEAN CUEA	MEAN TUK AND CUEA
Usage of e-books is Continually Gaining Popularity, Especially Among this Newer Generation of Students	3.48	4.18	3.75
Increased Accessibility of E-books at Any time for Convenience	3.53	4.12	3.76
Portability is High, Ability to Read Multiple Books on a Single Device	3.23	4.19	3.60
The Content Available both Audio and Visual	3.52	3.90	3.67
Ability to Share Notes with Other Users	2.96	4.21	3.45

4.7 Challenges and Risks of E-book Usage

4.7.1 Challenges that Hinder Access of E-books

The study also looked at the challenges that hinder access and use of e-books in the university libraries. The study established that inadequate number of computers (40.9%) was the most noted challenge in TUK while downloads can be slow and difficult was the most cited response in CUEA (36.3%). Limited selection of e-books available was both the least cited challenge by both institutions CUEA (14.7%) and TUK (7.5%). In general downloads can be slow and difficult (37.5%) was the most cited challenge in both

institutions while limited selection of e-books available was the least (10.4%). The findings are as shown in Table 4.10 below.

Table 4.10: Challenges that Hinder Access of E-books

CHALLENGES	TUK PERCENT	CUEA PERCENT	TUK AND CUEA PERCENT
Limited Selection of E-books Available	7.5	14.7	10.4
Internet and Data Problem	13.2	27.5	18.0
Downloads can be Difficult and Slow	38.4	36.3	37.5
Inadequate number of Computers/Mobile Reading Devices	40.9	23.5	34.1
TOTAL	**100**	**100**	**100.0**

4.7.2 Possible Solutions

The study sought to find out the possible solutions to the identified challenges. The study established that provision of adequate computers was the most agreed upon response by both universities CUEA (37.3%) and TUK (40.9%). Ensuring there was high speed and reliable internet accessibility was also supported by both universities with TUK (39.0%) leading and CUEA (29.4%). Arranging for adequate awareness campaigns was the least cited solution TUK (8.2%) and CUEA (11.8%). In general, provision of adequate computers was the most agreed upon solution to be implemented in both universities (39.5%). The results are shown in Table 4.11 pg 63.

Table 4.11: Possible Solutions

SOLUTIONS	TUK PERCENT	CUEA PERCENT	TUK AND CUEA PERCENT
Arrange for Adequate Awareness Campaigns	8.2	11.8	9.6
Adequate Teaching on Utilization of E-books	11.9	21.6	15.7
Ensure there is High Speed and Reliable Internet Accessibility	39.0	29.4	35.2
Provision of Adequate Computers/Mobile Devices	40.9	37.3	39.5
TOTAL	**100**	**100**	**100.0**

4.8 Chapter Summary

This chapter has presented and analyzed data collected from the study. The findings are further discussed in relation to the objectives of the study. The next chapter discusses the findings giving the summary, conclusion and recommendations.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of the study discussed in chapter four. Conclusion is drawn and recommendations made. The aim of the study was to analyze the growth in use of e-books among undergraduate students in two academic libraries of Catholic University of Eastern Africa and Technical University of Kenya.

Objectives of the Study were to:

1. Determine the level of awareness of the availability of e-books among the undergraduates in the two selected libraries.
2. Establish the level of accessibility of e-books by the undergraduate students in the two selected university libraries.
3. Examine the factors that influence utilization of e-books in the two selected university libraries.
4. Establish challenges experienced by the users while accessing e-books in the two academic libraries.
5. Find out the possible solutions to address the challenges faced by the users in accessing e-books in the two academic libraries

5.2 Summary of the Findings

This study compared the penetration of e-books to selected end-users who in this case were undergraduate students and the usage characteristics for two differently constituted libraries in Kenya. The attempt harmonized the factors and reasons promoting the growth

in use of e-books by undergraduates; with the resultant patterns of e-books usage and then gauged their level of usage comparatively in the two academic libraries.

5.2.1 Demographic Information of the Respondents

The study generated demographic details of the respondents in terms of name of the university, age, sex of the respondent, year of study and student status (part-time or full-time). This was necessary to categorize the response according to the university so as to highlight the differences and similarities in the selected universities. Age determined the suitability of the respondent in giving opinions to the study. The study revealed that most students who participated in the study were between the ages of 18-24 which shows the university admission age as shown in Figure 4.1 pg 51.

The respondents' gender was also important to find out the gender disparities in the two universities with the study establishing that the gender of the respondents was more of female at 51% than male at 49% showing a gender balance in admission of students at the universities. This is shown in figure 4.2 pg 52. Majority of the respondents were also fulltime students, a possible implication that most undergraduate students pursue their studies fully without other work commitments as shown in figure 4.3 pg 54. This was necessary as it enabled the study to gain information from students who spend most of the time at the university.

5.2.2 E-Book Awareness

The first objective was to determine the level of awareness of the availability of e-books among the undergraduates in the two selected libraries. The study findings revealed that most students were aware of the availability of e-books in the library. This was

supported from the literature review where it is evident that libraries have consistently improved the availability of academic or educational collections through e-books in the recent past in Kenyan academic libraries. Hence awareness of e-books is greatly known to students in the two select universities as shown in table 4.3 pg 55. The respondents from CUEA were more inclined to the knowledge of e-books as their information literacy programme was carried out as soon as they reported and also due to the fact that the e-books were integrated in the catalogue allowing learners to access recommended readings unlike students from TUK, this may be attributed to the fact that TUK students do not have access to e-books away from the university hence limited hours of usage as shown in table 4.4 pg 56. This supports JISC (2012) from the literature review who presents the importance of e-books being integrated into the catalogues as this offers the students library resources at a time and place to suit them through an online interface allowing learners to access recommended reading and texts from any location using an Internet-connected computer or mobile device. Information literacy sessions are done repeatedly in CUEA unlike TUK where it is done once when students are first years.

The study further revealed that e-book education, distribution and promotion should be intensively conducted in TUK unlike in CUEA to enhance usage. Provision of electronic devices for e-book reading was also proposed by both universities as this will ensure that the population of students gets access to computers or mobile devices at any time of the day, the findings are illustrated in table 4.5 pg 57. It is noted that despite CUEA having many computers students still queue as they wait to use the computers.

5.2.3 Accessibility and Usability of E-books

The second objective of the study was to establish the level of accessibility of e-books by the undergraduate students in the two selected university libraries. The findings revealed that students from both universities use e-books with no extent of usage mentioned. This implies that all the students use e-books with variation to the extent of use. Summary of the findings are shown in Table 4.6 pg 58. The study further established that CUEA library leads in library automation and broadband connectivity in regard to accessibility and usability of e-books as shown in Table 4.7 pg 59.

5.2.4 Factors that Influence E-Book Usage

The third objective of the study was to examine the factors that influence utilization of e-books in the two selected university libraries. The study established that ability to work from any location and access to reading lead in the two select universities as shown in Table 4.8 pg 60.The study also revealed that CUEA noted the ability to share notes with other users, high portability and continual usage of e-books in the newer generation and increased accessibility to e-books at any time as factors that support e-book usage by the students. On the other hand TUK noted a moderate extent of increased accessibility at any time, content available in both audio and visual, use of e-book gaining popularity and high portability as factors that support usage of e-books. Ability to share notes and the content being available in audio and visual format was the least cited response as shown in Table 4.9 pg 61. The literature review noted the issue of students adopting e-book as learning tools as very crucial especially to the newer generation of students. However, it is more surprising to note that even while the internet is continually gaining popularity,

the usage of e-books especially among this newer generation of students is still very slow (Anuradha & Usha, 2006) and this is shown in the study too.

5.2.5 Challenges and Risks of E-book Usage

The fourth objective of the study was to establish challenges experienced by the users while accessing e-books in the two academic libraries. The study noted that inadequate computers/mobile devices for accessing e-books was the most noted challenge in TUK this may be attributed to the budget allocation whereby most of the Kenyan universities especially the newly created ones like the Technical University of Kenya still grapple with issues of lack of adequate budgetary allocations that would enable investment in proper e-book collection size, quality, accessibility, usability, and reliability for their students as compared to their private counterparts like Catholic University of Eastern Africa.

While downloads can be slow and difficult was the most cited response in CUEA, as shown in Table 4.10 pg 62.The literature review noted that e-book readers require continual access to the Internet that gives vendor's permanent control over the content that has been downloaded to users' devices. Low bandwidth and power supply was also cited as causing disruptions to users while accessing the e-books.

5.2.6 Possible Solutions

The study established that provision of adequate computers/mobile devices was the most agreed upon response by both universities. Ensuring there was high speed and reliable internet accessibility was also supported by both universities with TUK leading and CUEA following. Arranging for adequate awareness campaigns was the least cited

solution in both TUK and CUEA. From the Literature review, Anarudha and Asha (2006) noted that the use of e-books appeared to be very low, indicating a requirement for creating awareness and user education about both software and hardware related to e-books as shown in Table 4.11 on pg 63.

5.3 Conclusion

The study indicates that it is widely expected that a great deal of scholarly communication will move to electronic format. The wider review and the findings in this study proves that much information is definitely digitized and openly accessible round the clock to the world; therefore faculty staff and researchers need to build their capacity towards using more technology to facilitate online learning and sharing of information resources for reasons of cost and time. This is why it was the objective of this study to determine the limitations and potentials that exist for the target population and for the library professionals in this study.

Also, the universities will need to develop strategies for raising awareness of all types of e-books and to standardize e-book protocols since many graduate students were found to be heavy and cyclical users of web resources while undergraduates and high school students are likely to turn first to the web for research but will change their behaviours when given a specific assignment or asked to use a particular resource (Tenopir, 2003). Therefore service-user perceptions, such as those targeted in this study, as well as the user and usage characteristics of e-books are important for the university libraries, as they have to be kept abreast of user information needs and emerging information technologies (Wawire and Messah, 2010:153)

5.4 Recommendations

5.4.1 Provision of Adequate Computer/Mobile Devices

Adequate computer and mobile devices are crucial tools that aid in usage of e-books in institutions. University libraries should ensure that students get access to computers and reading devices at the time of use. This will aid in steady growth in utilization of e-books hence making use of resources provided by the university in learning and research.

5.4.2 High Speed and Reliable Internet Accessibility

The internet has revolutionized modern society with its effects being felt in all sectors. Institutions should therefore install powerful fibre cables and wi-fi so as to ensure high speed and reliable internet connectivity for accessing e-books. This will reduce the challenge of slow downloads and increase the ability of students to share notes with one another easily. For accessibility purposes, e-books should exist in an accessible format; they should be reliable and relevant in meeting the individual's needs. Hence, for libraries to play a key role in information dissemination, librarians must develop comprehensive and effective formal information management strategies and procedures of their own. There is need for access and availability of e-books to be effectively managed and it is important for it to be on hand to those who need it wherever/whenever they require it.

5.4.3 Arrangement for Adequate Awareness Campaigns

Academic institutions through the aid of the librarian should first understand who their students are and what they want in order to provide appropriate e-books to the users. In this case, the librarians need to carry out needs assessment survey so that they know what e-books would be relevant. Librarians should not make assumption that e-books that have

been beneficial to the previous users would also be relevant to the new students. As the curriculum changes and so may the information differ and hence suitable information needed to fulfill the user's needs and promote usability of e-books. Apart from knowing the user's needs, institutions also require to develop a strategy for raising awareness of all types of e-books and developing information literacy. Adequate campaigns will enhance usability of the available e-books in the library portal and ensure that students are aware and able to utilize the resources to the maximum. This will also ensure that students are taught on possible ways to download and save the document for further reading. This can be done by incorporating e-books usage into the curriculum of the undergraduate students. The teaching staff should also be encouraged to engage more actively in pointing out to students the range of quality free and paid for e-book content that is available.

5.5 Suggestions for Further Research

The following suggestions are made for further research:

i) Adequate Awareness Campaigns among Students

This study only looked at the growth in use of e-books with reference to two academic libraries in Kenya, with data drawn from undergraduate students. The choice of these two universities was deemed appropriate by virtue of their having subscribed to KLISC for e-books and their prominence in university level of education. This study should therefore be replicated in other universities in future since it emerges from this study that e-books do provide opportunities to increase library usage. Studies should also be done on awareness techniques to enhance usage of e-books among students. Another study should

be the levels of awareness of the staff on usability of e-books so as to ensure that efficient and immediate services are rendered to the students/users.

ii) Incorporate Information Literacy Program into the Curriculum

Universities should incorporate information literacy programs into the curriculum and ensure it is fully examinable and mandatory. This will enhance growth in use of e-books since students will pursue the program with keen interest unlike when it is just taught for general use of the library. This relates to findings of Polanka (2011:85) that the most effective way to promote the use of e-books is to incorporate them into the library's information literacy initiatives, discussing them alongside print books as another valuable tool in one's research repertoire.

5.6 Chapter Summary

This chapter has highlighted key findings in the study according to the objectives, given a summary of the conclusion, recommendations and suggestions for further research.

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APPENDIX I: INTRODUCTION LETTER

Joyce A. Nyambala,
P.O BOX 62887-00200
Nairobi- Kenya,
Email:Joylos@yahoo.co.uk

28th August 2015

Dear Respondent,

RE: INTRODUCTION LETTER

I am a student at University of Nairobi pursuing a Masters Degree in Library and Information Science. I am currently undertaking a research project on "Growth in use of e-books collection among undergraduate students in two academic libraries in Kenya". The objectives of the study will include: Determine the level of awareness of the undergraduate students of the available e-books in the two libraries; Establish the level of accessibility of e-books by the undergraduate students in the TUK University library and CUEA library;Identify the factors that influence utilization of e-books usage; Establish challenges experienced by the users in accessing the e-books in the two academic libraries; Suggest the possible solutions to address the challenges faced by the users in accessing the e-books in the two academic libraries.

The purpose of this questionnaire is to collect data that will be used for academic purposes only. This is to request for your assistance in conducting this research by answering all the questions in this questionnaire. The data you give shall be treated as confidential. Your assistance will be highly appreciated.

Yours sincerely,

Joyce. A. Nyambala
Registration Number C54/71890/2014

APPENDIX II: TRANSMITAL LETTER

UNIVERSITY OF NAIROBI

FACULTY OF ARTS

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE (DLIS)

Telephone: +254 20 318262, Ext. 28095
Telegram: Varsity
Fax: +254 20 2245566

P.O. Box 30197- 00100 GPO
Nairobi, Kenya.
dnjiraine@uonbi.ac.ke

Our Ref: UON/CHSS/DLIS/303 **10th SEPT, 2015**

To whom it may concern

Dear Sir/Madam,

SUBJECT: RE: NYAMBALA, JOYCE APONDI REG NO: C54/71890/2014

The above-named is undertaking master in Library and Information Science (MLIS) in our Department. She is currently undertaking her research project and has already embarked on her research which is a partial fulfillment in the programme.

Her research topic is *"Growth in use of E-Books Collection among Undergraduate Students in two Academic Libraries in Kenya"*

Any assistance accorded to her will be appreciated.

Received Nyambala 12/11/2015

UNIVERSITY LIBRARIAN
TECHNICAL UNIVERSITY
OF KENYA

THE CATHOLIC UNIVERSITY OF EASTERN AFRICA
OFFICE OF THE UNIVERSITY LIBRARIAN
12 NOV 2015
P. O. Box 62157 - 00200, NAIROBI.

For. Dr. Dorothy Njiraine
Ag. Chairperson
Department of Library & Information Sciences (DLIS)

APPENDIX III: QUESTIONNAIRE FOR UNDERGRADUATE STUDENTS

INSTRUCTIONS

Please indicate your response by ticking (√) the provided boxes. For questions that require suggestions or comments, please use the provided space.

Background Information

1. Name of the University ----------

2. Age of the respondent:

   a) 18-24 years [ ]
   b) 25 to 31 years [ ]
   c) 32 to 36 years [ ]
   d) 37 to 41 years [ ]
   e) 42 to 46 years [ ]
   f) Above 46 years [ ]

3. Sex:

   a) Male [ ]
   b) Female [ ]

4. Year of study:

   a) 1st Year [ ]
   b) 2nd Year [ ]
   c) 3rd Year [ ]
   d) 4th Year [ ]

5. Student status:

   a) Fulltime [ ]
   b) Part time [ ]

E-Books Awareness

6. Rank the extent to which you are aware of the availability of e-books in the library using the scale of 5 = Very Great Extent, 4 = Great Extent, 3 = Moderate Extent, 2 = Little Extent and 1 = No extent.

Very great extent	[ ]
Great extent	[ ]
Moderate extent	[ ]
Little extent	[ ]
No extent	[ ]

7. Indicate your level of agreement with the following statements in relation to awareness of the availability of e-books in your university library. Use the scale of 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree,

AWARENESS OF THE AVAILABILITY OF E-BOOKS	**1**	**2**	**3**	**4**	**5**
E-books are integrated into the catalogue, which offers the opportunities to know the library resources through online interface allowing learners to access recommended reading and texts.					
Library provides brochures listing e-books available for students.					
Librarian provides both students and faculty with access to e-book course texts to support the studies.					
Most common reasons for e-books use in our university is educational, class work and convenience.					
Due to lack of awareness most of the e-books in our university library remain underutilized.					

8. Select the issue and support that the university administration can do to enhance e-books usage in your university library?

   a) Arrange for adequate awareness campaigns [ ]
   b) Provide electronic devices for e-book reading [ ]
   c) E-book education, distribution and promotion [ ]
   d) Ensure there is high speed internet accessibility [ ]
   e) Any other_____

Accessibility and Usability of E-books

9. Indicate the extent to which you use e-book collections in the library using the scale of 5 = Very Great Extent, 4 = Great Extent, 3 = Moderate Extent, 2= Little Extent and 1 = No Extent.

Very great extent	[ ]
Great extent	[ ]
Moderate extent	[ ]
Little extent	[ ]
No extent	[ ]

10. Indicate the level of agreement with the following statements regarding accessibility and utilization of e-books by students in the university library while using the scale of 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree.

ACCESSIBILITY AND UTILIZATION OF E-BOOKS	**1**	**2**	**3**	**4**	**5**
Library has been automated and has adequate print and e-book materials					
Most students in the university prefer using e-books as opposed to print materials					
Students use e-books in the library with comfort and ease for reading for long periods					
The broadband connectivity in the library is strong and hence enhances the use of e-books by students.					
Library provide access to e-book portals even out of the university					

Factors that Influence E-Book Usage

11. Highlight the factors that influence e-book usage in the university library from the list below.

    a) Easy access through keyword searches [ ]
    b) The availability of e-books 24hours a day/7days a week [ ]
    c) Ability to work from any location [ ]
    d) Saves time in information searches [ ]
    e) Access to more readings [ ]

12. Indicate the level of agreement with the following statements relating to factors that influence e-book usage in the university, using the scale of; 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree.

FACTORS THAT INFLUENCE E-BOOK USAGE	**1**	**2**	**3**	**4**	**5**
Use of internet and hence e-books is continually gaining popularity, especially among this newer generation of students					
Increased accessibility of e-books at any time for convenience					
Portability is high, ability to read multiple books on a single device.					
The content is available both audio and visual					
Ability to share notes with other users					

Challenges and Risks of E-book Usage

13. Indicate the possible challenges and risks that hinder access and use of e-book in the university library.

    a) limited selection of e-books available [ ]
    b) Internet and data problem [ ]
    c) Downloads can be difficult and slow [ ]
    d) Inadequate computers/mobile reading devices [ ]
    e) Any other_____

14. Select the possible solutions to the challenges identified above from the list below.

a) Arrangement for adequate awareness campaigns [ ]
b) Adequate teaching on utilization of e-books [ ]
c) Ensure there is high speed internet accessibility [ ]
d) Provision of adequate computers/mobile devices [ ]
e) Any other_____