

**THE UTILIZATION OF eBOOKS IN MEDICAL SCIENCES' GRADUATE  
PROGRAMMES IN MAKERERE UNIVERSITY: THE CASE OF STUDENTS OF  
MASTERS OF MEDICINE IN INTERNAL MEDICINE AND MASTERS OF  
VETERINARY PREVENTIVE MEDICINE**

**BY**

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**A DESSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF SCIENCE  
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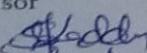
**NOVEMBER, 2018**

**Approval**

This is to certify that Ojulong Andrew registration numbers 2014/HD05/2159U has completed this research under our supervision and is ready for submission to the College of Computing and Information Sciences of Makerere University in partial fulfillment of the requirements for the award of the degree of the Master of Science in Information Science, Makerere University.

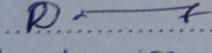
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Glory be to the Almighty God for the gift of good health, knowledge and wisdom.

## **Dedication**

Dedicated to my late mother Toto Janet Akwi Ojulong. And to my dear Dad (William Ojulong), my dear wife (Alison), my dear Son (Joash), dear Sisters (Allen, Sarah, Florence, Francy, Margie), my dear Brother (Willy), my dear Nephews and Nieces (Martha, Victor, Mary, Lazo, Vine, Vania, Ela), and to my dear in-laws (Mark, Joseph, Felix, Will) for the love, prayers, understanding and support you gave me throughout the study duration.

## **Abstract**

This study was conducted in Makerere University to examine the Utilization of eBooks in Medical Sciences' Graduate Programmes. The case study was the Masters of Medicine in Internal Medicine and the Masters of Veterinary Preventive Medicine. The study sought to investigate the accessibility, environment, perceptions and use of eBooks. While academic libraries spent huge amounts on subscriptions, there were limited studies on usage and therefore not enough information on value for money on e-resources subscription. The researcher adopted a case study design using a qualitative approach and purposive sampling technique to select the sample for the study. The methods for data collection included interviews, document review and observation.

The study established that eBooks were available at Makerere University and graduate students especially those from the medical programmes were utilizing e-resources; students were mainly motivated to utilize eBooks because of the need for current information required by medical students; postgraduates used eBooks because they were convenient to access. Factors affecting ready access were established and included: unreliable Internet, power failure, limited access devices, and inadequate training and virus infections. The study concluded that postgraduate medical students regularly utilized eBooks to satisfy their information needs especially those from Master of Medicine in Internal Medicine. The study recommended continuous investments in eBooks platforms to encourage continuous utilization; enforce internal internet usage controls in order to improve internet service quality; provide loanable e-reading devices and invest more on power backup technologies based on the framework to optimize utilization.

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## **Acronyms**

ASCII	American Standard Code for Information Interchange
CUUL	Consortium of Uganda University Libraries
DRM	Digital Rights Management
eBooks	Electronic Books
eBrary	Electronic Library
EBSCO	Elton B. Stephens Company
e-lending	Electronic Lending
ePub	Electronic Publication
e-readers	Electronic Readers
e-reading	Electronic Reading
ICT	Information Communication Technology
ILL	Inter-Library Loan
ISBN	International Standard Book Number
ITU	International Telecommunication Union
JSTOR	Journal Storage
MARC	Machine Readable Cataloging Record
OCLC	Online Computer Library Center
PCs	Personal Computers

PDA	Patron Driven Acquisitions
PDF	Portable Document Format
PwC's	PricewaterhouseCoopers
Sida	Swedish International Development Agency
SMS	Short Message Service
TAM	Technology Acceptance Model
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

## **CHAPTER ONE: INTRODUCTION TO THE STUDY**

### **1.1 Background to the Study**

Electronic Books (eBooks) according to Connaway (2003) are based on both the emulation of the basic characteristics of traditional books into electronic format that can be accessed and displayed on a computer, as well as leveraging internet technology to make eBooks easy and efficient to use. Typically eBooks refer to books composed in or converted into digital format for display on a computer screen or handheld device. They serve as critical assets for offering wider access to information in a more convenient and flexible way hence effectively aiding research and lifelong learning without the limitations of time, space, distance and physical boundaries (Brook, 2012; Carreiro, 2010; Forsman, 2012). According to Carreiro, (2010) there are distinct differences between print and eBooks. eBooks require certain components for access such as Internet as the delivery mode, e-reader devices (hardware), and the content. According to Anuradha & Usha (2006) eBooks may be enhanced with other electronic features such as embedded hyperlinks, bookmarks, annotation, text searching and the linking of complex multimedia objects and may also be of great assistance for those with disabilities.

The advancements in technology have led to subsequent transformation in library architecture, procedures and processes. To this effect, eBooks have been adopted by academic libraries. According to Gutenberg (2010) eBooks were invented in 1971 by Michael Hart, a student at the University of Illinois who later founded Project Gutenberg, the first and largest collection of free eBooks available online and accordingly the first commercial eBook was launched by Random House in 1981. However Walters (2014), observes that eBooks can be seen to have emerged way back in 1945, when Vannevar Bush proposed the Mamex, an impression of a personal computer.

After years of development efforts and high expectations, eBooks have begun to cement their place as a central part of the information experience. Research and academic libraries are gradually building their eBook collections into a valuable resource for their users. eBooks form a growing part of the collections at research and academic libraries. Although still in the early stages of adoption, eBooks have demonstrated advantages in the areas of accessibility, functionality, and cost-effectiveness. End users have continued to incorporate eBooks into their information experience and research habits. However, libraries are eager to learn more about the rate of eBook

adoption among their end users and the ways in which users are interacting with eBooks (Springer, 2009). Based on this revelations, adoption and utilization of eBooks will surely increase as demand for technologically driven services continues to grow.

According to Crowley, (2017) patron drive acquisition provides a basis for libraries to purchase books which is a very popular model among libraries owing to the fact that it certifies that the contents required are actually being used. The rise of eBooks in both commercial and academic markets not only signifies the prevalence of user preference for electronic information delivery but also has the potential to impact users' research processes. Price Waterhouse Coopers ('PwC's) analysts believe that eBooks will edge out print as the most lucrative format for publishing by 2018 (Casiddy, Martinez, & Shen, 2012). Conclusively, Chakrabarti, and Gurey (2009) observed that although eBooks are one way to enhance the digital library with global 24-hours-a-day and 7-days-a-week access to authoritative information, and enabling users to quickly retrieve and access specific research material easily and effectively the underlying challenges facing students for that matter must be dealt with.

Imperative to note is the fact that Medical students globally are presented with a potential for access and utilization of eBooks through Academic Health Sciences Libraries that have continued to expand eBooks availability and are investing into the improvement of eBook access (Shurtz, 2011). According to Folb (2011) in a bid to facilitate better information usage by Clinical Students, Medical Libraries offer electronic books and other resources that are accessible on computers and on other mobile devices. The recent prominence of electronic book readers offers a potential solution for a portable and searchable electronic library in clinical settings. However, multiple obstacles can hamper the efficient and continuous acquisition of information in the clinical setting, such as resources that are physically distant, poorly organized, or not clinically oriented.

Globally, Medical students from various Universities have utilized eBooks during their study, research and clinical trials as revealed by several studies. A joint survey of 9 medical students from Duke University Medical Center Library and Texas A&M University, Medical Sciences Library, (6/9) majority of medical students were very comfortable accessing eBooks online and rated the e-reader very easy to use. A majority of respondents found eBooks major advantages in clinical settings as being portability and the ability to search within and across books, participants also suggested additional uses for Kindle eBooks in medical education (Shurtz & Isenburg, 2011).

According to Aronsen, Johansen & Rein (2016) out of 138 student respondents of faculty of medicine from Norwegian University of Science and Technology, fairly 66% like to use eBooks to annotate and highlight texts they are working with, 43% suggest having user guides in using eBooks could have an impact, 45% suggest having better platforms and interfaces, 73 % had no or very little knowledge of functionality supporting a good study technique when using eBooks. While a majority 93% of the medical students do not use any of these functionalities.

Remarkable eBook usage have been reported at the Ohio State University Prior Health Sciences Library that offered more than 6,000 health and life sciences eBooks as of June 2010. eBooks usage increased every year driven by Core25 eBooks, an eBook promotions tool developed at the Prior Library, with the ability to link to eBook chapters via the online course management system. Out of 16 medical students who completed the questionnaire 11 (68%) reported owning a handheld device, 14 (87.5%) indicated they were aware that the library offered eBooks and 2 who were not aware of the eBook collection were both nurses (Hartel& Cheek, 2011).

According to Folb (2011) Health Sciences library users are flexible and will use either electronic or print books depending on what is most convenient or available at time of need, most importantly utilization of available eBooks is facilitated through user education. Cataloging librarians need to optimize the structure of eBook cataloging records to maximize ease of use and consider repackaging cataloging records for access through web interfaces that library users prefer.

### **The study area: College of Health Sciences and College of Veterinary Medicine, Animal Resources & Biosecurity**

The study was carried out in two case studies: Makerere University College of Health Sciences (MCHS), School of Medicine, Department of Internal Medicine and College of Veterinary Medicine, Animal Resources & Biosecurity, department of Veterinary Preventive Medicine, because these have a high numbers of specialized eBooks that can be accessible to graduate students. It should be noted that Makerere University is the oldest and the largest University in East and Central Africa that has adopted eBooks as one of the information service provisions since 2006. By December 2014, the University had a student population of 43,454 (Makerere University Annual Report, 2014). There are 22 Graduate programmes in the College of Health Sciences and only 11 in the College of Veterinary Medicine, Animal Resources & Biosecurity. The programmes of choice Masters of Internal Medicine and Masters of Veterinary Preventive Medicine were considered due to the fact that clinical settings are constantly advancing rapid diagnostic,

preventive and treatment techniques that require up-to-date and timely information that eBooks are likely to provide. In both disciplines, the training programmes follows a problem based model that is evidence oriented with universally agreed principles and practices in preventions, diagnostics, surgery and treatment options, as such students require access to the latest information to support their learning and evidence-based practice (Ahmed and Al-Reyae, 2017). It is clear that medical students are likely to be active consumers of eBooks considering the pace at which innovations constantly change these professions. Clinical practice dictates the need for access to up-to-date information, which can only be obtained through timely and up to date information sources. Amongst technologically driven Information sources required include electronic journals and eBooks.

Makerere University Library subscribes to several e-resources' databases for both e-Journals and eBooks that can be accessible to students directly over the campus network or by proxy. The Library has 9 publisher database and 2 aggregator databases paid for both Journal and eBooks access and several sponsored and open access journals and databases through various subscription arrangements covering various disciplines including medicine. The various subscription arrangements include Consortium of Uganda University Libraries (CUUL) membership, International Network for Availability of Scientific Publications (INASP) dashboard, Research4Life, Yale University Access and Sida Funds (E-resource Report, 2017). It should be noted that most of the subscription arrangements provide access to both e-Journals and eBooks although those with the predominance of eBooks for other disciplines and clinical settings include the following: eBooks via ProQuest, Springer Link and elibrary that guarantees access to multidisciplinary collection of eBooks; Access Medicine and MD Consult (Now Clinical Key) Collection of eBooks Courtesy of Yale University, Health Inter Network Access to Research Initiative (Hinari) databases courtesy of Research for Life. Other subscribed eBooks in other disciplines include: Oxford English Dictionary Online, International Law in Domestic Courts, Grove Music Online, and American National Biography, ICT and Engineering, Business and economics. Hinari provides the largest gateway database to thousands of titles in both journal articles and eBooks from several health related databases around the word.

## **1.2. Statement of the Problem**

Studies in medical sciences are constantly advancing new personalized, accurate and rapid diagnostic, preventive and treatment techniques. Therefore students need to have access to the latest information in order to support their learning and evidence-based practice (Ahmed and Al-Reyae, 2017). On average print texts in medical sciences cost between USD 60-500 (Amazon.com), yet most library budgets have dwindled (Ellison, 2015) especially for procurement of current print resources. Libraries have gone around this problem by pooling resources together in some forms of consortia and subscribing to electronic information in bulk, which can be guaranteed to be up-to-date and cheaper because of pay per consortium model thus taking advantage of economies of scale. eBooks are some of the information sources accessible through Makerere University Library, therefore like the rest of the information seekers, medical students should be able to access and utilize them to solve their critical and urgent information needs. However, since reading from print books is deeply rooted in our culture, switching from print to electronic format requires a learning curve especially for adult learners (Lau, 2008). A study by Folb, (2011) suggests that multiple obstacles can hamper the efficient and homogenous acquisition of information in the clinical setting, such as resources that are physically distant, poorly organized, or not clinically oriented. Unfortunately, there are limited studies available on eBooks utilization. Although studies by (Aronsen, Johansen & Rein, 2016), (Shurtz & Isenburg, 2011), (Hartel& Cheek, 2011), (Folb, 2011) investigated eBooks adoption and use in clinical settings and found that there was remarkable eBook adoption and usage. Those findings represented different settings, cultures and levels of technological advancement. There are almost no studies undertaken in Uganda focusing on Utilization of eBooks especially by Postgraduate medical students, which leaves more to be desired.

Furthermore, according to Shurtz (2011) medical students globally are presented with a potential for access and utilization of eBooks through Academic Health Sciences Libraries that have continued to expand eBooks availability and are investing into the improvement of eBook access. However lack of information on how eBooks are used affects Patron Driven Acquisition (PDA) where access to a collection is made available to users but the library only subscribes to databases if a satisfactory level of utilization is reached. It is a usage driven acquisition method and is popular among libraries as it demonstrates demand. Therefore the need for urgent studies on eBooks utilization in order to guide libraries on how to make eBooks a viable option and best prioritize their acquisition of budgets to provide information resources that are cost effective, relevant,

timely and easily accessible. Therefore the study wishes to examine the Utilization of eBooks in Medical Sciences' Graduate Programmes in Makerere University to close the gaps.

### **1.3 Aim**

The aim of the study was to examine the Utilization of eBooks in Medical Sciences' Graduate Programmes in Makerere University: focusing on students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine as a case study. It sought to investigate the accessibility, environment, perceptions and use of eBooks.

### **1.4 Objectives**

- 1.** To examine access and use of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University.
- 2.** To establish perceptions on access and utilization of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University.
- 3.** To establish the supporting environment of eBooks access and utilization at Makerere University.
- 4.** To propose a framework for improving eBooks access and utilization by Masters Students of Makerere University.

### **1.5 Research Questions**

- i.** How do students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University access and use eBooks?
- ii.** What are the perceptions on access and utilization of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University?
- iii.** What is the environment of eBooks access and utilization at Makerere University?
- iv.** How can utilization of eBooks be optimized at Makerere University?

### **1.6 Significance of the Study**

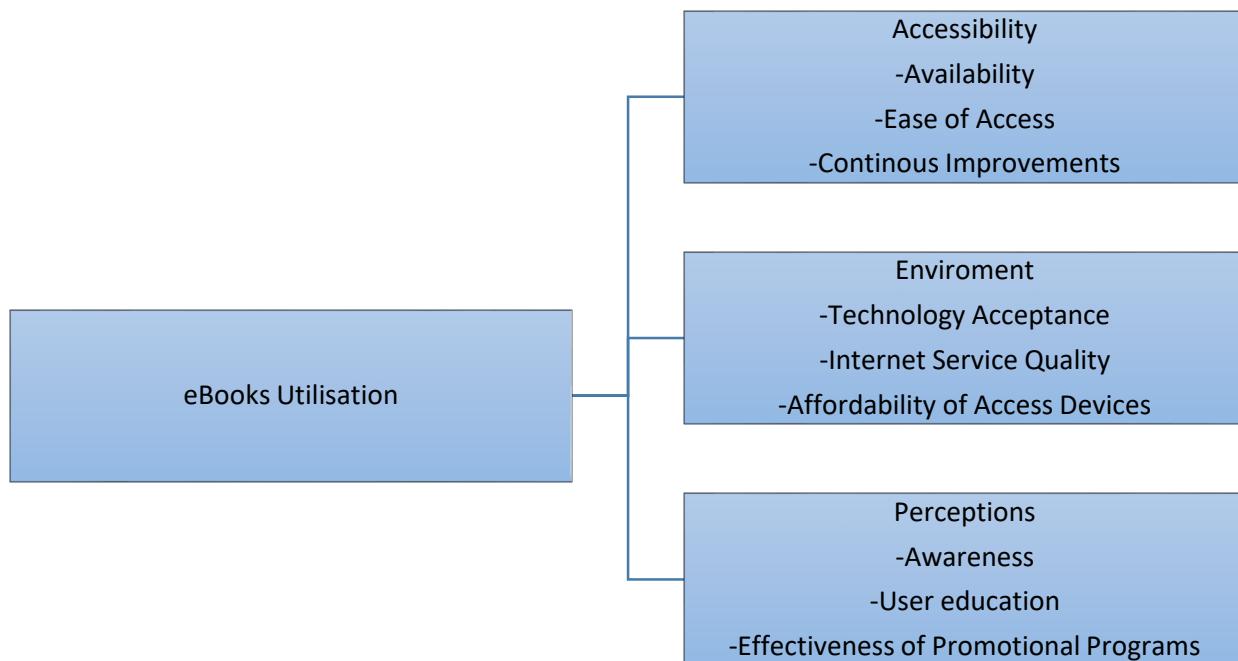
This study is expected to benefit students, researchers, information professionals and libraries.

- To Students: The study will inform students on how to access and effectively utilize eBooks.
- To researchers: The study could contribute to the body of knowledge pertaining access and utilization of eBooks.
- To Libraries: The study could provide a basis for improving the effectiveness of eBooks towards access and utilization.
- To Information Professionals/Library Administrators: The outcome of this study will equip information professionals and library administrators with new knowledge for improving the eBooks experience which will positively impact on patrons demand for eBooks.

## **1.7 Conceptual Framework**

The diagram below shows the key concepts and their relationships including the research gaps that this study sought to fill.

**Figure 1.7.1:** Conceptual Framework



**Source:** Researcher, 2018

eBooks are conceptualized as text books which are availed to users in electronic format. eBooks as textbooks in digital formats may have a print version or totally exist electronically. In an academic library environment, subscribed users can access eBooks either directly over the university network or remotely using other institutional identifiers. In addition, an eBook can be read online or downloaded onto a device's storage depending on the license and digital rights management of a particular book. In order to access and utilize eBooks there is need for one to possess access rights, access devices (such as a computer, kindle, tablet or mobile phone, e-readers such as ePub) and a reliable internet connection that is satisfactory to users. eBooks are important to graduates and more so for students in human and animal medicine because they contain current and urgent information required for both emergency and other clinical situations such as prevention, treatment, surgery and diagnostics.

In academic settings, subscription is usually aggregated through databases, where texts within a particular discipline are grouped together and indexed. eBooks are purchased in bulk through Consortia and other sponsored subscription arrangements compared to the print that a library has to procure individually at an average cost of between USD 60-USD500 per medical book (Amazon.com). Depending on the subscription, eBooks and e-Journals databases are constantly updated as and when eBooks and articles are published online and therefore users are guaranteed of current and timely information which is very vital for users in the medical fields. Subscription to these sources is dependent on Patron Driven Acquisition (PDA) where access to a collection is made available to users but the library only subscribes to databases if a satisfactory level of utilization is reached. However, with the case of Makerere University there are limited studies on student's utilization of eBooks that can be relied upon to support budget allocation and sustained eBooks acquisition.

eBooks utilization is sustained by a number of factors notably User Education, Relevant Books, Technology Acceptance, Effectiveness of promotional programmes, Ease of Access, Internet Service Quality and Affordability of Access Devices. The key study concepts that have been examined include accessibility, environment and perceptions. Problematic issues revealed in this study should provide a basis for improvements. Utilization can only take place when accessibility is achieved, the supporting environment is necessary to facilitate access and use and perceptions reveal problematic aspects.

Therefore the study aimed at examining the Utilization of eBooks in Medical Sciences' Graduate Programmes of Makerere University to close the gaps.

## **1.8 Definitions of Operational Terms**

### **eBooks**

According to Connaway, (2003) eBooks are based on both the emulation of the basic characteristics of traditional books into electronic format that can be accessed and displayed on a computer, as well as leveraging internet technology to make eBooks easy and efficient to use. Although sometimes defined as "an electronic version of a printed book", many eBooks exist without any printed equivalent. Components other than text have been considered enhancements, including multimedia (sound, images, and film/video/animated graphics).

### **Utilization**

Utilization means to put to use available resources, especially to make profitable or effective use of, the act of using. The state of having been made use of an eBook and the act of putting into play: application, employment, usage (Collins, 2016). In the study utilizations refers to ability to access, retrieve, read or download the electronic book and using it as a reference or information material to solve a critical information need in timely and efficient manner.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

Literature review is a systematic identification and analysis of documents containing information related to the research. The review was guided by objectives of the study and themes on access and utilization of eBooks. The researcher analyzed scholarly articles, and other sources relevant to particular issues of this study. Consulted works have been duly acknowledged and referenced to maintain integrity of information. Finally, a research gap is provided.

### **2.2 eBooks: Overview**

Electronic Books (eBooks) according to Connaway (2003) are based on both the emulation of the basic characteristics of traditional books into electronic format that can be accessed and displayed on a computer, as well as leveraging internet technology to make eBooks easy and efficient to use. Typically eBooks refer to books composed in or converted into digital format for display on a computer screen or handheld device. They serve as critical assets for offering wider access to information in a more convenient and flexible way hence effectively aiding research and lifelong learning without the limitations of time, space, distance and physical boundaries (Brook, 2012; Carreiro, 2010; Forsman, 2012).

The escalation in technological advancements has led to subsequent transformation in library architecture, procedures and processes. To this effect, eBooks have been adopted by academic libraries. According to Gutenberg (2010) eBooks were invented in 1971 by Michael Hart, a student at the University of Illinois. Several researchers have observed that Michael founded Project Gutenberg, the first and largest collection of free eBooks available online and have convincingly indicated that the first commercial eBook was launched by Random House in 1981. However Walters (2014), observes that eBooks can be seen to have emerged way back in 1945, when Vannevar Bush proposed the MameX, an impression of a personal computer.

Analysis by Carreiro (2010), suggested that there are distinct differences between print and eBooks. eBooks require certain components for access such as internet as the delivery mode, e-reader devices (hardware), and the content. In the same spirit, observations by Nwagwu & Okafor, (2014); Poon (2014), suggest that, eBooks possess features that include multimedia functions,

hyper-text links, portability, linking of references, ability to search full-text using keywords and cross referencing. Furthermore, Carreiro (2010) reveals that, other eBooks features include user friendly interfaces, interoperability, integration with other sources and ease of access. Summarizing these facts, internet access has made it possible for users to access numerous titles anytime, anywhere. If the benefits that eBooks bring are widely popularized there could be considerable adoption and utilization of eBooks in most academic libraries in Africa as well.

Accordingly, after years of development efforts and high expectations, eBooks are now believed to be gaining momentum as viable sources for meeting critical, current and timely information for specific individuals and groups of users. Hence research and academic libraries have taken keen interest into building their eBook collections as a valuable resource for their users. Revelations by Renner (2010) suggest that eBooks offer an ideal opportunity to increase existing collections while enhancing users' research experiences at the same time. According to Brook (2012) the scope of use and the influence of eBook readers are certain to change with the invention of the iPad and other tablets. Recent changes to Net Library (now EBSCOHost eBooks) and the entrance of JSTOR, Project Muse, and other large scientific publishers into the eBook market will also contribute toward improvement of the product as accessibility to these databases of e-books becomes a necessity.

Categorically Hao & Fan (2014) revealed that, the release of Amazon Kindle in 2007 made eBooks a viable option for creating financial gains by publishers. This led to an exponential spike in the sale of eBooks in America amounting to \$2.07 billion in 2011, accounting for 15.5% in revenue collection by publishers in comparison with hardcover and paperback books; by 2013, the sales had increased to 22.55%. According to Jin (2014), in Taiwan, the growth was slow, with only 3.5% of the total sales, (Lin, Chiou, & Huang, 2013). Korean eBook sales in 2015 were expected to increase by 9.8 per cent, with total revenue of \$4.1 billion. Global projection of eBook sales in 2015 was expected to contribute \$12.3 billion of the total book publishing revenue (Hwang, et al,2014). In Africa the adoption and use was relatively slow but there was goodwill to promote eBooks proliferation (Allen and Kaddu, 2014). As revealed, such increases can be attributed to better access, awareness and user friendly interfaces, with the introduction of features favorable by users. However, although eBooks continue to gain adoption by libraries and acceptance with some readers, their place in academic libraries is still being determined.

### **2.3 Access to eBooks and Use**

Access to eBooks and use may be hindered due to the comparative novelty of electronic production and dissemination, as such most eBook titles available to academic libraries have been made available only in the past ten years, and published only in English language. It is considerably easier for publishers to obtain electronic rights to produce "born digital" files than it is to acquire electronic rights to publish beforehand material (other than resources in the public sphere). Consequently the prevalence of eBooks as valuable information resources are those recently published (Wicht, 2011). This indicates a holdup to access and utilization of eBooks for previously published material that is mainly relevant to humanities than medical sciences that require up to date information hence eBooks find their way easily among clinical students who are likely to often access and use current clinical information provided through eBooks.

Given studies by Hwang, et al (2014); Chou (2014), it was revealed that the upsurge in eBook subscriptions, access and usage among universities in Korea was as a result of awareness among users of the existence of eBooks through the library catalogue, although the usage levels were varied. Studies on eBook usage patterns had revealed that most students used eBooks for convenience, to skim, scan and browse content, as opposed to in-depth reading. These studies point to the impact of access, awareness and utilization on users however more rich approach seems to be still required.

As reflected by Johri, et al (2014), many libraries are making concentrated efforts to provide electronic and print formats to meet diverse user access requirements. The invention of the eBook just like the print back in time has made eBooks more widely accessible, more portable, more sharable, more appropriate and less expensive. The adoption and effective utilization of eBooks faces issues relating to budgeting, acquisition, compliance, demand, access, bibliographic control and licensing.

According to Kinengyere, Kiyingi and Baziraake (2012) the electronic resources (where eBooks form a component) accessible to Makerere University health sciences disciplines by 2012 included Centre for Disease Control Access Medicine, Cochrane Library, Hinari, AIDS Line, Wiley Inter-Science, eMedicine, MD Consult (now clinical key), Ovid, Medline, Walter's Kluwer Up-To-Date and Pop line. Cambridge Journals Online and GALE were accessible via the PERii, a programmeme supported by the International Network for the Availability of Scientific

Publications (INASP). EBSCO, eBrary/ProQuest and Emerald databases were subscribed to by the Consortium of Uganda University Libraries (CUUL). Others include open access databases such as Google Scholar, World Health Organization WHO Library, Pub Med (Medline), free med journals and eBooks online. Most of these accessible databases to health sciences scholars provide access to some eBooks as well as journal articles, audio file and videos. This shows that by 2012 Makerere University Library had greatly prioritized access to e-resources and leveraged technology, today the focus on eBooks access and utilization in particular should be more emphasized. The general feeling is that with availability of several access models to a variety of electronic resources, there could be considerable awareness, access and utilization of eBooks by now.

### **2.3.1 Access and Utilisation Environment**

Access and utilization of eBooks may require access and delivery on platforms that uses technological devices such as desk top computer, laptop computer, tablet PCs, iPads, Smart phones and dedicated e-book reading devices such as Kindles, Nooks and software like Adobe and ePub which may require the internet connectivity to access them (Cleverism, 2016). Concerns arise when most of the eBooks are restricted, access environment less developed and the devices and software are expensive to obtain and maintain.

According to Palumbo (2014) Mobile devices are key facilitators of access to eBooks because they can use applications that have the ability to empower people of all ages. However they sometimes require internet, power back up and basic training to use them. Although Mobile devices have been attributed by researchers as powerful tools for accessing eBooks and enabling learning and knowledge creation, they are expensive to acquire, vulnerable to be stolen or damaged and may cause insecurity to the holder as a result of theft/robbery since they are considered valuable items with ready market.

In a similar dimension Bomhold (2013) revealed that digital students possess a trait of fellowshipping with their smart phones due to the flexibility of these devices, and their need for instant access to content and information is more diverse compared to the older generation, however this could pose a risk of addiction, exposure to online predators and pornography.

According to Kinengyere, Kiyingi and Baziraake (2012), most of the content is these days available in electronic format and therefore accessible with the help of ICTs. At present Makerere

University library only provides desktop devices for user access to electronic resources, however a majority of students mostly postgraduates possess other private devices such as laptops, tablets and smartphones that they use for accessing eBooks at their own comfort. According to Buljung and Cooper, (2013), each access device and operating system require unique set of steps to begin using the download functionality. Some devices that use Windows and Apple require users to download Adobe Digital Editions in order to read eBooks. Similarly other devices such as iPads and Android tablets may require users to create an Adobe ID from the Adobe web site and then install the e-reader application on their device. Other mobile devices that students usually exploit for accessing eBooks include iPads, iPods touch, iPhones, laptops, Nooks, Kindles and smart phones. All of these require robust internet and stable power supply to guarantee eBook utilization.

## **2.4 Perceptions on eBooks Access and Utilization**

According to Kinengyere, Kiyingi and Baziraake (2012) there was a steep increase in usage of health electronic resources in general as of 2007 and could have risen given the fact that universities in Uganda started embracing e-resources in 2006, and by 2007 some increase in usage attributed to the training of librarians and users was realized.

According to an evaluation on the impact of eBooks on reading motivation of students of higher learning in Nigerian Universities by Akpokodje and Ukwuoma (2016), they found out that more than 76% of the respondents knew that they had access to eBooks through the library services but only 19% of these students actually access these eBooks through subscribed databases.

According to Gilbert and Fister (2015) eBooks are complex creatures, the ones that have the potential to both enrich and alter our students' research behavior. Their findings suggest that students are conceivably more open to using eBooks for their research and study than it is assumed. A study of eBooks in academia by Lopatovska et al (2013) established that out of 8 participants who used eBooks, 3 had never used eBooks for academic purposes, while one participant reported using academic eBooks on average once a month and 4 participants reported using eBooks for academic purposes several times a year. No one used academic eBooks on a daily basis.

Most of the previous available studies Croft & Davis 2010; Woody et al. 2010 on usage have revealed that while awareness of eBooks had increased, usage had yet to catch up, and preference for print had continued to be strong among students as well as faculty and staff. In summary, a

study on user attitudes towards eBooks by Rajan and Mathew (2012) concluded that students who used eBooks were mostly motivated by the eBooks availability, quality, and ease of access and the soundness of the collection. The impact of usage has a bearing on academic libraries who are expected to justify their budgets and employ patron driven acquisition.

#### **2.4.1 Usage within Medical Settings**

Imperative to note is the fact that Medical students globally are presented with a potential for access and utilization of eBooks through Academic Health Sciences Libraries that have reportedly continued to expand eBooks availability and are investing into the improvement of eBook access (Shurtz, 2011). According to Folb (2011) in a bid to facilitate better information usage by Clinical students, Medical Libraries now offer electronic books and other resources that are accessible on computers and on other mobile devices. The recent prominence of electronic book readers offers a potential solution for a portable and searchable electronic library in clinical settings. However, multiple obstacles could hamper the efficient and continuous acquisition of information in the clinical setting, such as resources that are physically distant, poorly organized, or not clinically oriented.

From a global perspective, Medical students from various Universities have utilized eBooks during their study, research and clinical trials as revealed by several studies. A joint survey of 9 medical students from Duke University Medical Center Library and Texas A&M University Medical Science Library established that a majority of medical students were very comfortable accessing eBooks online and rated the e-reader very easy to use. In addition a majority of respondents found eBooks major advantages in clinical settings as being portability and the ability to search within and across books, participants also suggested additional uses for Kindle eBooks in medical education (Shurtz & Isenburg, 2011).

According to Aronsen, Johansen & Rein (2016) out of 138 student respondents of faculty of medicine from Norwegian University of Science and Technology who gave views on the knowledge of study techniques when using eBooks, their findings indicated that fairly 66% liked to use eBooks to annotate and highlight texts they are working with, then 43% suggested that the employment of user guides in using eBooks could have an impact, and 45% suggested the improvement of platforms and interfaces, furthermore 73 % had no or very little knowledge of

the functionality supporting a good study technique when using eBooks. While a majority 93% of the medical students do not use any of these functionalities.

Remarkable eBook access and utilization have been reported at the Ohio State University Prior Health Sciences Library that offered more than 6,000 health and life sciences eBooks as of June 2010. eBook usage increased every year driven by Core25 eBooks, an eBook promotions tool developed at the Prior Library, with the ability to link to eBook chapters via the online course management system. Out of 16 medical students who completed the questionnaire 11 reported owning a handheld device, 14 indicated they were aware that the library offered eBooks and 2 who were not aware of the eBook collection were both nurses (Hartel & Cheek, 2011).

The observation by Folb (2011) summarizes the facts about usage in clinical settings stating that Health Sciences library users are flexible and will use either electronic or print books depending on what is most convenient or available at time of need, most importantly utilization of available eBooks is facilitated through user education. There seems to be remarkable utilization among medical students from clinical settings as compared to those from other disciplines, this could be resulting from the fact that clinical students require current and timely information that eBooks are likely to provide. To ensure optimum access across many disciplines, there is need for increased awareness and training. Better still there seems to be need for cataloging librarians to augment the configuration of eBook cataloging records to maximize ease of use and consider repackaging metadata for access through web interfaces that library users are likely to prefer.

## **2.5 Factors Influencing Access and Utilization of eBooks**

Several factors affect access and use of eBooks which include favorable eBooks aspects, access limitations and technology acceptance as discussed below:

### **2.5.1 Favorable eBooks Aspects**

eBooks possess several favorable attributes and characteristics ranging from format and accessibility. Graduate medical students can use eBooks to fulfill their urgent information needs in a timely and flexible way. According to Brook (2012) eBooks are ideal sources of information for facilitating research and independent study with ability to excite users through many benefits that outweigh conditions of conventional prints.

- **Multimedia provision**

According to Brook (2012) eBooks are interactive information items that provide multimedia information which is accessible in electronic texts with audio visual functions, full-text customized searching, highlighting, reference linking, and flexibility in searching and browsing, selection of different types of fonts, portability, and interoperability on a variety of devices. The multimedia provision encourages students to explore the eBook as one of the most viable information access option with more appealing formats and usability.

- **Portability and flexibility**

Several researchers including Carreiro (2010); Brook (2012); Forsman (2012); Wicht (2011) have in affirmative indicated that eBooks are becoming popular of late because they have several advantages when compared to printed books. For users who are frequent travelers, or who have to carry out research in remote places, eBooks offer a substitute for print books and provide easier portability. For teachers and students, eBooks are a very good classroom teaching tool and are a good device for those who are not very lively using prints. eBooks that are available online can be accessed around the clock from a local computer or accessed remotely, and more than one person may be able to access the same eBook at a time. The portability and flexibility attributes make eBooks a popular source for information provision for users who may want to access different information without physically visiting the library or carrying heavy loads of prints.

- **Simultaneous Access, Timeliness and Ease of Use**

Research asserts that, today it has become customary for many users in developed countries to possess access to mobile devices such as laptops, tablets, iPads and smartphones; such devices have changed the way users search and access electronic resources. This observation is shared by many scholars such as Rojeski (2012), Chiarizio (2013), Allen & Kaddu (2014). Interesting to note is the fact that eBooks possess very attractive features such as the ability for remote users to access information anytime and remote access by simultaneous users (Rojeski, 2012). From these revelations it can be noted that libraries have devised very attractive means of fascinating their users and e-readers are just the icing on the cake. Better still, the packaging of eBooks and accompanying software should always be tailored to increase adoption and utilization.

### **2.5.2 Limitations to Access and Utilization**

Studies have pinpointed that limited or poorly developed ICT Infrastructure could hinder availability and effective access and utilization of eBooks notwithstanding among other

obstacles the cost of eBooks and lack of library budget (Allen & Kaddu, 2014). Worth noting is the fact that eBooks are technology and power-dependent; their success also depends on affordability, accessibility, navigation and ease of use. Internet access and electricity supply are mandatory for downloads. Users cannot access eBooks through one preferred interface. Most eBooks are incompatible with the various e-readers on the market, (Brahme & Gabriel, 2012). According to Besen & Kirby (2014) there are always several restrictions placed by publishers on printing, downloading, loan periods and embargos in accessing new titles. Such restrictions do not encourage optimum access and utilization by users, there for Libraries need to be aware of these limitations and provide solutions that can boost access and utilization. Other challenges facing access and use include:

- **Un-customized eBook Platforms**

The eBooks platforms are collectively managed by the e-resource librarians. However the different platforms of eBooks access and delivery are vendor centered in terms of actual design and maintenance. There are several disadvantages to the use of vendors' interfaces. A more general problem is the substantial variation in the appearance, layout, and functionality of the various eBook platforms and interfaces. This lack of standardization makes librarians and patrons reluctant to acquire and use eBooks (Hwang, Kim, Lee, & Hwan, 2014), (Walters, 2013). Undisputedly Forsman (2012) observed that the amount of electronic resources available and library systems that handle them have multiplied leaving libraries in a challenging situation. There is a changing definition of library collections, changing business models for owning and accessing materials as well as a shift in the architecture of library systems. Suggesting that libraries would fill more responsible if the eBooks platforms and access tools were customizable and tailored to meet the individual needs of each library especially specialized libraries who may not require certain titles which are included in the paid package and yet they will never be utilized.

As observed by Lopatovska et al (2013) academic libraries and research libraries are now focusing more on making significant investments in eBook packages or individual eBook titles with little or no information on how students and faculty use eBooks and e-readers in the course of their work.

Reflecting on Lopatovska et al (2013), it's clear that in a bid to meet the changing definition of a library collection and reach as many users as possible over a variety of new business models, academic Libraries are finding difficulties in ensuring acceptance, availability, inclusiveness,

relevance, completeness, timely processing and delivery of eBooks in user friendly-modified platforms for facilitating effective information access. Furthermore, the library budget, licensing agreements, eBook formats, eBook readers and eBook access devices must be well catered in order to optimize eBooks utilization experience. Thus, how students access and utilise eBooks should be known to guarantee meaningful changes.

- **Awareness and Acceptance**

A study by Walters (2013) indicates that overall, eBooks have been marketed to academic institutions through four distinct channels: publishers, specialist aggregators, large aggregators and library vendors. While Amazon, Barnes and Noble have dominated the consumer eBook market, EBSCO (formerly Net Library) and eBrary remain the largest academic eBook distributors in the United States.

According to Poon (2014) researchers in Africa have shared the fact that eBooks are relatively new, and their introduction in academic libraries is still a viable option for Africa as opposed to developed countries. eBooks in African academic institutions was considered a viable option, but regarded as still on an experimental level by some researchers. Given the example of Ilorin University in Nigeria, the eBooks collection and usage was said to be minimal because of digitization projects (Olasina, 2014). For the case of Kenya in East Africa, usage of eBooks was attributed to acceptance by students, improved technological infrastructure, faster internet, free broadband access in colleges and ease of access using various devices and platforms (Neyole, 2014). Investigation by Asunka (2013) revealed that the level of awareness and perception of eBooks among undergraduate students in Ghana was somehow considerable, but the degree of acceptance and use was restricted to reference sources.

- **Access and Utilization Policy**

Research by De Oliveira (2012) reveals that, in the academic institution, stakeholders have come to expect certain rights and capabilities from the library collection. Lending, sharing and photocopying have all been accepted as the prerogative of print book users. However, electronic books had been treated as the up-and-coming information resource, as such libraries should have taken that one step further with immediate unlimited and flexible access. Accordingly that was not archived with impeccable success as barriers related to policy and terms of purchase and distribution laid down by industry stakeholders had placed strict limitations on eBook technology.

As adoption of eBooks had been significantly embraced, libraries have lamented that due to publisher copyright concerns, eBook vendors have limited printing, downloading, copying, interlibrary loan, and even classroom use.

Reflecting on De Oliveira (2012) revelations, such a strict regulatory framework could deter a lot of potential users from becoming active consumers of eBooks even though the packaging looks attractive and the content is relatively current, if utilization cannot be justified, then it becomes challenging to employ patron driven acquisition.

- **Licensing and Digital Rights Management**

As libraries prioritize eBooks, certain licensing agreements could affect utilization. For example conditions requiring libraries to incorporate existing workflows with new formats using emerging technologies to ease discovery and access to eBooks. This creates obstacles attributed to technological infrastructure, different eBook formats, and expensive eBook readers, licensing models, incompatible technology and the need for constant upgrades to existing technological infrastructure. In addition of the need to reorganize library spaces and skilling staff to train users on access and discovery of eBooks (Vasileiou, Rowley & Hartley, 2012).

Revelations by IFLA (2013) point out that eBooks licensing terms are grossly associated with restricted access to the extent that most eBook agreements ensure that libraries are only able to lease eBook materials, and do not retain permanent ownership of the materials. Incase an eBook licensing agreement expires, so do all rights to own an eBook material. In addition, access to an eBook title is compromised when certain suppliers especially those with aggregator databases ceases trading or loses the rights to sell a particular title.

According to IFLA (2013) a certain group of eBook suppliers have activated a digital rights management policy that limits the number of times an eBook can be issued before a fresh copy needs to be purchased. Under normal circumstances of the DRM, only one reader can access a copy of an eBook at a time, and they can be borrowed for specified periods and are then automatically returned and can no longer be accessed by the borrower. According to Herther (2015) the Digital Rights Management (DRM) and the wide variety of formats are the pit holes that need to be addressed as key issues impacting the development of eBooks sector. There is need for continuous negotiations between library consortia's and publishers to find a common favorable ground in terms of Licensing levels and Digital Rights Management.

Digital Rights Management (DRM) undermines the very principle of the preservation function for libraries by impeding access as a result of limitations on the software used to access eBooks (Kahn & Underwood, 2013). Although UNESCO spells under article 19 declaration (United Nations, 1949) that everyone has the right to seek and access information regardless of the media. This very freedom can be condensed by the nature of eBooks which are internet based and provided through third-party service providers who disconnect libraries from access upon expiry of their subscription. Owing to these revelations, it is quite challenging for Libraries when you subscribe to eBooks and you cannot totally own them, this could result in the library losing rights to the book which could disappoint users who used to access such books and could discourage utilization of eBooks.

### **2.5.3 Technology Acceptance Model (TAM)**

Technology Acceptance is one of the factors influencing access and utilization of new technology. In this study Technology Acceptance Model (TAM) is reviewed as the first theory in information technology research that is used in this study as a measure to foresee acceptance by people of the need to use the technology involved in accessing and utilizing eBooks. From the inception of the eBook, academic libraries have chosen to integrate them into their information content. According to Walton (2014) as an innovation, the eBook purports to replace the printed book. However, students continue to indicate a preference for using printed books. Nevertheless, many academic libraries report eBook use rates equal to or greater than that of the printed book. According to Tsai (2012) eBooks involve the systematic and structured processing of various digitized data (books), and these books are provided for people to read and reuse through computers, tablets, cell phones, and eBook readers. The reasons for perceived ease of use can be attributed to the fact that eBooks are paper-free and provide connectivity, multimedia access, diversification and new life. Perceived usefulness of technology can be determined through eBooks ease of manufacture, low production and acquisition budget and no requirement for extensive printing equipment; eBooks are compact, permit reading in low-light environments, enable adjustments to text size and color, can recite text using external voice software, and have no risk of damage.

Given the theoretical perspective of TAM, if the technology and benefits presented herein are fully exploited by academic libraries, the utilization levels could steadily increase. However if eBooks are not considered useful by the consumers, practitioners should be advised to look at the fit

between the technology and readers' preferences. This could be more helpful than just adding features that are believed to make the technology more useful. The study by Gerlach & Buxmann (2013) shows that besides prices and technological quality, cognitive or motivational aspects of readers need to be taken into account when considering eBook adoption.

## **2.6 Research Gap**

Studies concerning utilization of eBooks are still very scanty especially those conducted in the past decade. Today the medium and related technologies of delivering and utilizing eBooks have continued to evolve. The bulk of the past studies had fallen into a few main categories, including adoption, usability, vendor relations and offerings and collection development. A few number of studies had focused on issues related to the acceptance and use of eBooks especially in the clinical settings. Most of the studies focused on eBooks use in academics and found that while awareness of eBooks had increased, usage had yet to catch up and preference for print continued to be strong among students as well as faculty (Croft & Davis, 2010; Woody,et al, 2010). Several authors, Jindal & Pant (2013), Walters (2014), Walton (2014) investigated reasons behind the use of eBooks by students, and found that students use eBooks mainly for leisure reading, convenience and research. The determining factors for the decision to utilize an eBooks included availability and access devices, relevance of titles and user attitudes.

Studies by Folb (2011), Aronsen, Johansen & Rein (2016), Shurtz & Isenburg (2011), Hartel & Cheek, (2011) investigated eBooks adoption and use in clinical settings and found that there was remarkable eBook adoption and usage. However those findings represented different settings, cultures and levels of technological advancement. There is need to refer to studies undertaken in Uganda focusing on Utilization of eBooks by Postgraduate medical students, which leaves more to be desired.

The related studies conducted in Uganda were those focusing on awareness, adoption and utilization of e-resources such as those by Kinengyere (2007), Kinengyere, Kiyingi and Bazirake (2012), Okello-Obura and Ikoja (2010). Lack of information on how eBooks are used affects Patron Driven Acquisition (PDA) where access to a collection is made available to users but the library only subscribes to databases if a satisfactory level of utilization is reached. The availability, accessibility, infrastructure and awareness were the key concepts that formed a basis for investigating eBooks utilization. The research objective that was devoted to this aspect was to

examine access and use of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter discusses the research design, population of the study, methods of data collection, data analysis and presentation, ethical issues, quality assurance, limitations and delimitations of the study.

### **3.2 Area of the Study**

The study was carried out at Makerere University in the Colleges of Health Sciences (MakCHS) and Veterinary Medicine, Animal Resources & Biosecurity (CoVAB). Respondents were selected from the departments of Internal Medicine and Veterinary Preventive Medicine respectively. For both these departments, there are eBooks collections that can be accessed by Graduates.

### **3.3 The Research Design**

According to Zainal (2007) the case study design enables a researcher to closely examine the data within a specific context. This method selects a small geographical area or a very limited number of individuals as the subjects of study. The case study design was used for this study because it is based upon the assumption that the case being studied is typical of cases of a certain type and therefore a single case could provide insight into the events and situations prevalent in a group from where the case has been drawn. It is a very useful design when exploring an area where little is known or where you want to have a holistic understanding of the situation, phenomenon, episode, site, group or community.

The case study and a comparative research design targeted the students of Masters of Internal Medicine and Masters of Veterinary Preventive Medicine of Makerere University. Within this design, the study pursued a qualitative approach. The rational for adopting qualitative approach in this study was to allow a detailed exploration of the topic of interest (Lincoln and Guba, 1985).

The choice of a qualitative study was a result of the need for an in-depth understanding of eBook utilization with the hope that the results shall influence budget allocations, Patron Driven Acquisition and adoption of best practices hence encouraging more utilization and improved user interaction with eBooks.

### **3.4 Population of the Study**

The population of this study covered all the postgraduate students from the Academic Year 2014 to 2016 pursuing Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University in both 1<sup>st</sup> and 2<sup>nd</sup> year. The population of Master of Medicine in Internal Medicine stood at 35 and Master of Veterinary Preventive Medicine stood at 27 students putting the total number of study population to 62 (Graduate School Records, 2017).

#### **3.4.1 Sample Size**

A total of 20 participants from Master of Medicine in Internal Medicine Students and Master of Veterinary Preventive Medicine students were interviewed, 10 from each programme with a gender distribution of 16 male and 4 female in a sequential manner. Only units that were available during the period of data collection and could richly inform the study were purposively selected.

#### **3.4.2 Sampling Procedure**

This study employed purposive sampling technique to select key participants. According to Patton (2002) in purposive sampling, there are purposeful strategies instead of methodological rules and inquiry approaches instead of statistical formulas. To determine a sample size the researcher was guided by Sandelowski (1995) approach which requires that no computations should be done in qualitative research to determine a minimum number and kinds of sampling units required but rather use factors including the aim of sampling and strategies for employing purposive sampling in order to help a researcher decide whether he has collected enough data. The purposive method involved selecting units from a population of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University as key participants in the study so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. The rationale for using purposive sampling technique was to enable the researcher to find instances that were representative or typical of a particular type of case on a dimension of interest and to achieve comparability across different types of cases on a dimension of interest. Furthermore, small numbers are easy to manage and intensively interview. This study relied on a small sample that could help researcher purposively collect enough qualitative data.

### **3.5 Methods of Data Collection and Instruments**

Methods of Data collection consisted of Interviews, Document Review and Observation. The data collected was analyzed for in-depth understanding of eBooks utilization using multiple sources as evidence.

#### **3.5.1 Open-Ended Interviews**

Open-ended interviews were used for collecting the required data. The interviewees in this study included 10 Master of Medicine in Internal Medicine Students and 10 Master of Veterinary Preventive Medicine who were available in Makerere University during the period of data collection. Interviews allowed interrogation to clarify statements which involved interaction between the researcher and the participants. The flexibility of this approach, particularly compared to structured interviews, also allowed the discovery or elaboration of information that was important to participants but may not have previously been thought of as pertinent by the researcher. The purpose of the research interviews was to explore the views, experiences, beliefs and/or motivations of individuals. The interview lasted between fifteen to twenty minutes. Interview schedule was given to interviewees who were requested to sign the consent form as an indication of voluntary participation. Notes were taken and the interviews audio-taped using audio recorder (See Appendix A).

Interviewees were chosen because they could provide responses with rich diverse views and in-depth information for the data that was collected. It facilitated discovery on how individuals think and feel about a topic and why they hold certain opinions. Interviews were, therefore, most appropriate where little was already known about the study phenomenon or where detailed insights were required from individual participants which made it the most appropriate data collection approach for this study.

##### **3.5.1.1 Interview Schedule**

The interview schedule was distributed to participants after permission was sought to conduct the study in the colleges, participants were asked to consent to participating in the study and made aware of the purpose of the interview, those who showed understanding of what eBooks are, were purposively selected and interviewed. Open-ended interviews were used for in-depth

understanding of the eBooks Utilization phenomenon to provide richness of detail of the findings and reveal avenues of further questioning that might have gone untapped while using document review and observation. The Interviewees included 10 Master of Medicine in Internal Medicine Students and 10 Master of Veterinary Preventive Medicine who were available in Makerere University during the period of data collection. Each interviewee was physically contacted and requested to participate in the study. There were three interviews each day. Each interview lasted between fifteen to twenty minutes. Interview schedule was given to interviewees who were requested consent to voluntarily participate in the interviews. Notes were taken, however the interviews objected to audio-recording requests. The notes were examined for accuracy by proof reading. Participants were given a copy of the schedule prior to the interview, a time and place was agreed upon (See Appendix A).

### **3.5.2 Document Reviews**

Document review provided logical analysis of documents related to the objectives of the study. To gather background and present information, reviewing existing documents helped the researcher understand the history, philosophy, and utilization facts about eBooks by Students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine. Only relevant information was extracted from the documents for purposes of informing the study.

#### **3.5.2.1 Document Checklist**

Document checklist was used for gathering facts about a phenomenon under study by reviewing relevant documents on eBooks utilization in order to supplement findings from interviews schedule. The document checklist guided the researcher throughout the document review. The e-resources librarian facilitated access to most of the reviewed documents. Documents were critically read, analyzed and interpreted to extract relevant facts that were used to inform the study. Documents reviewed included subscription and usage reports, terms and conditions of use/agreements, records related to eBooks utilization and e-resources manuals (See Appendix B).

### **3.5.3 Observation**

Participant observation was employed so as to develop a holistic understanding of the context and phenomenon under study that is as objective and accurate as possible given the limitations of other methods (DeWalt & DeWalt, 1998). It provided additional facts about the eBooks access and

utilization with a sense of objectivity and clarity. Participant observation involved establishing rapport with the university staff concerned with the elements that were being observed including permission to use the internet and take snapshots of certain aspects that could be used to inform the study. This was conducted so as to increase the validity of the study and help the researcher get the feel for how things are organized and prioritized.

### **3.5.3.1 Observation Checklist**

Observation checklist was used for collecting additional facts concerning eBooks Utilization (See Appendix C). The researcher observed activities and provisions within the eBooks access and utilization environment, the ICT Infrastructure available to support eBooks access and utilization and the available eBooks access platforms at Makerere University. Some of the observed elements were captured using screen capture camera that depicted parts of the true picture of the eBooks availability and access. Data output files of collected data were categorized and interpreted into a narrative providing a written description of the snapshots. The researcher categorized photographs in the right sequence while taking notes concerning the captured scenes of the eBooks access and utilization environment, the available ICT infrastructure and the eBooks access platforms.

## **3.6 Data Presentation and Analysis**

Data was analyzed qualitatively using thematic content analysis description model proposed by Creswell and Clark (2011). Content analysis was used to analyze document contents and the captured data of each interview. The analysis model included categorization of data into themes for analysis and interpretation. Themes were coded based on categories meant to capture predominant ideas from the interviews in relation to prior literature on access and utilization of eBooks. Descriptive aspects of data collected led to the evaluation of different perspectives from participants about the eBook utilization. Observations were recorded/pictured and interpreted.

Content analysis was used to evaluate responses and determine key themes radiating from the research questions. The research purpose was clarified to establish theme structures from narratives and documents reviewed. Each document content and transcription of each interview was read line-by-line, interpreted and then divided into meaningful analytical units called categories. Triangulation was used for cross-checking and verifying validity of data through the use of different information sources. Stronger conclusions were drawn from comments made by

more than one responding participant. Also, conclusions drawn from the interview data could be compared to previous results and related literature.

### **3.7 Data Quality Control**

Data quality control is adopted in this research in an effort to put in place procedures that ensure the quality and accuracy of data being collected using the methodologies chosen for this study.

#### **3.7.1 Triangulation**

The research triangulated instruments of data collection by employing open-ended interview schedule, document check list and observation check list. Triangulation was used for checking validity of data, by comparing responses using interviews and document review so as to ensure the validity and reliability of findings. Triangulation was used for cross-checking and verifying of the validity of data through the use of different information sources. Stronger conclusions were drawn from comments made by more than one responding participant and multiple documents. Also, conclusions drawn from the interview data, document review and observation were used to compare previous results and related literature.

#### **3.7.2 Validity**

Validity is the ability of an instrument to measure what it is intended to measure (Smith, 1991). In this study validity applied to both the design and the methods of this research. Validity ensured data quality control by measuring whether this research investigation is providing answers to the research questions for which this study was undertaken and whether it is providing these answers using appropriate methods and procedures. This was done by justification of each question in relation to objective of study. Validity was used in data collection to ensure that findings truly represent the phenomenon being measured. The researcher controlled all possible factors that threaten the research's validity. Utilization of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University was investigated using interviews schedule, document checklist and observation checklist as valid research instruments.

Content validity was employed so as to assess the extent to which a measuring instrument covers a representative sample of the domain of the aspects measured and whether items and questions

cover the full range of the issues or problem being measured. Experts that included my supervisors crosschecked the validity of instruments.

Face validity was also employed so as to assess the extent to which a measuring instrument appears valid on its surface. Each question or item on the research instrument had a logical link with the objective. This measured readability, layout and style, clarity of wording and feasibility of the interview schedule, document checklist and observation checklist.

### **3.7.3 Reliability**

Reliability is the ability of an instrument to create reproducible results. Each time it is used, similar scores should be obtained. For this study, a pre-test for the interview questions was conducted prior to the commencement of the research, two participants were used to pretest the interview questions and making corrections where necessary before interviewing the entire sample. Only documents that related to the content scope of the study were reviewed. Observation checklist provided a compilation of additional facts related to the research indicators that should be present. These measures were undertaken to assess the effectiveness of the research instruments.

Reliability was tested by using various instruments during data collection and ensuring their stability so that the same results are obtained when used consecutively for two or more times using test-retest method. Furthermore reliability measured internal consistency of the interview questions so as to ensure that all subparts measure the same characteristic.

### **3.8 Ethical Issues**

This study commenced after obtaining permission from the Management of Makerere University College of Health Sciences, Department of Internal Medicine and the Management of Makerere University College of Veterinary Medicine, Animal Resources & Biosecurity, Department of Veterinary Preventive Medicine. Participants were also informed of their voluntary participation and their right to withdraw from the study at any time and all conditions for participating in the research were put in writing (See Appendix D). The researcher was able to uphold all the principles of ensuring confidentiality of information and the privacy of respondents. There was no harm caused to the participants and all the purposively selected units consented to voluntary participate in the study (See Appendix A).

### **3.8.1 Informed Consent**

All participants were made aware of the voluntarily nature of their involvement in this research, and given an informed consent form stating reasons for the research, what the information provided would be used for and confidentiality with which the data would be used. Consent forms accompanied data collection tools, where participants were made aware of their right to withdraw from the study at any time (See Appendix A).

### **3.8.2 Bias**

Some aspects of bias could find themselves in the research if precautions were not taken care of. The goal of reducing bias in this study was to make sure that questions were thoughtfully posed and delivered in a way that allows respondents to reveal their true feelings without distortions. The researcher is a librarian by profession with a lot of interest in the subject of study. Biases could manifest through the researcher's subjective views and opinions on the topic of research. However the researcher took precautions to ensure bias free results by employing triangulation of data collection tools and observing acceptable ethical research standards.

## **3.9 Limitations of the Study**

This study encountered some limitations. The researcher experienced difficulties in literature review due to scanty literature on eBooks amidst limited knowledge on the subject content. In addition Post graduate medical students are quite busy most of the time since most of them were engaged in clinical trials/lectures, consultations and ward rounds most of the days as such most of them would re schedule appointments for the interviews.

### **3.9.1 Delimitations of the Study**

On the scantiness of Literature the researcher explored several sources and sought assistance of e-resource librarian to help provide access to restricted content. On limited knowledge of the subject content the researcher read widely to on topics related to eBooks to broaden his understanding on the subject content. On busy participants the researcher was able to adjust to the participant's time schedules and made follow up visits. The researcher was able to spread the collection of data across all working days and weekends over a period of one month.

## **CHAPTER FOUR: PRESENTATION AND DISCUSSION OF FINDINGS**

### **4.1 Introduction**

This chapter presents and discusses the findings of the research. A total of 20 postgraduate students were interviewed alongside document review and observation. The findings from the open ended interview questions are presented using thematic content analysis description from which strong conclusions have been drawn from comments made by more than one respondent. Presentation and discussion was guided by objectives below:

1. To examine access and use of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University.
2. To establish perceptions on access and utilization of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University.
3. To establish the supporting environment of eBooks access and utilization at Makerere University.
4. To propose a framework for improving eBooks access and utilization by Masters Students of Makerere University.

The findings are presented and discussed simultaneously. The presentation and discussion considers each objective separately and themes developed are supported by interviewees' comments, document reviews and observation results with interpretations, followed by the discussion of the findings with the help of related literature where necessary. To ensure anonymity, interviewees were coded as follows M1 refers to participants from Master of Medicine in Internal Medicine and M2 refers to participants from Master of Veterinary Preventive Medicine.

### **4.2 Background Characteristics**

There was need to establish background information regarding the programme of study, the year of study, gender of participants and establish the availability of E-resources packages, mode of subscription and associated costs, so as to inform the study.

#### **4.2.1 Programme, Year of study and Gender**

The programme, year of study and gender distribution of the interviewed participants is presented below:

**Table 4.2.1: Distribution of Participants**

S/N	Programme	Year				Gender		Number
		1		2		M	F	
1	Master of Medicine in Internal Medicine	M	F	M	F	7	3	10
		3	3	4	00			
2	Master of Veterinary Preventive Medicine	M	F	M	F	9	1	10
		5	1	4	00			
	<b>Total</b>	12		8		16	4	20

**Source:** Primary Data

A total of 20 participants were selected using purposive sampling, 10 were enrolled on the Master of Medicine in Internal Medicine programme with a gender distribution of 7 male and 3 female while the other 10 were enrolled on the Master of Veterinary Preventive Medicine programme with a gender distribution of 9 male and 1 female. In order to obtain varied opinions and achieve representative findings, the researcher proceeded to interview 16 male and 4 female postgraduate students, 6 from year 1 and 4 from year 2 for each programme, all the females were from year 1 totaling 12 year 1 and 8 year 2 students. The study population provided an equal proportion of participants from the two programmes under study however there were more males involved than females due to the limited number of females enrolled on the graduate medical programmes especially on the Master of Veterinary Preventive Medicine. The purposive selection of participants provided a better understanding of the relationship between the utilization of eBooks by postgraduate students of human and animal medicine of Makerere University.

#### **4.2.2 E-resources Packages, Mode of Subscription and Cost**

Availability is one of the key concepts that have been examined in this study based on the conceptual framework. There was need to establish whether E-resources including eBooks are actually made available at Makerere University in the first place before proceeding to examine

access and utilization. Documents reviewed in the e-resources section of the library revealed that e-resources where eBooks form a component are actually available at Makerere University and are accessible through the following subscription arrangements:

Sida Funds E-resources Subscription provide for IEEE, Wiley, Sage, Project Muse, Cambridge University Press, Henry Stewart Talks, American Chemical Society, American Society of Civil Engineering; and Libhub and Ezproxy customized access platforms at a total cost of USD 118,816.00 per annum, (e-resource subscription report 2017).

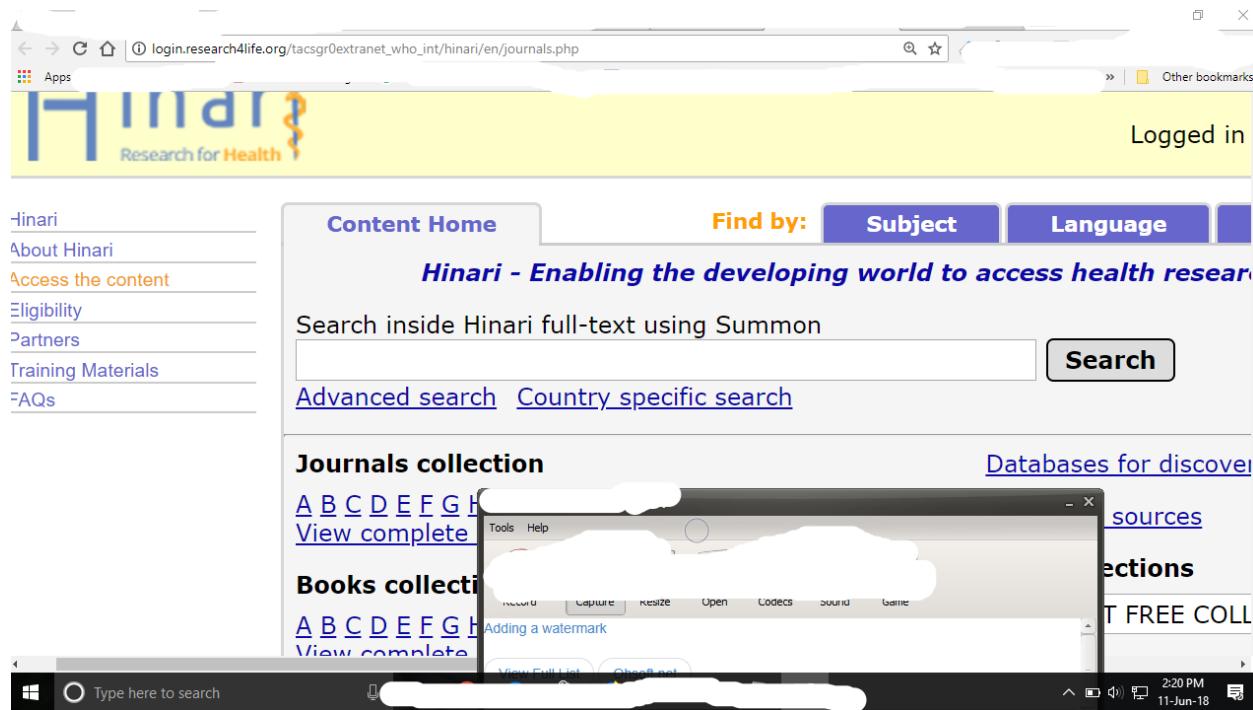
The Consortium of Uganda Universities subscription provides access to EBSCOHost, EMERALD and ProQuest (eBrary) at a total cost of 57,296 USD per annum, (e-resource subscription report 2017). Also available through EBSCOHost is ERIC, Taylor and Francis among other publishers.

In addition there are several sponsored publisher databases such as JSTOR, Elsevier and other large scientific publishers that have been subscribed through International Network for the Availability of Scientific Publications (INASP) dashboard; And Research 4 Life provides the following: Health Inter Network Access to Research Initiative (Hinari) databases courtesy of World Health Organization (WHO); Access to Global Online Research in Agriculture (AGORA) courtesy of Food and Agriculture Organization of the UN (FAO); Online Access to Research in the Environment (OARE) Courtesy of the United Nations Environment Programme (UNEP); and Access to Research for Development and Innovation (ARDI) courtesy of the World Intellectual Property Organization (WIPO) of the United Nations (UN). Access Medicine and MD Consult Collection of eBooks are provided courtesy of Yale University (Library website 2017).

Other open source subscribed e-resources include eBooks Oxford English Dictionary Online, eBooks International Law in Domestic Courts, eBooks Grove Music Online, and eBooks American National Biography, ICT and Engineering, Business and economics. (Library website 2017).

The high costs of subscriptions in dollars re-affirms the need for academic institutions to increase library budgets for e-resources, the need for continued lobbying for funds through partnerships and collective negotiations with publishers and aggregator databases through consortia arrangements. If utilization is not satisfactorily realized, then libraries could fail to justify their budgets on eBooks and employ Patron Drive Acquisition model for selecting on demand sources. Below are some of the key sampled eBooks platforms examined through participatory observation:

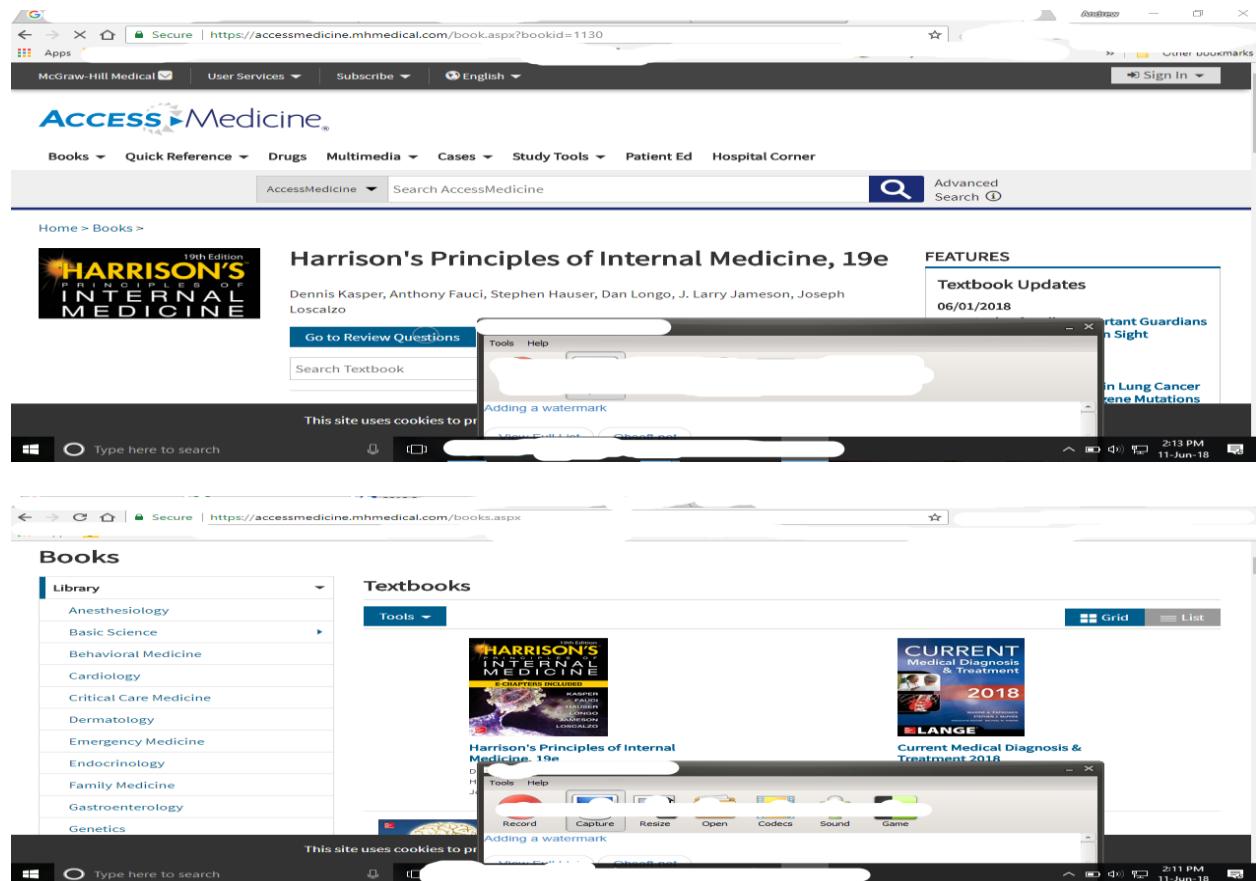
**Figure 4.2.2.1: Access to Books through Hinari Platform**



**Source:** Researcher Observation Snapshot, 2018

Hinari is an aggregator database that provides access gateway to thousands of World Class eBooks from several global publishers covering a full range of Health Sciences disciplines. Makerere University users especially those from the health sciences fields have guaranteed access to thousands of authentic e-Journals and eBooks that have been indexed alphabetically for simplified access. The researcher employed participatory observation by visiting the actual Hinari Platform, sampling use and taking a snapshot. The interface was so appealing to the eye and users can search inside Hinari full text using enhanced retrieval called Summon. They can also employ advanced search that provides customized searches by title, author, subject or country specific search option. To access Hinari one has to be connected through Makerere University IP or using a password provided by the librarians for access outside the University IP range coverage. Access is facilitated by World Health Organization (WHO) and implemented based on the Research4Life licensing agreements.

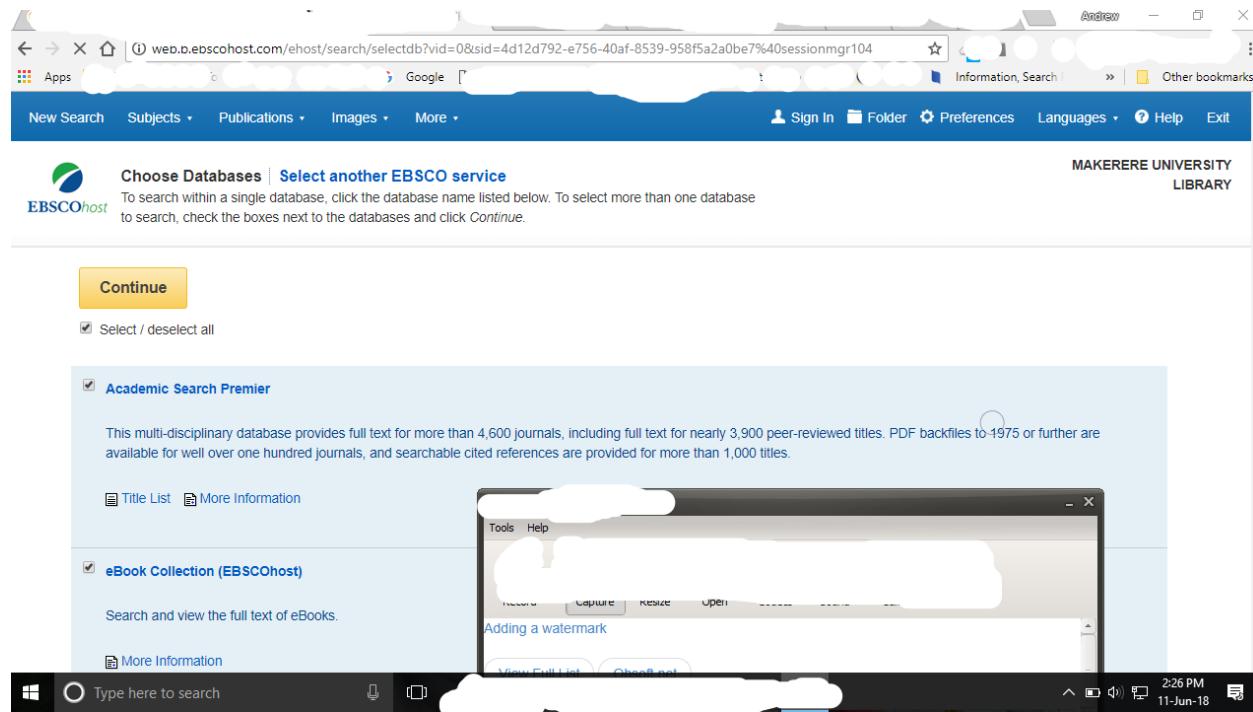
**Figure 4.2.2.2: Access to Books through Access Medicine Platform**



**Source:** Researcher Observation Snapshot, 2018

Access Medicine platform provides Makerere University health sciences users with world class access to thousands of eBooks covering a full range of medical topics. The researcher employed participatory observation by visiting the actual Access Medicine Platform, sampling use and taking a snapshot. The interface was so appealing to the eye and users are provided with a list of medical topics on the left most part of the platform where they can pick interest to conduct a guided search. To access eBooks through access medicine Makerere University Medical Students are required to login to the database using a pass word provided through Yale University, an access arrangement that was based on a memorandum of understanding between Makerere University, Yale University and the Publishers.

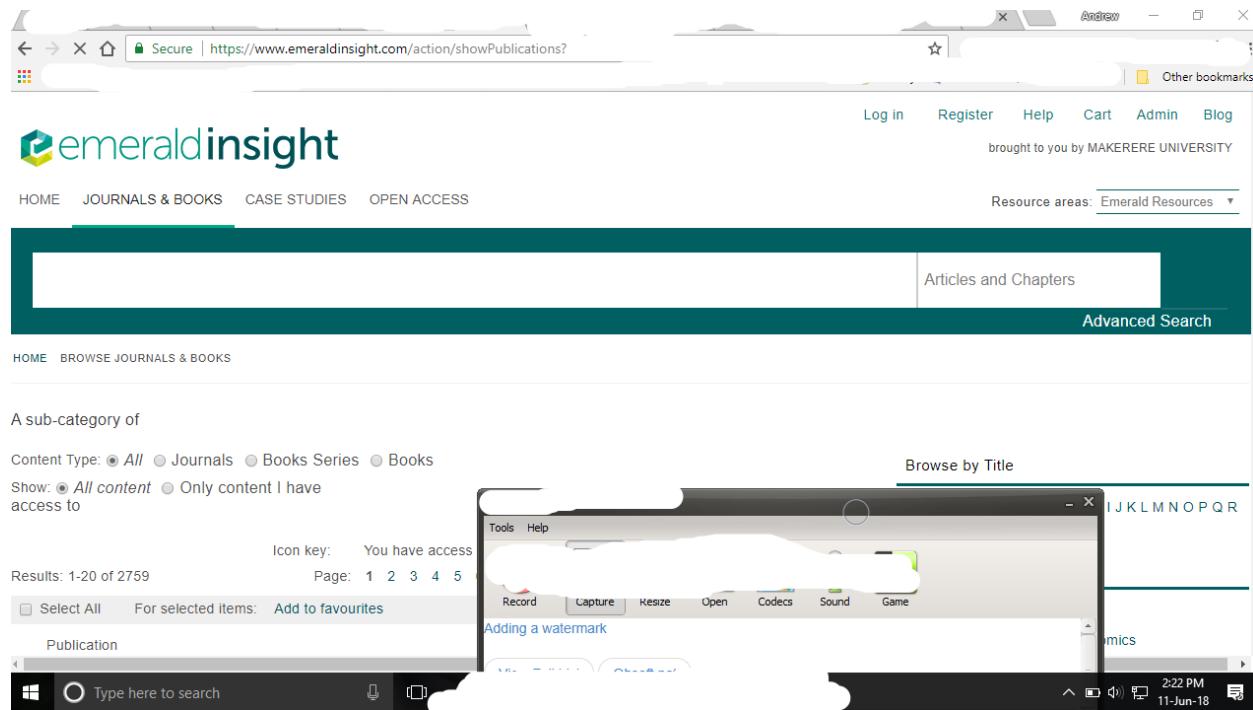
**Figure 4.2.2.3: Access to Books through EBSCOHost Platform**



**Source:** Researcher Observation Snapshot, 2018

EBSCOHost is an aggregator database that provides a gateway to thousands of eBooks collections. Makerere University users are provided with multidisciplinary content access to thousands of world class e-Journals and eBooks that are provided by several renowned global publishers including ERIC, Taylor and Francis and others. The researcher employed participatory observation by visiting the actual EBSCOHost Platform, sampling use and taking a snapshot. The interface was not so appealing to the eye when compared to EMERALD and others which had indexed titles from the onset. Users are able to search contents inside EBSCOHost publisher databases or employ advanced search that provides customized search by title, author, subject or publisher specific search option. In order to access content from EBSCOHost users must be connected to the internet using Makerere University IP range or using passwords provided by librarians for off campus access using a proxy. Access to EBSCOHost is based on Consortium of Uganda University Libraries (CUUL) subscription and licensing agreements with EBSCOHost on behalf of different publishers.

**Figure 4.2.2.4: Access to Books through EMERALD Platform**



**Source:** Researcher Observation Snapshot, 2018

EMERALD is a publisher specific database that provides access to thousands of eBooks collections. Makerere University users are provided with access to mainly business, information science and social sciences content. The researcher employed participatory observation by visiting the actual EMERALD Platform, sampling use and taking a snapshot. The interface was so appealing to the eye as title are indexed from the onset alphabetically for easy access. Users are also able to search contents inside EMERALD database or employ advanced search that provides customized search by title, author or subject specific search option. In order to access content from EMERALD users must be connected to the internet using Makerere University IP range or using passwords provided by librarians for off campus access using a proxy. Access to EMERALD is based on Consortium of Uganda Libraries subscription and licensing agreements with EMERALD Publishing.

In discussing availability of eBooks at Makerere University, it can be articulated that findings are complementary to some previous research studies such as Brook (2012) who established that the recent changes to NetLibrary (now EBSCOHost eBooks) and the entrance of JSTOR, Project

Muse, and other large scientific publishers into the eBook market would contribute towards improvement of the product as accessibility to these databases of eBooks becomes a necessity.

The findings incline to support a testimony by Folb (2011), that Medical Libraries offer electronic books and other resources that are accessible on computers and on other mobile devices by Clinical students on a regular basis.

### **4.3 Examining Access and Use of eBooks**

Objective one of this study sought to examine access and use of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University. This was critical in determining whether participants actually access and utilize eBooks, the frequency of access and use, the purpose of access and use, and the motivation to use eBooks.

#### **4.3.1 Accessibility and Utilization**

Accessibility and utilization of eBooks is dependent on the availability of e-resources subscription packages where eBooks form a component as established in the background analysis. According to Cleverism (2016), access and utilization of eBooks also relies on devices such as desk top computers, laptops, tablet PCs, iPads, Smart phones and sometimes dedicated eBook reading devices such as Kindles, Nooks and software like Adobe and ePub and may require the internet connectivity to access them. Participants were asked to state whether they access and utilize eBooks and the following findings were obtained:

One of the participants testified that:

*"I have used eBooks especially those available through Hinari and Access Medicine. I usually prefer just downloading specific chapters as opposed to downloading the entire Book. You know most of the Medical books are bulky and downloading the entire book would cost me a lot of time considering our internet speed, besides some of the books do not provide full text download"* M2

Accessibility and utilization of eBooks by graduate medical students has proved to be actual following revelations by all the purposively selected participants who were able to attest to the fact that they accessed and utilized eBooks through mainly privately owned devices and mostly from Hinari, Access Medicine, MD Consult, AGORA and Amazon.com.

All participants admitted and testified to having used eBooks through mainly Hinari and Access Medicine especially those from Master of Medicine in Internal Medicine. According to participants' testimonies, there has been a common preference for just downloading chapters as opposite to downloading the entire book, a common practice that has been attributed to slow internet speed which could cause delays if the entire bulky medical book is to be downloaded. Another participant shared the following view:

*"I do access and use eBooks in most cases mainly because someone has accessed and used them, then makes a referral, the main platforms that I often use includes Hinari, MD Consult and Access Medicine. Another opportunity we have in Medicine is that some doctors who have studied abroad bring eBooks preloaded in external drives and they are shared but when we are looking for current information, online access provides the latest editions"* M1

Considerably stated, eBooks have been accessed and used sometimes based on referrals from peers and other associates. Some participants frequently access them through Hinari, MD Consult and Access Medicine. A participant also observed that medical students sometimes have the opportunity of interacting with other doctors who have studied abroad and bring with them eBooks preloaded drives that are sharable, however they always access current information from online databases that are constantly updated. In another revelation one of the participants had this to say:

*"Of course I use eBooks but I'm often let down by fluctuating internet connection speeds. Whenever I need a latest Edition of Anatomy or pharmacology I run to Hinari, MD Consult, Access Medicine or even Amazon for recommended books that are not provided through Makerere subscription. Sometimes I buy my own books and they send me a hard copy and an electronic version. Some of us are on scholarship and money for purchasing some books is provided. Whenever I'm let down by the institutional network I sometimes by my own data to access amazon books"* M1

There have been some prevalent testimonies such as those about fluctuating internet connection speeds. Also participants especially those from Master of Medicine in Internal Medicine observed that whenever they require latest information they often run to Hinari, MD Consult, Access Medicine or even amazon.com for recommended titles that are not found within Makerere University subscription databases. Some participants hinted that most of them medical students are enrolled on scholarship arrangements and some of the scholarship funds cater for books and

other related expenses such as private internet data subscription. It should also be noted that most of the postgraduate students are on study leave with pay which gives them an upper hand to leverage how they get books and internet. Another participant testified that:

*"I use eBooks for mainly quick reference and to be able to move with my books and consult them wherever I go. I do not like to carry bulky stuff, I used to carry a lot of that at undergraduate but now I'm growing old so I prefer to travel light. eBooks help me get rid of the bulk and yet they provide timely information. Most of my eBooks are given to me by colleagues and lecturers but I have also used some from Hinari, AGORA and MD consult."* M2

Revelations suggest that eBooks are mainly used for quick reference and portability especially for older users who do not like to carry bulky loads of books but instead prefer to move with light access devices in order to utilize their books anytime and anywhere. Some participants especially those from Master of Veterinary preventive Medicine were able to receive some eBooks from colleagues and lecturers while also accessing others through Hinari, AGORA and MD consult. Another participant had this to say:

*"...by the way most of us medical student access eBooks using our private devices...I have been an active user of eBooks ever since the librarians referred me to Hinari and Access Medicine, in fact eBooks are getting popular these days, they are very essential companions for medical students....eBooks are a good source for current and timely information, more over they are very portable... but if you could get them to improve on the internet connection speed, I would appreciate"* M1

Most of the medical students are said to be accessing eBooks using mainly their private devices. And some participants actually became active users of eBooks after getting referrals from the Librarians to databases platforms such as Hinari and Access Medicine. It was also observed that eBooks are getting popular these days partly because they are very essential companions for medical students. This is attributed to the fact that eBooks are a good source for current and timely information and they are portable. However most participants have called for improvements in the internet connection speed. Another participant observed that:

*"Most of us medics access and utilize eBooks because they are like life savers when faced with a situation that you are not familiar with and you actually must refer to a more authentic content. For me I could access and use eBooks from Hinari, AGGORA and MD Consult...whenever I'm*

*in urgent need for a reference material with relevant information or even reading for practical exams I usually go for eBooks instead of articles. In medicine articles provide shallow information whereas eBooks cover full topics on a wide range of issues and most of them contain pictures that are very useful for our kind of study” M2*

There has been a general remark that medical students utilize eBooks because they provide critical information in challenging clinical situations. And when compared to articles participants prefer eBooks because they are rich in content covering a wide range of topics with pictorial advantage that facilitates the kind of study in clinical settings.

Participants’ revelations suggest that eBooks have considerably been utilized by both students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University because of their need for relevant, current and timely information. Other findings from document review revealed the following facts:

**Table 4.3.1: Usage of eBooks from some of the Platforms accessed by Makerere University Users from June 2017 to June 2018.**

Period	Platforms								Total
	ProQuest eBook Central	EBSCOhost eBook Tittle	IEEE	Taylor and Francis	Springer lib eBook Chapter	MUSE Project	IOP Science Article s		
Jun 2017	N/A	8	N/A	N/A	N/A	N/A	N/A	N/A	8
Jul 2017	N/A	17	N/A	N/A	N/A	N/A	N/A	N/A	17
Aug 2017	N/A	14	N/A	N/A	N/A	N/A	N/A	N/A	14
Sep 2017	961	83	918	1075	19764	0	244	24,006	
Oct 2017	2022	185	1449	1456	44167	0	279	51,580	
Nov 2017	783	43	1441	1709	36390	0	331	41,480	
Dec 2017	310	30	575	863	1371	2	150	3,611	
Jan 2018	1309	0	571	833	791	170	103	5,086	
Feb 2018	2123	7	1415	1498	1361	215	255	8,997	
Mar 2018	2412	1	1454	3833	4904	315	331	15,663	
Apr 2018	982	9	523	3818	3216	285	326	10,141	
May 2018	967	8	922	3284	2269	199	280	8,896	
Jun 2018	1564	N/A	N/A	N/A	0	N/A	N/A	3,128	
Total	13,434	405	9,268	18,369	114,233	1,186	2,299	172,627	

**Source:** Makerere University Library Record, 2018

Table 4.3.1 gives the summary of the usage rate of electronic resources in Makerere University from June 2017 to June 2018 from different subscription platforms. The platforms that specifically dealt with eBooks were ProQuest eBook Central, EBSCOhost Book Tittles, Springer Lib eBook Chapters and eBook Central Report. Other platforms which provided electronic resources included Taylor and Francis, IEEE and IOP Science. The statistics about the usage rate showed that the

utilization of all the electronic resources which includes both articles and eBooks peaked from August 2017 to November 2017 (24,000, 51,580 and 41,480 for those three consecutive months). The reason for this high request rate during that period is quite obvious because this is the period that the first semester of the academic year has just opened and many students especially those in first year are having the zeal to utilize the available resources. During December 2017 and January 2018, the usage rate declined (3,611 and 5,086 requests respectively) since this is the period that students are busy for examinations and holydays respectively. The total usage rate increases again from February 2018 (8,997) to March 2018 (15,663) as academic activities for semester two intensify and gradually decline April 2018 (8,896) to June 2018 (3,128) as Semester two examinations and holydays draw near.

From the three different platforms for eBooks that were used from June 2017 to Jun 2018, ProQuest eBooks was the most utilized platform with 13,434 successful requests compared to EBSCOhost Book Tittles (405 requests). However, book chapters from Springer Lib eBook was the most highly utilized (114,233 successful requests) electronic resource from Taylor and Francis (18,369 successful requests), IEEE (9,268 requests). IOP Science (2,299 requests) and MUSE project (1,186 requests) were the least used electronic resources. Usage reports for other subscribed databases especially Hinari, MD Consult, among others which are solely dedicated for medical students were not available during the period of study. The statistics were limited to usage per subscription package of an entity and not per programme that could give the identity of a sub user group within an institutional usage.

From the participant's revelations and usage reports, findings indicated that students are actively accessing and utilizing eBooks to solve their critical and urgent information needs through mainly individual private devices. The indication that eBooks seem to be highly utilized construe the conceptual framework of this study that suggested that the presence of subscribed resources; availability of internet connectivity; availability of training; and availability of access devices among others would determine the utilization of eBooks. Although there seems to be a loud outcry over the efficiency of the internet connection speeds at both colleges most especially at the College of Health Sciences.

Findings validate Ahmed and Al-Reyae (2017) revelation that medicine studies are constantly advancing in several ways including diagnostic, preventive and treatment options therefore

students need to have access to the latest information in order to support their learning and evidence-based practice.

The results indicated a high correlation on eBooks accessibility and utilization between students from Master of Medicine in Internal Medicine and Master of Veterinary preventive Medicine. This could be arising from the shared interests these groups of students have.

#### **4.3.2 Frequency of Access and Use**

While it is now established that eBooks are accessed and utilized by graduate medical students, it was prudent to determine the extent of access and utilization. In that regard participants were asked to state how often they accessed and utilized eBooks and the following findings were obtained:

On the account of frequency of access and use all participants gave testimony to their frequency of eBooks access and use. Most of the testimonies amounted to regular and accessional access and use. There was only one testimony of rare use. A passionate regular user of eBooks testified that:

*“...I do use eBooks on a regular basis so to say but what I know for sure is that access and use usually depends on a lot of factors, sometimes internet can be down, and power may shut down...the reality is,- I always try to get around this problems by visiting places with alternative power sources and using my own internet modem but you know the problem with that option is the inability to access other IP restricted content but fortunately most of the platforms available to medical students have alternative access through logins\_ Hinari and Access Medicine for example...I like eBooks because I find them more easily accessible. Physical Library procedures are sometimes cumbersome and most of us here really don’t have so much time...” M1*

There is considerable regular access and use of eBooks according to most of the participants' revelations, however most of them were concerned about intermittent network drops and power shut downs. Although that is bound to always happen, some graduate medical users often look for spaces with alternative power supply and use their own internet but the worry arises from when using personal internet, users may not be able to access IP restricted content, fortunately for the case of medical students most of the eBooks can be accessed through password login, a case in point is Hinari and Access medicine. A participant who occasionally accessed and used eBooks elaborated that:

*“With due respect I don’t want to talk about the frequency of access and use because we face many challenges as eBooks users. But for purposes of informing your study I will tell you that I access and use eBooks occasionally, I mean mostly when it’s convenient for me to access and utilize them...of course we are usually limited by power, internet and the like but also we do not have enough time as doctors that’s where eBooks come in handy because you can access and read them at the comfort of your bed.....” M2*

A moderate numbers of seven participants alluded to the fact that they had accessed and used eBooks occasionally especially those from Master of Veterinary Preventive Medicine. Participants occasionally access and utilize eBooks whenever it is most convenient for them. Participants stressed that regular use is hampered by several hindrances caused by power shut downs and internet failures among others. A participant observed that eBooks can be accessed and read at the comfort of your bed as such they come in handy for doctors who are always busy and have limited time to visit the library to check out books.

*“I use eBooks rarely because I don’t own a laptop...I usually rely on the ones available in the library and if I happen to borrow a device from a friend I usually just access the eBooks and download the chapters into a flash disc to later read in my room where I have my desktop. I have a smart phone but it’s always a challenge for me to access online content using my phone, I think I have low storage and also I have not received training on how to access and use eBooks using a phone...” M2*

The only participant who testified that he accessed eBooks rarely complained of being limited in terms of absence of a portable laptop, however usually relies on computers that are available in the library and borrowing access devices from friends but mainly for accessing eBooks and downloading chapters into a flash disc to later read in the room using a personal desktop. The participant indicated possessing a smart phone but finds it challenging to access online content using a phone, possibly due to low storage and also lacks training on how to access and use eBooks using a phone.

Findings indicated that students from both programmes, a majority of which from Master of Veterinary Preventive Medicine use eBooks occasionally. While a majority from Master of Medicine in Internal Medicine use eBooks regularly. Those who used eBooks regularly were mainly motivated due to the fact that eBooks are easily accessible whereas those who use eBooks

occasionally associate it to limited access to reliable internet and electric power on a regular basis. The participant from Master of Veterinary Preventive Medicine who accessed and used eBooks rarely associated it to lack of a portable laptop.

A majority of Medical graduate students especially those from Master of Medicine in Internal Medicine alluded to having accessed and utilized eBooks regularly because of the need to constantly stay current with the latest editions in field of Medicine and some participants found them easily accessible. The frequency of access and use is no doubt dependent on factors that include the attitude of a user towards reading especially on the screen, the availability of internet and electric power, the functionality of eBooks sites and presence of e-reading devices as most participants have testified.

Overall findings suggest that there is more regular use of eBooks among students from Master of Medicine in Internal Medicine compared to students from Master of Veterinary Preventive Medicine most of whom seem to occasionally use eBooks. Regular utilization is largely believed to be hampered by the inability to have regular access to reliable internet connectivity, stable power supply and limited exposure to access devices.

The findings of this study are justified in Shurtz & Isenburg (2011), revealed that globally, Medical students from various Universities have regularly utilized eBooks during their study, research and clinical trials.

#### **4.3.3 Purpose of Access and Use**

Students at different levels may access eBooks for different purposes, therefore the need to understand the purpose for which the postgraduate medical students access and use eBooks. When the purpose is known librarians can clearly see what to prioritize when employing patron driven acquisition and justifying their budgets for eBooks. Participants were asked to state the purpose for accessing and Utilization eBooks and the following findings were obtained:

A participants who used eBooks for quick reference had this to say:

*“I use eBooks for the purpose of making quick reference to detailed information, whenever I’m faced with a situation that requires me to consult a book while in the field, I just access and utilize the eBook through my tablet which is my usual portable companion” M2*

Findings indicated that participants from both programmes, a majority of which from the Master of Medicine in Internal Medicine use eBooks for the purpose of quick reference to detailed information. While the majority from the Master of Veterinary Preventive Medicine use eBooks for the purpose of conducting research. One of the participants stated that:

*“Sometime I access and utilize eBooks for the purpose of conducting research since they exist in updated editions required for informing research studies in the field of clinical medicine” M1*

Participants indicated that they used eBooks for the purpose of conducting research. A majority of participants from the Master of Veterinary Preventive Medicine Indicated that they used eBooks for both quick reference and research.

*“I prefer accessing and using eBooks for the purpose of conducting in-depth reading so as to supplement on the knowledge obtained from alternative sources including lectures....eBooks provide wide coverage of topics, pictures and illustrations unlike most articles” M2*

Findings indicated that both Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine accessed and utilized eBooks mainly for quick reference, research and in-depth reading to supplement knowledge obtained from alternative sources. eBooks are also preferred because they contain up-to date information since the latest editions are made available online as soon as they are published unlike print that take long periods in transit. Participants highlighted that eBooks are very vital in providing detailed information covering many topics with pictures and illustrations unlike most articles that provide narrow coverage with limited pictures and illustrations required especially to guide students during practical's.

#### **Document review data:**

Using document checklist, the researcher found out that postgraduate medical students from both Master of Medicine in Internal Medicine and the Master of Veterinary Preventive Medicine who used the Document Delivery Service requested for eBooks as alternatives to the printed books that have become limited in numbers. Acquisition records however show that Makerere University last procured textbooks in the academic year 2014/2015. This shows that the library is gradually prioritizing electronic versions of texts and focusing its acquisition budget towards eBooks.

Findings suggest that both Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine use eBooks mainly for quick reference and research because eBooks contain

up-to date information since they are made available online as soon as they are published unlike print that take long periods in transit. Furthermore students from both Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine request for eBooks as alternatives to the printed books that have become limited in numbers as Makerere University is limiting the procurement of print to only very few critical copies.

The findings of this study supplement revelations by Nwagwu and Okafor (2014), Hwang et al, (2014), Chou (2014) that most students use eBooks for convenience, to skim, scan and browse content but most specific postgraduate Students use eBooks mainly to cross-validate and gain extra insights about what they have been taught. This construes Johri, et al (2014), revelation that many libraries are making concerted efforts to provide electronic and print formats to meet diverse user requirements.

#### **4.3.4 Motivation to access and use eBooks**

A motivated user will surely be encouraged to access and use eBooks. The participants were asked to state the factors that motivate them to use eBooks. Most of responses to this question were interrelated. Nearly all participants stated that they are motivated to access and use eBooks because they provide current information. One of the participants explained:

*“When I use eBooks I’m accessing the latest editions that provide current information since the online platforms make new editions available as soon as they are published, unlike print text books that have to be shipped over time, and processed may not be may even be possible to purchase when they are very new because medical books are very expensive” M1*

Another participant with similar views stated that:

*“I like the fact that eBooks are convenient to access, share and carry, you can access them in your residence, share the book through multiple access and I can carry several downloaded copies using a very tiny portable device, which is generally the beauty of it”. M1*

A majority of participants from the Master of Medicine in Internal Medicine revealed that they use eBooks because they are convenient to access, share and carry. Participants also shared the view that they are motivated to use eBooks because of the ability to download them into their device storage that are very portable unlike physical texts that are so bulky. While a majority from the Master of Veterinary Preventive Medicine revealed that they use eBooks because they are time

saving and some of them are freely available online through open access. One of the participant was mesmerized by the fact that eBooks are time saving revealed that:

*“For us in medicine, time is a big factor therefore eBooks provide the best option to have timely access to information instead of going through a hectic normal library process to borrow a print text book”*

Another participant with a slightly varying view observed that:

*“...to me I’m impressed by the possibility of accessing eBooks using a variety of portable devices, such as smart phones and tablets” M2*

Findings indicated that participants from both programmes, a majority of whom from Master of Medicine in Internal Medicine are motivated to access and use eBooks because, they provide current information; are convenient to access, share and carry and are time saving yet some of them are freely available online through open access. While a majority from Master of Veterinary Preventive Medicine are motivated to use eBooks because they can be accessed using a variety of portable devices e.g. smartphones and tablets. Most of the responses to this question were largely shared opinions. There seems to be a significant relationship between Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine based on the factors that motivate them to use eBooks.

Document checklist was used to establish that the subscription to relevant health databases. Research 4 Life provides access to the world’s largest collections of biomedical literature, offered by the leading biomedical publishers also motivated Medical students to use eBooks.

Overall, the findings largely supplement revelations by Neyole (2014) who established that usage of eBooks can be attributed to acceptance by students, improved technological infrastructure, faster internet, free broadband access in colleges and ease of access using various devices and platforms.

#### **4.4 Perceptions on Access and Utilization of eBooks**

Objective two of the study sought to establish perceptions on access and utilization of eBooks by students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University. This was critical in getting to know the participants’ perceptions on access

and utilization of eBooks regarding the following themes: Awareness; Training, Enhancement of Students Research Abilities; Factors influencing eBooks Access and Utilization; Usability of eBooks Compared to Print; Functions that would be appreciated while utilizing eBooks; Preferred eBook Formats, Dislikes about eBooks; Limitations to Access and Utilization of eBooks.

#### **4.4.1 Awareness**

Awareness is one of the key concepts that were conceptualized in this study. It should be noted that without significant measures in place for creating awareness, access and utilization cannot be guaranteed. Therefore participants were asked to state how they find out what is happening within their library and the following findings were obtained:

A majority of participant would appreciate the librarians' direct involvement in creating awareness by becoming more engaging and ensuring that from time to time they talk to their users about the available services and new or upcoming offerings. A participant who preferred to know about library services through sensitization stated:

*“I prefer direct sensitization from librarians, they can provide additional information. When there is constant engagement between the librarians and the users, I think we shall all become aware of the present and upcoming service provisions” M1.*

The preference for sensitization from librarians arises from the need for firsthand information that is guaranteed to reach the intended recipients and by so doing even the librarians can be able to tell the magnitude of awareness considering the numbers of users that they engage with from time to time. One of the participants with a similar view stated that:

*“It is the librarian’s role to make sure that we the users are aware of the services they provide”*  
M1.

Another participant with a deferring view stated that:

*“I think all Library services and new offerings should be made available through the Library Website, the motivation should be that the website is constantly updated with present and future activities including provisions” M2*

There was preference by some participants to get all information about the library through the website, however these were minority views. Participants observed that the library website must be updated regular with exciting offerings showing the present services and activities alongside

that anticipated ones. By so doing the students are likely to be hungry information seekers and followers of library postings.

Findings suggest that students from both programmes, a majority of which from Master of Veterinary Preventive Medicine preferred to find out what is happening within the libraries through direct sensitization from librarians. While a majority from Master of Medicine in Internal Medicine preferred to find out what is happening within the libraries by visiting the Library Website. There was more preference for direct sensitization from librarians by Master of Veterinary Preventive Medicine students compared to those from Master of Medicine in Internal Medicine most of whom seemed to prefer visiting the Library website.

The findings closely reflect Ngudu (2017), revelation that students prefer finding out what is happening in the Library through Notice boards and posters, newsletters, face book, WhatsApp, email, twitter, library website and Google search engine. However, studies by Posigha (2012) and Nwagwu and Okafor (2014) found lack of awareness to be a major obstacle to eBook access and utilization. Therefore creation of eBooks awareness should be prioritized at Makerere University.

According to Kinengyere and Tumuhairwe (2009), awareness of library offerings at Makerere University is mainly facilitated using Online Public Access Catalogue (OPAC). The general perspective is that there is need to improve awareness of the existence of eBooks in Makerere University library. Although various marketing strategies have been used, participants seem to prefer sensitization by the librarians and visiting the library website. The library may want to investigate these options as marketing strategies to provide awareness of resources available in the library. There seems to be a general call for continuous analysis of existing provisions to find out inadequacies and make the necessary adjustments.

#### **4.4.2 Training**

Training is one of the key inputs in as far as access and utilization is concerned. When training are conducted so is awareness and the users are able to effectively access and utilize eBooks to solve their critical information needs in a timely manner. When participants were asked whether they had received any training on eBooks. The following were the responses were obtained:

A participant who had received training had this to say:

*“Yes I have received training but this was during orientation...it was so helpful for initial access to eBooks and Navigation” M1*

*“Yes I did receive training but this was one on one with the e-resources librarian. I was trained on search customization and navigation, the rest is really simple” M2*

Training are usually conducted by e-resources librarians especially during orientation week, however according to review of orientation attendance register 2014, 2015 and 2016 most of the postgraduates do not show up for orientation. This could impact on access and use of eBooks for those students who have not attended orientation where e-resources training are conducted. A majority of participants especially those from Master of Medicine in Internal Medicine had received training during orientation and during individual sessions with e-resource librarians. Participants who received training revealed that their key training needs included navigation and customization, the rest of the tasks were easily comprehensible even without training.

Meanwhile one of the participants who had not received training but was able to access and utilize eBooks revealed that:

*“Library training have not found me around and I am sorry to say that I have never received training but I became aware of eBooks existence when mentioned by lecturers and other colleagues... In addition, I was able to access them because I’m computer literate...” M2*

Findings have revealed that students who did not receive training were somehow able to learn something about access and use of eBooks on their own provided they had received awareness and had access to a computer. Some of the participants, especially those from Master of Veterinary Preventive Medicine had never received training but were still able to access and utilize eBooks. They attributed their success to awareness brought about by lecturers, librarians and peers in addition to their ability to use computers effectively.

Findings indicated that students from both programmes, a majority of which from Master of Veterinary Preventive Medicine received training on how to locate electronic resources. While a majority from Master of Medicine in Internal Medicine had not received training on how to locate electronic resources.

There was a slight difference between Master of Veterinary Preventive Medicine and Master of Medicine in Internal Medicine in terms of students who had received training and those that had not.

Findings also indicated that students from both programmes, a majority of which from Master of Veterinary Preventive Medicine received Training related to eBooks on how to customize a search to retrieve eBooks.

The training manuals examined through document review revealed that students are supposed to be trained on how to access electronic resources including eBooks, how to use customized search, how to download and print chapters. On the other hand the orientation attendance sheets in the library revealed that not all students who are admitted for postgraduate studies in these programmes show up for orientation where initial training takes place.

Overall, perspectives indicate that there is awareness on the existence of eBooks and a majority of students received training, however preferred awareness strategies should be adopted and training should be conducted from time to time to cater for those students who may not attend the orientation.

The participants' opinions incline to Vasileiou, Rowley and Hartley (2012), who suggest the need for a re-organization of library spaces and having technologically skilled staff to train users on access and discovery of eBooks.

#### **4.4.3 Enhancement of Students Research Abilities**

In order for students to effectively access and utilize eBooks, the academic libraries must strive to enhance students' research abilities by ensuring that all conditions for effective access are met and the infrastructure for facilitating and access and utilization is constantly improved. Participants were asked to share their opinions on what could be done by the library to enhance their research abilities while using eBooks. The following findings were obtained:

One of the participants suggested that:

*"There is very limited access to Wi-Fi around the college and worst around the library, I wish the Library could invest more on wireless access points such that we can access eBooks in a more flexible way...we have recently noticed improvements in the connection speeds though".*

Findings revealed largely shared opinions. Nearly all participants from both programmes suggested that the library should invest more on Wi-Fi/ wireless internet connectivity. However subscription documents reviewed revealed that in 2017, Makerere University had upgraded Bandwidth subscription from RENU to 1 GB courtesy of ADB/HEST project.

According to documents reviewed on the Directorate of ICT Website, as of December 2017, it was revealed that Makerere University had witnessed a steady increase in bandwidth capacity since the University switched internet service providers in 2014 from UTL (a commercial ISP) to RENU which is a Research for Education Network dedicated to providing relatively affordable bandwidth to research institutions. Before joining RENU, Makerere's bandwidth was 68 Mbps on UTL and this was tripled to 180 Mbps for the same price when Makerere joined the RENU network. The bandwidth then increased from 180 Mbps to 240 Mbps and it has now further increased to 300 Mbps in a span of three and a-half years, this bandwidth was raised in 2017 using ADB/HEST Project funds to 1Gbps. The current bandwidth of 1 Gbps is fair enough comparable to institutions such as University of Nairobi and Ghana who run on approximately 600 Mbps and 1 Gbps respectively. Therefore at the bare minimum, Makerere now has a fairly reasonable internet data package for a rewarding user experience in using eBooks

Another participant suggested that:

*“It would be so helpful if the library could acquire devices preloaded with some of the core eBook such as kindles...when you travel abroad, most libraries have these, however reliable internet access is still required for accessing current editions of eBooks” M1*

Some of the participants suggested that the library acquires preloaded devices with eBooks alongside reliable internet connectivity for accessing current editions of eBooks online. Findings also indicate that students from both programmes, a majority of which from Master of Medicine in Internal Medicine suggested that the library should invest more on Wi-Fi/ reliable internet connectivity and provide e-reading devices.

These findings support revelations by Kinengyere and Tumuhairwe (2009), who revealed that Makerere University library, has got ICT systems that have acted as engines to provide solutions in the service delivery. The usual professional activities are done electronically using systems set like Virtua in cataloging. They revealed that the library has electronic means of accessing library e-resources such as eBooks and e-journals online.

#### **4.4.4 Factors influencing eBooks Access and Utilization**

There are definitely some favorable conditions that must be responsible for the continuous access and utilization of eBooks and possible limitations that curtail the same. Participants were asked to state Factors Influencing eBook Access and Utilization and the following findings were obtained:

One of the participants revealed that:

*“..For sure eBooks are very user friendly, I can read them on my smart phone any time even while on duty, yet you can carry several books in one tiny device, remember medical books are usual big and heavy”M1*

A majority of participants revealed that one of the factors influencing access and utilization of eBooks is that eBooks are user friendly. This was attributed to the fact that on portable devices such as smart phones, laptops or tablets which also provide storage and portability to several of the eBooks titles.

These testimonies are in harmony with revelations by other researchers that include Carreiro (2010), Brook (2012), Forsman (2012), Wicht (2011) who have in affirmative indicated that eBooks are becoming popular of late because they have several advantages when compared to printed books. For users who are frequent travelers, or who have to carry out research in remote places, eBooks offer a substitute for print books and provide easier portability.

*“...to me, the most important factor that influences eBooks access and utilization is that they can be accessed using multiple devices moreover simultaneously with other users... I also like the fact that eBooks are very portable, you can carry and share so many eBooks just over a flash drive”M2*

Participants with a similar view that simultaneous through multiple devices and the ability for users to easily carry and share influences access and utilization of eBooks. This view correlates with a revelation by Rojeski (2012) that eBooks possess very attractive features such as the ability for remote users to access information anytime and remote access by simultaneous users.

*“Internet is one of the key factors influencing access and utilization of eBooks however in this college and probably elsewhere within Makerere we are facing serious challenges with access to reliable internet, because as a medical student you may be faced with a situation where you want*

*instant access to a book but due to limited access to internet you just resort back to carrying your print copies”M1*

Participants from both programmes, a majority of which from Master of Medicine in Internal Medicine revealed that internet access is one of the factors influencing access and utilization of eBooks. This is backed up by revelations by Allen & Kaddu (2014) that ICT Infrastructure is a barrier to eBooks acquisition and making them available to users.

The problem of unreliable internet connectivity is what Makerere University has tried to overcome with little success for years due to the high numbers of users served against a limited budget. This assertion is derived from documents reviewed revealing that Makerere University subscribed to internet of 1 Gbps bandwidth in 2017 through the Research in Education Network for Uganda (RENU) which is a tremendous increase compare to 300Mbps that was used three years ago.

The overall population of internet Users in the different campuses and colleges of Makerere University is estimated to be over 45,000. This explains the slow internet speed despite the considerable amount of internet bandwidth procured by the University. In other revelations, it is suspected that the internet speed is affected by the heavy downloads conducted by students who abuse the service provision by engaging in nonacademic acts. Most internet users are likely to use the university internet for nonacademic/unethical purpose such us betting, torrents downloads, watching pornography, etc. In my opinion, there is need for the ICT managers to channel more data to libraries and control the internet usage using proxies, filters and other technology in order to increase internet speeds for eBooks access and utilization.

Through participant observation, it was established that there is internet connectivity clearly visible in both of the college libraries both Local Area Network LAN and Wi-Fi/Wireless internet.

Another participant with a slightly varying view stated that:

*“Some eBooks by the way are freely available online these days and the biggest blessing we have as Medical students is Research for life databases”M1*

The availability of relevant health databases through Research 4 Life has provides access to the world’s largest collections of biomedical literature, offered by the leading biomedical publishers which is seen to motivate Medical students to actively use eBooks. In addition medical students also have access to plenty of other open access content including eBooks.

Findings indicated that students from both programmes, a majority from the Master of Medicine in Internal Medicine use eBooks because they provide current information; convenient to access, share and carry; and time saving yet some of them are freely available online through open access. While a majority from the Master of Veterinary Preventive Medicine are motivated to use eBooks because they can be accessed using a variety of portable devices e.g smartphones and tablets.

Overall, the findings of this study correlate with Neyole (2014) who established that usage of eBooks can be attributed to acceptance by students, improved technological infrastructure, faster internet, free broadband access in colleges and ease of access using various devices and platforms.

#### **4.4.5 Usability of eBooks compared to Print**

According to Brook (2012) eBooks are ideal sources of information for facilitating research and independent study with ability to excite users through many benefits that outweigh conditions of conventional prints. The eBook purports to replace the conventional book with added functionality as such participants were asked to state whether they find eBooks more usable compared to print books. The following findings were obtained:

One of the participants stated that:

*“...the print textbook has been there for long and has served us well but with invention of its electronic version, I would say I am finding eBooks more user friendly because they can be accessed from diverse locations at any time as long as a have connectivity...” M1*

A majority of participants found eBooks to be more usable compared to print textbooks. The preference of electronic versions against print is attributed to the eBook attributes such as flexibility in access regardless of time and location. These findings corroborate with revelations by previous researchers such as Brook (2012), Carreiro (2010), and Forsman (2012) that eBooks serve as critical assets for offering wider access to information in a more convenient and flexible way hence effectively aiding research and lifelong learning without the limitations of time, space, distance and physical boundaries.

One of the participants with a varying opinion revealed that:

*“You see, printed textbooks are more user friendly compared to eBooks that require some level of digital literacy to access and - remember you must always have a reading device and most times internet” M2*

Findings indicate that a majority of participants, more so from Master of Medicine in Internal Medicine found eBooks to be more usable compared to print because of their attribute of flexible access from diverse locations regardless of the time lines. This is highly associated to the benefits that eBooks possess compared print. Out of those that found print more usable, a majority were from Master of Veterinary Preventive Medicine mainly because eBooks require e-reading devices and internet at most times.

*"I think eBooks are here to complement print, why not treat them as such because each has their own advantages and disadvantages" M1*

Other minority opinions suggest that eBooks are seen as complements to print, however, both print and eBooks content possess unique attributes and functions which drive usage and preferences for each.

The findings validate conclusions from several researchers including Carreiro (2010), Brook (2012), Forsman (2012), Wicht (2011) indicating that eBooks are becoming popular of late because they have several advantages when compared to printed books.

Overall, findings correlate with Brook (2012) revelation that eBooks are ideal sources of information for facilitating research and independent study with ability to excite users through many benefits that outweigh conditions of conventional prints.

#### **4.4.6 Functions that would be appreciated while utilizing eBooks**

The eBook provides functions that make it more desirable when compared to the print version however as a recent development users may be expecting more from this innovation than it is assumed. The anticipated functionality if adopted could drive access and utilization. Therefore participants were asked to state what they would like to be able to do while using an eBook and the following findings were obtained:

One of the participants from stated that:

*"...the ability to download and retain a copy and print out text, to me would be a plus". M1*

Another participant had this to say:

*"Some books are so bulky therefore ability to search within a book, highlight and email chapters could be so desirable". M2*

Participants from both programmes, a majority of which from Master of Veterinary Preventive Medicine would like to be able to download and retain a copy of the eBook on their device; and copy and print out text while using an eBook. While a majority from Master of Medicine in Internal Medicine would like to be able to search, highlight text and email chapters from within the book.

Through document review, it was established that the aggregator database agreements available in the e-resources section show that users can be able to download chapters or the full text of an eBook depending on the digital rights management requirements for each book specified by each publishers. However perpetual ownership to eBooks purchased by the library was mainly seen in emerald agreements, whose database is not relevant to both Master of Medicine in Internal Medicine and Veterinary Preventive Medicine students because most of the available eBooks there do not critically address there information needs.

Through document review it was established that information available on most subscribed platforms such as Research for Life indicate that e-resources including eBooks have unique attributes and functions which drive usage and preference. The appreciated functions include remote and online access, seamless access and customized search/navigation among others.

A participants revealed that:

*“You can actually add sticky notes and highlight specific texts while you read which is very common with us doctors” M1*

Another participant indicated that:

*“It’s possible to zoom text and read aloud which suit different reading styles” M2*

Participants across the board appreciated that the ability to add sticky notes and highlight text are important functions to use while utilizing eBooks. Followed by the ability to zoom text and read aloud. Therefore there is a significant relationship between Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine as regards to the desired functions about eBooks.

Findings indicate that a majority from Master of Medicine in Internal Medicine sighted ability to add sticky notes and highlight text as functions they like about eBooks. While a majority from Master of Veterinary Preventive Medicine like eBooks because of the ability to zoom text and read aloud.

Findings confirm revelations by Brook (2012) that eBooks provide multimedia information, full-text searching, reference linking, and flexibility in searching and browsing, selection of different types of fonts, portability, and interoperability on a variety of devices.

#### **4.4.7 Preferred eBook Formats**

There are several formats for accessing eBooks, these include Adobe PDF format, ePub Format, Kindle Format, Adobe Digital edition among others. There was need to determine the most preferred format for accessing eBooks so as to know the best alternatives that can be embraced by many. Participants were asked to state their eBook format preferences and the following findings were obtained:

One of the participants stated that:

*“I prefer PDF format, it simplifies everything about reading an eBook” M1*

A majority of participants from both programmes, especially those from Master of Medicine in Internal Medicine prefer mainly PDF format for reading eBooks. While a majority from Master of Medicine in Internal Medicine prefer to use ePub format.

*“I have used more formats but I think ePub stands out for me, it’s the most interactive format for reading eBooks” M2*

Some participants prefer to use ePub format because they believe it’s the most interactive format for using eBooks. Only two formats seem to be very popular among graduate medical students, the Adobe PDF and the ePub.

According to participant observation, most platforms have been seen to provide eBooks download into PDF format, Adobe digital edition and ePub format, however PDF seems to be more user friendly and popular among graduate medical students, this is not surprising as most participants want to be able to download and print relevant articles. However lack of standards in the eBook industry presents access challenges from different platforms when using multiple devices, leading to frustrated users.

#### **4.4.8 Dislikes about eBooks**

According to Springer, (2009), end users are just beginning to incorporate eBooks into their information experience and research habits. In order to ensure adaptability, there was need to

establish perceptions on unpleasant facts about eBooks so as to recommend improvements. Participants were asked to state what they don't like about eBooks and the following findings were obtained:

One of the participants explained that:

*"It is annoying when the platform is complicated to use and when you locate a book it indicates that you have full access but when you click it, you only find an abstract and the full text is locked"* M1

Another participant stated that:

*"The problem with eBooks is that they require electric power source and reliable internet connection to access unlike the print text books"* M2

One of the participants revealed that:

*"The devices required for access are quite costly and yet they are also prone to being stolen"* M1

Another participant from observed that:

*"To access eBooks one honestly requires some basic ICT skills to facilitate navigation and retrieval"* M2

Findings indicate that a majority from Master of Medicine in Internal Medicine sighted un-customized platforms as a dislike about eBooks. While a majority from Master of Veterinary Preventive Medicine dislike the fact that eBooks require electricity and reliable internet to access; the fact that, the required e-reading devices are expensive to possess; and the fact that to access and utilize eBooks, one needs some basic training.

Through document review, the available records in the e-resources section indicate that there are user complaints about un-customized platforms. The aggregator databases agreements reviewed show that depending on the publisher there are license restrictions on sharing, printing, copying and ownership for each specific eBook.

The devices may be affordable to some well to do students but the general perspective is that, other than smartphones whose prices vary but with a minimum of USD 60 on Amazon, the prices for e-readers (devices) range between USD 200 depending on the specifications to over USD 1000 before shipping and tax clearance costs (Amazon.com, 2017). Records at the e-resources section show

that all students are scheduled to undergo e-resources training during orientation, most students comply however a considerable percentage is always absent especially postgraduates, and this perhaps explains why most students find difficulty locating resources.

Findings are consistent with revelations by other researchers such as Hwang, et al (2014), Walters (2013) that there are several disadvantages to the use of vendors' interfaces for eBooks access. A more general problem is the substantial variation in the appearance, layout, and functionality of the various eBook platforms and interfaces. This lack of standardization makes librarians and patrons reluctant to acquire and use eBooks. According to Besen & Kirby (2014) there are always several restrictions placed by publishers on printing, downloading, loan periods and embargos in accessing new titles. Such restrictions do not encourage optimum access and utilization by users, therefore Libraries need to be aware of these limitations and provide solutions that can boost access and utilization.

#### **4.4.9 Limitations to Access and Utilization of eBooks**

Successful provision of eBooks can greatly be achieved when issues limiting access and utilization of eBooks can be dealt with. There was need to establish factors that are perceived to be stumbling blocks to effective access and utilization of eBooks. Participants were asked to state conditions that limit them from often using eBooks and the following responses were obtained:

One of the participants revealed that:

*“I think the biggest hindrance is the unreliable internet, sometimes you can spend the whole day without connectivity”.* M2

Another participant explained that:

*“Most devices these days don’t store power for long due to availability of several applications that consume power, therefore power shut downs contribute to failure to access and use of eBooks”.* M2

One of the participants revealed that:

*“I don’t own a laptop or a smart phone for that matter, so I usually access this resources from the library but the access devices are quite limited”.* M1

Another participant stated that:

*“It is mainly power shut downs that I think also cause internet to drop”.*M1

A participant revealed that:

*“It’s reliably established that over staring a computer screen and sitting in one posture for long ours may course eyes and back strain for some individuals which may lead to health complications in a long run”.*M1

Findings indicate that participants from both programmes, a majority of which from Master of Veterinary Preventive Medicine sighted intermittent network drops during access as major hindrances to regular use of eBooks. While a majority from Master of Medicine in Internal Medicine sighted limited access to devices to be preventing regular access and utilization of eBooks.

Findings indicate shared opinions that participants from both programmes of which a majority were from Master of Veterinary Preventive Medicine sighted power shut downs as the main problem encountered while using eBooks. While a majority from Master of Medicine in Internal Medicine sighted over staring a computer screen and sitting in one posture for long hours which may course eyes and back strain leading to health complications in a long run.

Findings reflect Allen & Kaddu (2014) revelation that limited or poorly developed ICT Infrastructure could hinder availability and effective access and utilization of eBooks notwithstanding among other obstacles the cost of eBooks and lack of library budget.

Findings also corroborate with Brahme & Gabriel (2012) revelations that eBooks are technology and power-dependent; their success also depends on affordability, accessibility, navigation and ease of use. Internet access and electricity supply are mandatory for downloads.

#### **4.5 Environment of eBooks Access and Utilization**

Objective three sought to establish the environment of eBooks access and utilization at Makerere University. The eBooks access and utilization environment must be very favorable so as to witness adoption and continuous user interaction with eBooks platforms. Therefore the access and utilization environment has been established in terms of Information Technology Infrastructure, devices used, internet connection distribution, and remote access as follows:

#### **4.5.1 Information Technology Infrastructure**

Information Technology Infrastructure is a key benchmark to be considered before any library should consider the adoption of eBooks. If the ICT infrastructure is poorly developed then users are most likely to be frustrated when it comes to eBooks access and utilization. Participants were asked to comment on status of Information Technology Infrastructure at Makerere University and the following findings were obtained:

One of the participant revealed that:

*“Although the information technology infrastructure looks fine on the surface, more facilities are required to transform the libraries to become a 21st century academic facility. The internet is available but needs to be improved in terms of access distribution and effectiveness”.* M1

Many participants in the study raised concerns related to ICT infrastructure upgrade and internet service quality improvement. The university needs to assign substantial budgetary allocation for investment in ICT infrastructure and information resources. Provision of e-resources also requires around the clock help desk support in terms of online embedded librarians. This service should be considered by the library to ensure that users are assisted at every time of need.

Through participant observation, it was revealed that Makerere University has got computer research labs in every faculty and the main library has got a research commons lab for postgraduate students and learning commons lab for undergraduates. These labs are equipped with internet enabled computers for facilitating research including access to e-resources where eBooks forms a component. The Wi-Fi and LAN is available in all colleges and in some parts of the main library. However considering the over 45,000 clients served by Makerere University internet, Makerere University needs to scale up in terms of hotspot access points and Local Area Network points distribution.

Through document review, it was revealed that Makerere University has undertaken projects tailored to enhance ICT infrastructure. The projects led to the establishment and revamping of research labs through Carnegie Cooperation funding that included computers and fixtures in 2010 and the recent ICT funding by the African Development Bank/Higer Education Science and Technology Project of the Ministry of Education.

Wi-Fi hot spot access for mobile devices is vital in higher education as a landscape to facilitate access to e-resources. Most students access information resources using mobile devices. Reliable and constant access to high speed Wi-Fi will most likely increase the frequency of access to electronic resources. Improved bandwidth and faster internet access remedies can increase the acceptance of eBooks for academic research.

#### **4.5.2 Devices currently used to Access and Use eBooks**

Given the fact that eBooks are made available by the library, they cannot be accessed or used without a device with specifications and software recommended for eBooks access and use. Therefore participants were asked to state how they currently access and use eBooks and the following findings were obtained: One of the participants stated that:

*“The library has some desktop computers, but for me I always use my laptop to access and utilize eBooks, however I would prefer even a more lighter device”.* M2

Another passionate participant revealed that:

*“I want to be a digitally oriented, this makes me so addicted to my tablet and smart phone for accessing many apps and online services including access to eBooks”.* M1

Findings indicate that students from both programmes, a majority of which from Master of Medicine in Internal Medicine currently use laptops to access and use eBooks. While a majority from Master of Veterinary Preventive Medicine currently use tablets and smart phones to access and use eBooks.

The most currently used device by both Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine is a personal owned laptop. These findings are useful and can help to inform library policy makers to consider purchasing portable devices as loanable items instead of desktop computers. Desktop PCs in the Libraries are likely to be largely used by undergraduate students most of whom may not be able to afford ownership of the expensive portable devices.

Participant observation findings reveal that graduate students who use the desktops in the research commons do so mainly to gain access to other specialized software such as endnote, Mendley, strata, SPSS etc, but not necessarily to access eBooks as they do this on their personal portable devices. Also observed is the fact that most postgraduate students use the desktop PCs present in

the research commons, however the large number of users are from other faculties and a majority of which are mainly first year students.

Overall, the research findings correlate with shared assertions from researchers such as Rojeski (2012), Chiarizio (2013), Allen & Kaddu (2014) that today it has become customary for many users in developed countries to possess access to mobile devices such as laptops, tablets, iPads and smartphones; such devices have changed the way users search and access electronic resources including eBooks.

#### **4.5.3 Preferred E-reading Devices**

The access and utilization of eBooks is facilitated through e-reading devices that include portable tablets, smartphone, laptops and fixed desk tops among others. Participants were asked to state the devices they would prefer for accessing and using eBooks the following findings were obtained:

One of the participants suggested that:

*“These days, portability of an access device is what is desirable, in my opinion I would prefer accessing eBooks using my smart phone and tablet”*. M1

Another participant stated that:

*“I like to use my laptop because its portable and you can read a book in a wide screen display”*.

M2

Findings indicate that participants from both programmes, a majority of which from Master of Medicine in Internal Medicine would prefer to access and use eBooks through tablets and smart phones. While a majority from Master of Veterinary Preventive Medicine would prefer to access and use eBooks through Laptops.

The findings indicate that the most popular are tablets, smartphones and laptops indicating preference for portable e-readers, partly due to the convenience and seamless access, as opposed to static desktop PCs which restrict users to specific rooms for access. Although a majority of participants indicated preference for portable devices, some of them stressed that handheld devices are prone to theft and this is one of the reasons the desktops could be considered.

Through Participant observation, it was established that desktops PCs are present in the main library and college libraries including the college of Health Science and College of Veterinary

Medicine. Portable and mobile devices such as tablets and kindles that students could borrow are not provided for in the Library as yet.

Although eBooks are convenient and easily accessible, it is worth noting that some of the respondents do not own access devices that would aid off campus access and utilization. Other users simply prefer print. The library has the responsibility to provide the necessary infrastructure and access to resources in different formats for academic research.

Overall, findings corroborate with revelations by Rojeski (2012), Chiarizio (2013), Allen & Kaddu (2014) that, today it has become customary for many users in developed countries to possess access to mobile devices such as laptops, tablets, iPads and smartphones; such devices have changed the way users search and access electronic resources.

#### **4.5.4 Internet Connection Speed**

Internet connection is one of the requirements for accessing eBooks. The technology environment without a reliable internet connection will definitely hamper flawless access and utilization of eBooks. In order to establish whether the internet connection speed at the Makerere University is satisfactory. Participants were asked to comment on the current state of internet connection speed at their college and the following findings were obtained:

One of the participants stated that:

*“I have experienced some steady connections in the recent days however during the last semester, Internet was generally slow and would disappear at times... in terms of connection speed more urgent intervention is required especially to improve access especially during peak hours” M2*

Another participant revealed that:

*“I cannot realistically condemn the internet speed but I would like to appreciate the fact that it somehow gets things done, I think it’s fairly reliable at times”.M1*

Findings indicate that students from both programmes, a majority of which from Master of Veterinary Preventive Medicine experience slow internet connection speed in their college. While a majority from Master of Medicine in Internal Medicine experience fairly reliable internet connection speed in their college. However the general perspective is that both colleges generally experience slow internet connection speed which is not very favorable for accessing and

downloading eBooks. However, in the recent months, participants from both colleges have experienced improvements in the connection speeds.

Through document review, it was established that Makerere University currently subscribes to internet of 1 GB bandwidth through the Research in Education Network for Uganda (RENU). The overall population of internet Users in the different campuses and colleges of Makerere University is estimated to be over 45,000. This explains the slow internet speed despite the considerable amount of internet bandwidth procured by the University. In other revelations, it is suspected that the internet speed is affected by the heavy downloads conducted by students who abuse the service provision by engaging nonacademic acts. There is need for the ICT managers to control the internet usage using proxies, filters and other technology in order to increase internet speeds for eBooks access and utilization.

Findings validate revelations by Allen & Kaddu (2014) that ICT Infrastructure is a barrier to eBooks acquisition and making them available to users. Overall, findings suggest that the current internet connection speed in the colleges and the entire campus is generally slow but gradual improvements have been noticed in the recent months. This construes revelations by Asunka, (2013) that developing countries face challenges related to adoption of emerging technologies, inadequate technological infrastructure, erratic power outages, skills shortage, budgetary constraints, high exchange rates, bandwidth costs and internet access.

#### **4.5.5 Remote Access**

The access and utilization of eBooks is facilitated through IP authentication, however users also have an option of accessing eBooks remotely using a proxy connection which requires authentication by use of a username and password when outside the university network. There was need to find out comments about the success of remote access. Participants were asked to state whether they are able to access electronic resources from home and the following responses were obtained:

One of the participants stated that:

*“It’s possible to access e-resources from virtually anywhere, so yes I can access them from home” M1*

Another participant stated that:

*“From home, yeah, but for only none IP restricted databases and HINARI....”* M2

Students from both programmes, a majority of which from Master of Medicine in Internal Medicine were able to access electronic resources from home. While a majority from Master of Veterinary Preventive Medicine were able to access electronic resources from none IP restricted databases and HINARI.

Through document review, it was established that the available licensing information for most databases especially those available through the research for Life platform only require passwords to access the resources from anywhere as long the user is located within a group A country IP that is considered by the United nations as developing. This explains why some students indicated that they are able to access e-resources from home for specific databases only. However some of the available databases are IP sensitive restricted to Makerere University IP jurisdictions, however libraries have gone about this problem by using ez-proxy, an off campus connection portal.

Overall, findings are in agreement with Rojeski (2012) that eBooks possess very attractive features such as the ability for remote users to access information anytime simultaneously.

#### **4.5.6 Technological aspect(s) preventing Access and Utilization of eBooks**

The access and utilization of eBooks are dependent on the flexibility of technological aspects that are used for composing eBooks or that support the accessibility and use of eBooks. Participants were asked to state technological aspects that prevent them from accessing and utilizing eBooks and the following responses were obtained.

One of the participants revealed that:

*“...Poor internet connectivity is usually a hindrance to eBooks access and utilization, because eBooks technology in most cases relies on the quality of internet technology...Some platforms other than Research 4 Life require access within the IP range which is a hindrance to access”.*

M2

Another participant stated that:

*“Not all students can afford to purchase and maintain laptops, tablets or smart phones, these are costly to acquire moreover they need to be serviced from time to time, yet they are also prone to theft”.* M2

Participants revealed that fluctuations of internet connectivity is one of the most technological limitations of eBooks access and utilization because most of the current eBooks are available online. In addition the requirement for IP range access for some platforms when accessing eBooks while off campus internet is a technological hindrance. In addition not all students have got personal access devices that can be used for accessing eBooks while at home. Another participant revealed that:

*“...its most frustrating when your machine blacks out either due to power failure...virus infections and related threats also can render the device un usable” M1*

Findings indicate that there were largely shared opinions as participants from both programmes identified technological limitation to eBooks access ranging from poor internet service quality, limited access to eBooks access devices, distance from the IP range and power failure and virus infections. A majority from Master of Veterinary Preventive Medicine sighted poor internet service quality, limited access to eBooks access devices, and distance from the IP range to be the technological limitations to the accessing of eBooks. While a majority from Master of Medicine in Internal Medicine sighted power failures and virus infections and associated threats that render the devices unusable.

#### **4.5.7 Improvements noticed in the Access and Utilization Environment**

The interviewees were asked to state improvements they have noticed since they started accessing and using eBooks. The following responses were obtained:

One participants stated that:

*“I have since last semester noticed improvements in some of the platforms and there is also an increase in databases” M2*

A participant revealed that:

*“There is noticeable improvement in the internet connection speed” M1*

The responses to this question were largely shared opinions. The most significant improvement noticed by several interviewees was the improvement in platforms and increase in database, followed by improvement in the internet connection speed.

Findings indicate that a majority of participants from the Master of Veterinary Preventive Medicine sighted access platforms and increase in databases and internet connection speed as some of the improvements they have noticed since they started using eBooks. Whereas those from the Master of Medicine in Internal Medicine sighted noticeable improvement in the internet connection speed.

Library records show acceptability of eBooks as there was a significant reduction in the numbers of postgraduate users borrowing print books and less reliance on the librarians physical help hence reduced cues at the issue desk as most of the users now are able to address their information needs electronically including document delivery service. In addition 2017 subscription report shows that internet bandwidth subscription through RENU increased from 300MBps in 2016 to 1GBps in 2017.

#### **4.6 Solutions that can be adopted to Improve eBooks access and Utilization Environment.**

The implementation of eBooks has successfully been executed at Makerere University, however this transformation does not come without challenges that affects optimum utilization. Participants were asked to give their opinions on what the library can do to improve eBooks provision and optimize utilization and the following findings were obtained.

One of the participant stated that:

*“I studied in a University in South Africa, believe me our library needs to benchmark and adopt best practices” M2*

Benchmarking to adopt best practices from other libraries in South Africa and Europe was one of the most shared opinion among participants from both Master of Medicine in Internal Medicine Master of Veterinary Preventive Medicine. Most of the participants claim to have studied abroad and believe that a lot can be adopted to improve the current situation in terms of access environment and best practices.

Another participant revealed that:

*“The library needs to constantly improve platforms and provide more access devices including the portable ones...these access platforms can even be made more user friendly through customization” M2*

Some of the participants suggested that there is need for continuous improvements on the access platforms including customization to ensure that the most relevant content classified and the ease of access is prioritized. The library needs to engage with publishers from time to time to ensure that access platforms are user friendly and locally customizable once subscription has been made.

One of the participants revealed that:

*“There is need for provision of WiFi hotspots and generally improve internet service quality around campus...alternative power sources need to be emphasized as well” M1*

A majority of participants proposed that the University prioritizes on the improvement of Wi-Fi hotspots and general internet connectivity speeds. Participant also want alternative power sources to be provided for. When internet is stable and the power is constant, there is a likelihood that utilization of eBooks will greatly increase.

One of the participants stated that:

*“Training is always required to create awareness of services and help facilitate our research abilities in using eBook...When you intend to hold a training make sure information goes out in advance and followed by reminder notices” M2*

Some participants suggested that training is always required from time to time so as to increase awareness and impart navigation and retrieval skills among users of the library collections. Training could ultimately create awareness of the available eBooks, access options and the search strategies for executing a search.

Findings indicate that although this were shared views by students from both programmes, a majority from Master of Medicine in Internal Medicine suggested that the library should benchmark to adopt best practices from Universities in South Africa and Europe, continuously improve platforms and provide more access devices including the portable ones. While a majority from Master of Veterinary Preventive Medicine suggested that the library needs to increase WiFi hot spots and generally improve internet service quality around campus while considering alternative power sources, and should to consider continuous refresher training to create awareness of services and facilitate their research abilities in using eBooks which showed acceptability.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents a summary of findings, conclusions, recommendations to implement the conclusions and areas for further research.

### **5.2 Summary of Findings**

This section presents a summary of the findings in line with the four research objectives.

#### **5.2.1 Access and use of eBooks**

This study established that there was availability of electronic resources including eBooks at Makerere University provided through different subscription arrangements. Subscriptions took the form of partnerships and collaborations through Sida, CUUL, Research 4 Life and Other open source subscribed e-resources. The platforms that specifically dealt with eBooks were ProQuest eBook Central, EBSCOhost Book Tittles, Springer Lib eBook Chapters and eBook Central Report. From the three different platforms for eBooks that were used from June 2017 to Jun 2018 by the all users of Makerere University, ProQuest eBooks was the most utilized platform with 13,434 successful requests compared to EBSCOhost Book Tittles (405 requests). However, book chapters from Springer Lib eBook was the most highly utilized (114,233 successful requests). The most accessed and utilized eBooks platforms by both Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine included mainly those that are specific to medical disciplines such as Hinari and Access Medicine.

Students from both programmes, a majority of which from Master of Veterinary Preventive Medicine used eBooks regularly. While a majority from Master of Medicine in Internal Medicine used eBooks occasionally. Those who used eBooks regularly were mainly motivated due to the fact that eBooks are easily accessible whereas those who use eBooks occasionally associate it to limited access to reliable internet on a regular basis.

### **5.2.2 Perceptions on Access and Utilization of eBooks**

The study indicated that students were actively accessing and utilizing eBooks to solve their critical and urgent information needs through mainly individual private devices and sometimes internet enabled desktops present in the Library. There was a high correlation in the status of eBooks utilization between students from Master of Medicine in Internal Medicine and Master of Veterinary preventive Medicine. Students from both programmes, a majority of which from Master of Veterinary Preventive Medicine preferred to find out what is happening within the libraries through direct sensitization from librarians. While a majority from Master of Medicine in Internal Medicine preferred to find out what is happening within the libraries by visiting the Library Website. The general perspective was that there was need to improve awareness of the existence of eBooks in Makerere University library. Students from both programmes, a majority of which from Master of Veterinary Preventive Medicine received training on how to locate electronic resources. Students from both programmes, a majority of which from Master of Medicine in Internal Medicine use eBooks because they provided current information; convenient to access, share and carry; and time saving yet some of them were freely available online through open access. While a majority from Master of Veterinary Preventive Medicine were motivated to use eBooks because they can be accessed using a variety of portable devices e.g smartphones and tablets. Students from both programmes suggested that the library should invest more on Wi-Fi/internet connectivity; provide e-reading devices in order to improve utilization of eBooks. While a majority from Master of Veterinary Preventive Medicine suggested that the Library should provide access to additional eBooks platforms so as to encourage utilization. A majority of participants, more so from Master of Medicine in Internal Medicine found eBooks to be more usable compared to print because of mainly their attribute of flexible access from diverse locations regardless of the time lines.

### **5.2.3 Environment of eBooks Access and Utilization**

Findings indicated that students from both programmes, a majority of which from Master of Medicine in Internal Medicine used laptops to access and use eBooks. While a majority from Master of Veterinary Preventive Medicine used tablets and smart phones to access and use eBooks. Graduate students who used the desktops in the research commons did so mainly to gain access to other specialized software such as endnote, Medley, strata, SPSS etc, but not necessarily to access

eBooks and that most postgraduate students who use the desktop PCs present in the research commons are in first year. Students from both programmes, a majority of which from Master of Veterinary Preventive Medicine experienced slow internet connection speed in their college. While a majority from Master of Medicine in Internal Medicine internet experienced fairly reliable internet connection speed in their college. Makerere University currently subscribes to internet of 1 GB bandwidth through the Research in Education Network for Uganda (RENU). The overall population of internet Users in the different campuses and colleges of Makerere University was estimated to be over 45,000. Students from both programmes, a majority of which from Master of Medicine in Internal Medicine were able to access electronic resources from home. Participants from both programmes identified technological limitation to eBooks access ranging from poor internet service quality, limited access to eBooks access devices, distance from the IP range and power failure and virus infections. Internet enabled desktops computers were present in the main library and college libraries including the college of Health Science and College of Veterinary Medicine however, portable and mobile devices such as tablets and kindles that students could borrow are not yet provided by the Library.

#### **5.2.4 Proposed Framework for Improving Utilization of eBooks**

Findings indicated that students from both programmes, a majority from Master of Medicine in Internal Medicine suggested that the library should bench mark to adopt best practices from Universities in South Africa and Europe, constantly improve platforms and provide more portable access devices. While a majority from Master of Veterinary Preventive Medicine suggested that the library could increase WiFi hot spots and generally improve internet service quality around campus, and should to consider continuous refresher training to create awareness of services and facilitate their research abilities in using eBooks.

The framework was developed to optimize utilization of eBooks in Makerere University, it was generally adopted from the conceptual framework of this study and informed by the findings of this study and the library of congress collections development policy statement, supplementary guidelines 2016.

### **5.3 Conclusions of the Study**

The study concluded that there is a high correlation between students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine in terms of utilization of eBooks, possibly due to the several similarities that both group of postgraduate students possess. The majority of participants were mainly motivated to utilize eBooks because of the need for up-to-date information required for medical students, since eBooks were made available online as soon as they were published compared to their print counterparts. They were attracted to use eBooks because they are current, convenient to access, share and carry. Finally, the framework was developed to optimize utilization of eBooks in Makerere University.

### **5.4 Recommendations**

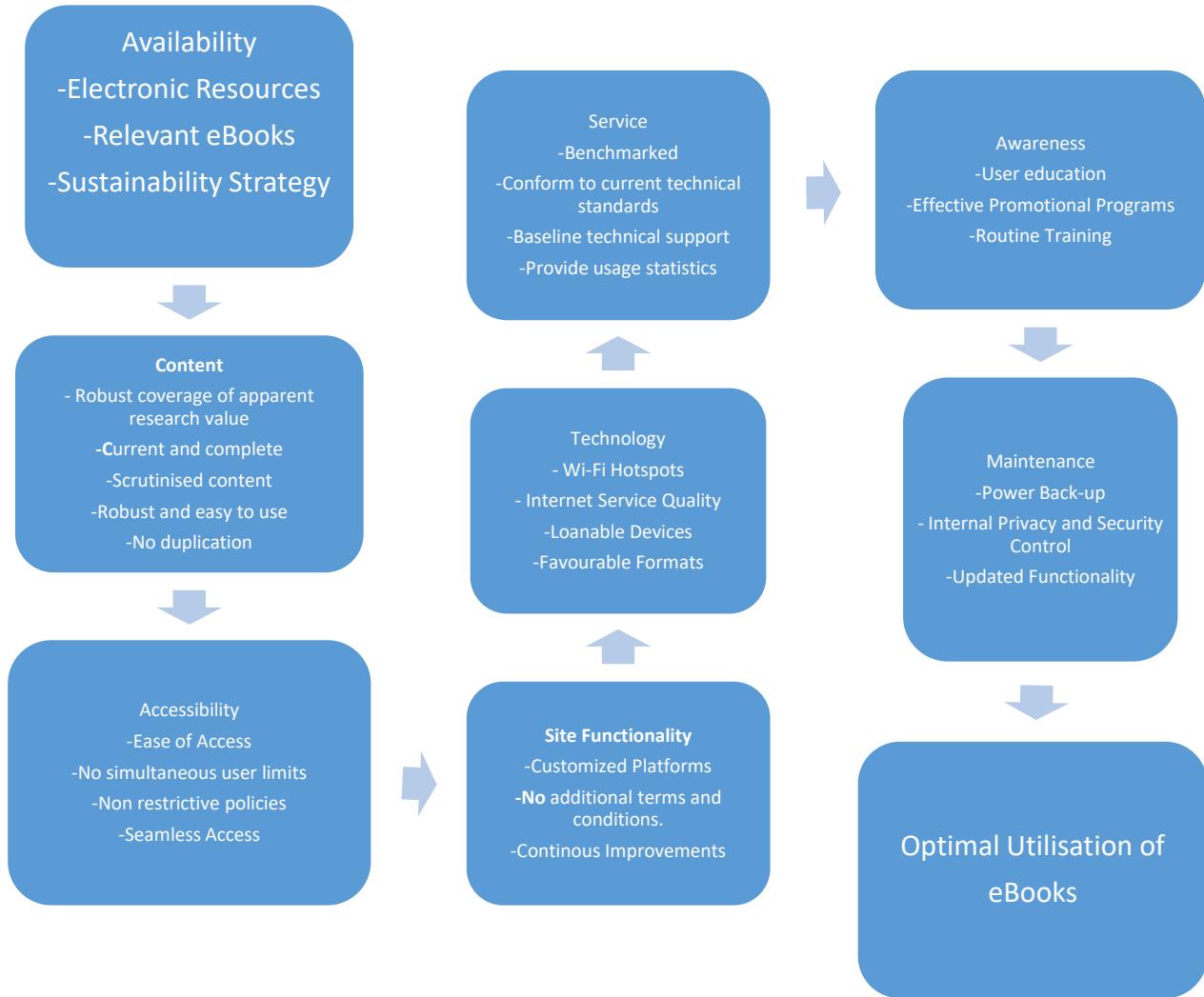
Based on the findings of this study and the objective 4, the following recommendations are put forward to ensure that students make optimum use of eBooks:

1. The library could increase availability and reliance on electronic resources where eBooks form a component, however, this demands a sustained effort to identify and acquire them. The largest acquisition of e-resources is currently supported by Sida funds and INASP. There is need to develop a sustainability strategy for continuity.
2. The library could continuously strive to improve access platforms based on user feedback; increase subscription databases based on evaluation data; and improve internet service quality through continuous lobbying for additional bandwidth.
3. Furthermore internal privacy and security controls could be enforced in order to improve internet service quality and ensure privacy and security of information. The ICT managers should effectively control the non-academic internet usage using proxies, filters and other technology hence creating favorable conditions for eBooks access and utilization.
4. The library could lobby for more investment on Wi-Fi hotspots around campus; provide loanable e-reading devices; and provide access to full text downloadable eBooks.
5. The library could bench mark to adopt best practices from universities where eBooks implementation has been so successful and considers implementing the framework for improving eBooks access and utilization developed through this study.

6. There could be need to consider continuous refresher training and create awareness of services in order to market eBooks and facilitate students research abilities.
7. The Library could continuously lobby for adequate budgetary allocation on subscription to online databases and acquisition of electronic books.
8. The library could invest more on power backup technologies. Alternative power supplies should be sought such us renewable solar energy, inverter and battery systems in order to ensure constant power supply.
9. The Library could commit to preserving its electronic resources just as it is to ensuring permanent access to its collections in other formats. When the Library collects both electronic and analog versions of a resource, both versions should be retained as permanent holdings of the Library. For both direct and remote access resources, the Library should endeavor to archive these resources following standard practices, guidelines and legal requirements.

## **10. Proposed Framework for Improving Utilization of eBooks**

**Figure 5.4.1: Framework for Optimal Utilization of eBooks**



**Source:** Researcher, 2018

Objective 4 sought to propose a framework for optimizing eBooks utilization. The framework for optimizing utilization was developed to guide eBooks implementation in consideration of the solutions provided through this study for improving eBooks access and Utilization Environment. It was generally adopted from the conceptual framework of this study and informed by the findings of this study and the library of congress collections development policy statement, supplementary guidelines 2016.

The purpose of the framework was to provide key aspects that should be considered by libraries while implementing eBooks provision with the hope of optimizing utilization of eBooks. Libraries

should focus on ensuring that there is assured and relevant availability, content, accessibility, service, technology, site functionality, maintenance, awareness, and optimal utilization of eBooks. Librarians should constantly engage with eBook suppliers and aggregators so as to have meaningful outcome of the framework. They should focus on bringing issues to light of what is accessible and the points of interest related to eBooks for particular classifications of clients. In the meantime librarians and digital book providers should make sure that eBooks are simpler to access and use.

### **5.5 Suggestions for further Research**

The following are some of the suggestions that arise from the summary of the findings and conclusions in Sections 5.2 and 5.3.

- Assessment of best practices from universities where eBooks implementation has been so successful
- Sustainability strategies for ensuring availability of eBooks
- The impact of technology changes on the development and utilization of eBooks
- Factors influencing the usability of e-readers
- Contribution of robust ICT infrastructure on the Utilization of eBooks

## REFERENCES

- Ahmed, Aquil and Al-Reyae, Sulaiman (2017). Knowledge and Use of Electronic Information Resources by Medical Students at Al-Jouf, University in Saudi Arabia; *Library Philosophy and Practice (e-journal)*. 1524. <http://digitalcommons.unl.edu/libphilprac/1524>.
- Akpokodje, V.N and Ukwuoma, S.C (2016) Evaluating the impact of eBook on reading motivation of students of higher learning in Nigerian Universities. IFLA; Creative Commons
- Allen, M., & Kaddu, S. (2014). A Report on the Survey of the eBooks and eLending in African Countries. Lyon: IFLA International Leaders.
- Anuradha, K., & Usha, H. (2006). "Use of eBooks in an academic and research environment", A programme. *Emerald Insight*, pp. 48 - 62.
- Aronsen, Katrine, Johansen, Anja, & Rein, Jan Ove (2016) Medical students and textbooks as e-books - a survey; 15th EAHIL CONFERENCE 06-11 June 2016 – Seville, Spain
- Asunka, S. (2013). The viability of e-textbooks in developing countries: Ghanaian university students' perceptions. . *The Journal of Open, Distance and* , 36-50.
- Atsango, M. A. (2015). The use of electronic books in academic libraries: a case study of the university of the witwatersrand.mini dissertation . Pretoria: Technology university of pretoria.
- Bomhold, C. (2013). Educational use of smart phone technology: a survey of mobile phone application use by undergraduate university students", Programme: electronic library and information systems. *Programme*, 426-436.
- Bomhold, C. (2014). Mobile services at academic libraries: meeting the users' needs? *Library Hi Tech*, 336-345.
- Brigham Young University. (2016, April 10). Research Methods: Planning: Validity . Retrieved from Brigham Young University private research: [http://linguistics.byu.edu/faculty/henrichsen/ResearchMethods/RM\\_2\\_18.html](http://linguistics.byu.edu/faculty/henrichsen/ResearchMethods/RM_2_18.html)
- Brook, J. (2012, January 10). EBooks and the Use of EBookReaders in Academic Libraries: Results of an Online Survey . *Georgia Library Quarterly* .
- Buljung, Brianna Bernadette and Cooper, Karen Gale (2013) iPads, Kindles and Tablets, oh my: using a technology petting zoo to teach about downloadable ebooks. *Library Hi Tech News* Number 1 2013, pp. 5-7, q *Emerald Group Publishing Limited*.
- Burnett, J. (2009). Sage study skills: doing your social science dissertation. University of East London: SAGE Publications.
- Carreiro, E. (2010). Electronic books: how digital devices and supplementary new technologies are changing the face of the publishing industry. *Publishing Research Quarterly*, 219-235.
- Casiddy, E. D., Martinez, M., & Shen, L. (2012). Not in Love, or Not in the Know? Graduate Student and Faculty Use (and Non-Use)of EBooks. *Journal of Academic Librarianship*, 332.
- Chakrabarti, Avijit and Gurey, Pritam (2009).The Changing World of EBooks. *Pondicherry University, Puducherry*, INFLIBNET Centre, Ahmedabad.

- Chiarizio, M. (2013). An American tragedy?: eBooks, licenses, and the end of public lending libraries. *Vanderbilt Law Review*, 615-644.
- Connaway, L., & Powell, R. (2010). Basic research methods for librarians. 5th ed. (*Library and information science text series*). Santa Barbara: Calif: Libraries Unlimited.
- Cottrell, T., & Bell, B. (2014). Expensing eBooks: how much should patron habit influence collection development? *Bottom Line: Managing Library Finances*. 142-146.
- Creswell, J., & Clark, V. (2011). Designing and conducting mixed methods research. Los Angeles: Sage.
- Croft, R., & Davis, C. (2010). EBooks revisited: Surveying student eBookusage in a distributed learning in academic libraries 6 years later. *Library Hi Tech*, 543-69.
- Crowley, Patrick (2017) Libraries. <http://www.ePubrirect.com/Report>
- Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.
- De Oliveira, S. M. (2012). E-textbooks usage by students at Andrews University: A study of attitudes, perceptions, and behaviors. *Library Management*, 536-560.
- DeWalt, Kathleen M. & DeWalt, Billie R. (1998). Participant observation. In H. Russell Bernard (Ed.), *Handbook of methods in cultural anthropology* (pp.259-300). Walnut Creek: AltaMira Press.
- Ellison, Marc (2015). Library book expenditure in decline. *Data journalist, BBC Scotland* 27 November 2015.
- Folb, Barbara L (2011), Clinical and academic use of electronic and print books: the Health Sciences Library System eBookstudy at the University of Pittsburgh, *J Med Libr Assoc* pg.99(3)
- Forsman, D. (2012). "Change as a service – challenges and effects of a new paradigm for library systems and content infrastructure", *Library Management. Emerald Insight*, pp.498-510.
- Fourie, I., & Fourie, H. (2014). Targeting users in information provision - more than researchers, students and professionals. *Library Hi Tech*, 164-172.
- Gerlach, J., & Buxmann, P. (2013). Analyzing Electronic Book Acceptance: A Compatibility Perspective. *Hawaii International Conference on System Sciences*. Hawai: Technische Universität Darmstadt.
- Gilbert, Julie and Fister, Barbara (2015) The Perceived Impact of E-books on Student Reading Practices: A Local Study; Creative commons, CC BY-NC
- Gutenberg, P. (2010, March 10). The history and philosophy of project `Gutenberg. Retrieved from [www.gutenberg.org:](http://www.gutenberg.org/)  
[http://www.gutenberg.org/wiki/Gutenberg:The\\_History\\_and\\_Philosophy\\_of\\_Project\\_Gutenberg\\_by\\_Michael\\_Hart](http://www.gutenberg.org/wiki/Gutenberg:The_History_and_Philosophy_of_Project_Gutenberg_by_Michael_Hart).
- Hao, L., & Fan, M. (2014). An analysis of pricing models in the electronic book market1. *Quarterly*, 1017.
- Hartel, Lynda J. & Cheek, Fern M., (2011) Preferred book formats in an academic medical center\* AMLS, AHIP, *J Med Libr Assoc* 99(4) October 2011

- Herther, N. K. (2015, January 13). EBooks in 2015: Trends and Forecasts Part 1 . *News Breaks & The Weekly News Digest*, pp. 1-2.
- Hwang, J.-Y., Kim, J., Lee, B., & Hwan Kim, J. (2014). Usage patterns and perception toward eBooks: experiences from academic libraries in South Korea. *The Electronic Library*, 522-541.
- Jin, C.-H. (2014). Adoption of eBookamong college students: the perspective of an integrated TAM. . *Computers in Human Behavior*, 471-477.
- Jindal, S., & Pant, A. (2013). Availability of eBooks in science: case study of University of Delhi. *The Electronic Library*., 313-328.
- Johri, A., Teo, H., Lo, J., Dufour, M., & Schram, A. (2014). Millennial engineers: digital media and information ecology of engineering students. . *Computers in Human Behavior*, 286-301.
- Jung, Jaeminetal, (2011). Factors affecting e-book reader awareness, interest, and intention to use; *New Media & Society, Sage Journal*.
- Kahn, M., & Underwood, P. (2013). Issues related to the adoption of eBooks in academic libraries: a literature review. *South African Journal of Libraries and Information Science*, 10-17.
- Kallet, R. H. (2004, October 1). *How to Write the Methods Section of a Research Paper*. (Respiratory Care) Retrieved April 15, 2016, from www.libguides.usc.edu: <http://libguides.usc.edu/writingguide/methodology>
- Kinengyere, Annet Alison, Kiyingi, George William and Baziraake, Bernard Bamuhiiiga (2012) Factors affecting utilization of electronic health information resources in universities in Uganda; *Annals of Library and Information Studies*; Vol. 59, June 2012, pp. 90-96
- Kinengyere, Alison Annet , (2007) "The effect of information literacy on the utilization of electronic information resources in selected academic and research institutions in Uganda", *The Electronic Library*, Vol. 25 Issue: 3, pp.328-341, <https://doi.org/10.1108/02640470710754832>
- Kothari, C. (2004). Research Methodology: Methods and Techniques. Second Revised Edition. New Delhi: *New Age International (P) Ltd.*
- Lau, Jenny, (2008). Students' experience of using electronic textbooks in different levels of education, FIS2309, Design of Electronic Text, Vol 1, No 1 (2008)
- Leedy, P., & Ormrod, J. (2010). Practical research: planning and design. 9th ed. . Boston, Mass.: *Pearson Education* .
- Lim, E.-L. a. (2014). Students' perceptions of the usefulness of an EBookwith annotative and sharing capabilities as a tool for learning: a case study. . *Innovations in Education and Teaching International* . , 34-45.
- Lin, C.-C., Chiou, W.-C., & Huang, S.-S. (2013). The challenges facing eBookpublishing industry in Taiwan. *Procedia Computer Science.*, 282-289.
- Lopatovska, I., Pattuelli, M., Lange, L., & Ludas, O. V. (2013). eBooks in academia: Expectations and challenges. *iConference Proceedings* (pp. 486-490). Texas: Coalition of Network Information.

- Makerere University Library. (2016, March 20). Library Services/About us. Retrieved from <http://mulib.mak.ac.ug>: <http://mulib.mak.ac.ug/index.php/library-services/about-us>
- Makerere University Library. (2015). " About Makerere University Library" "Projects & Partners". *Makere University Library.* Retrieved from <http://mulib.mak.ac.ug/index.php/component/content/article?layout=edit&id=49>.
- Merriam, S. 2. (2009). Qualitative research: a guide to design and implementation. (*The Jossey-Bass higher and adult education series*). San Francisco: Calif: Jossey- Bass.
- Miller, R. (2011). *Dramatic growth. Library Journal*, 32–34.
- Mulholland, E., & Bates, J. (2014). Use and perceptions of eBooks by academic staff in further education. *The Journal of Academic Librarianship*, 492-499.
- Nwagwu, W., & Okafor, J.-L. (2014). Diffusion of eBooks among postgraduate students of the University of Ibadan, Nigeria. *Library Review*, 86-109.
- Okello-Obura, C., & Ikoja-Odongo, J. R. (2010). Electronic Information Seeking Among LIS Postgraduate Students at Makerere University, Uganda. *Library Philosophy and Practice (e-Journal)*, 499.
- Patton M.Q. (2002). Qualitative Research & Evaluation Methods. 3<sup>rd</sup>ed. New Delhi: Sage Publications
- Palumbo, L. (2014). Mobile phones in Africa: opportunities and challenges for academic librarians. *New Library World*, 179-192.
- Parvez, A. (2011). Development in Library Services with the Advent of ICT Based Products & Services: A Continuous Process. *International Journal Of Digital Library Services*.
- Pickard, A. (2013). Research methods in information. 2nd ed. London: Facet.
- Pino, J. a. (2016, March 10th). Qualitative Study of e-Textbook Adoption For Research Purposes: A Review of the Barriers against Academic eBookAdoption. Retrieved from sisdrupal.cci.utk.edu: <http://sisdrupal.cci.utk.edu/jpino/node/19>.
- Poon, J. (2014). Empirical analysis of factors affecting the eBookadoption- research agenda. *Open Journal of Social Sciences*, 51-55.
- Rajan M, Maghesh, Jasimudeen.S and Mathew, Jose (2012) User Attitudes on E-Books Collection in Mahatma Gandhi University Library: A Case Study. *Information Age*: Vol. 6(2)2012 pp.20-28
- Sandelowski, M. (1995). Focus on Qualitative Methods: Sample size in Qualitative Research. *Research in Nursing & Health Journal*. Retrieved July 2, 2014
- Shen, J. (2011). The eBooklifestyle: an academic library perspective. *Reference Librarian*, 181-189.
- Shurtz, Suzanne &Isenburg, Megan von, (2011) Exploring e-readers to support clinical medical education: two case studies\* *J Med LibrAssoc* 99(2) April 2011
- Springer. (2009, April 7). eBooks: The end user perspective. Retrieved from www.springer.com: [http://www.springer.com/cda/content/document/cda\\_downloaddocument/eBooks+-+the+End+User+Experience?SGWID=0-0-45-608298-0](http://www.springer.com/cda/content/document/cda_downloaddocument/eBooks+-+the+End+User+Experience?SGWID=0-0-45-608298-0)

- Shurtz, Suzanne and Isenburg, Megan von (2011) Exploring e-readers to support clinical medical education:two case studies. *J Med LibrAssoc*, pg.99 (2)
- Trochim, W. M. (2006, October 20). *Research Methods Knowledge Base*. Retrieved from Web Center for Social Research Methods, Reliability: <http://www.socialresearchmethods.net/kb/reliable.php>
- Tsai, W.-C. (2012). A study of consumer behavioral intention to use eBooks: the Technology Acceptance Model perspective. *Innovative Marketing, Volume 8, Issue 4*, 55-56.
- Walters, W. H. (2014). EBooks in academic libraries: challenges for sharing and use. . *Journal of Librarianship and Information Science*, 85-95.
- Walton, E. (2014). Why undergraduate students choose to use eBooks. . *Journal of Librarianship & Information Science*, 263-270.
- WHO, 2017. Hianari Access to Research in Health Programmem; <http://www.who.int/Hinari/en/>
- Wicht, H. (2011). The Evolution of EBooks and Interlibrary Loan in Academic Libraries. *Collaborative Librarianship* , 205-211 .
- Woody, W., Daniel, D., & Baker, C. (2010). EBooks or textbooks: Students prefer textbooks. *Computers and Education*, 945-48.
- Wyk, B. v. (2014). Research design and methods Part I. Post-Graduate Enrolment and Throughput (pp. 7-10). Western Cape: univewrsity of western cape.

## **APPENDICES**

### **Appendix A: Interview Schedule**

#### **a) INFORMED CONSENT LETTER OF INTRODUCTION TO PARTICIPANTS**

Dear respondent my name is Andrew Ojulong a student of Masters of Science and Information Science at Makerere University, Kampala. I am interested in understanding the perceptions on Utilization of eBooks. Your kind cooperation in providing answers to the research questions is central to the success of my research project. It will take you 15- 20 minutes to complete the interview. This research is strictly for academic purposes. The interview schedule consists of open-ended questions. Please do not hesitate to contact me should you have any questions or further suggestions.

Sincerely,

Andrew Ojulong

E-mail: [andrew.ojulong@gmail.com](mailto:andrew.ojulong@gmail.com) Mobile: 078 1 30 84 40

I agree to participate in the study on “Utilization of eBooks by Master of Medicine in Internal Medicine Students of Makerere University”

Signature ..... Date .....

#### **b) INTERVIEW SCHEDULE FOR STUDENTSOF MASTER OF MEDICINE IN INTERNAL MEDICINE AND MASTER OF VETERINARY PREVENTIVE MEDICINE OF MAKERERE UNIVERSITY**

##### **1. Preliminary Information**

Please note that all information will be treated with utmost confidentiality and the identity of participants will not be divulged. Preliminary information is required for assessment purpose.

What programme are you enrolled for? What is your year of study? How often do you use eBooks?

## **2. Current Awareness**

How do you prefer to find out what is happening within libraries?

Are you aware of any new technology introduced to the library within the past year?

## **3. User Education**

Have you ever had training on how to locate electronic resources including eBooks in the library?

What areas related to eBooks have you received training on?

## **4. Factors Influencing Utilization of eBooks**

For what purpose do you use an eBook?

Do you find eBooks more usable compared to their print counterparts?

What are the factors that motivate you to use eBooks?

While using an e-book, what would you like to be able to do?

## **4. Technology and E-Reading Devices**

Which devices do you prefer for accessing and using eBooks?

How do you currently access eBooks?

What is the current state of internet connection speed in Makerere University Medical School?

Are you able to access electronic resources from home?

## **5. Perceptions on Access and Utilization of eBooks**

Which function(s) do you like about eBooks?

What don't you like about eBooks?

What improvements have you noticed since you started accessing and using eBooks?

Which eBook format do you prefer?

## **6. Barriers to Access and Utilization of eBooks**

What prevents you from not often using eBooks?

Which problems do you encounter while using eBooks?

What can the library do to enhance your research abilities in using eBooks?

Do you have any suggestions for the library on how to improve eBooks access and utilization?

**Thank you for your time**

## **Appendix B: Document Checklists**

Dear Sir/Madam, my name is Andrew Ojulong a student of Masters of Science and Information Science at Makerere University, Kampala. I am interested in examining utilization of eBooks provided by Makerere University library for Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine students. I shall critically read, analyze and interpreted documents listed below to extract relevant facts that will be used to inform this study. Your kind cooperation in granting me access to the listed documents is central to the success of my research project. The period of data collection is covering the months of October and November 2017. This research is strictly for academic purposes. Please do not hesitate to contact me should you have any questions or further suggestions.

Sincerely,

Andrew Ojulong

E-mail: [andrew.ojulong@gmail.com](mailto:andrew.ojulong@gmail.com)

Mobile: 078 1 30 84 40

### **Document Checklist:**

- 1.** Subscription reports/records
- 2.** Terms and conditions of use/publisher agreements
- 3.** Records related to eBooks utilization
- 4.** E-resources manuals
- 5.** Usage reports/statistics

## **Appendix C: Observation Checklist**

Dear Sir/Madam, my name is Andrew Ojulong a student of Masters of Science and Information Science at Makerere University, Kampala. I am interested in examining utilization of eBooks provided by Makerere University library for Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine students. I shall observe, photograph and record information on some of eBooks related avenues as listed below. Your kind cooperation in granting me access to observe the different avenues is central to the success of my research project. The period of data collection is starting from the months of October 2017 onwards. This research is strictly for academic purposes. Please do not hesitate to contact me should you have any questions or further suggestions.

Sincerely,

Andrew Ojulong

E-mail: [andrew.ojulong@gmail.com](mailto:andrew.ojulong@gmail.com)

Mobile: 078 1 30 84 40

### **Observation Checklist**

#### **1. eBook access and utilization environment**

- Are there Wi-Fi hotspots and Local Area Network connection points in the two colleges and are they well distributed?
- Are there dedicated spaces for postgraduates to sit and access online resources?
- Are there alternative power sources other than electricity

#### **2. ICT Infrastructure**

- How equipped are the computer labs dedicated for research activities?
- Are all the computers internet enabled?

#### **3. eBooks access platforms**

- Are there eBooks access platforms that are relevant and can be accessed by graduate medical students?
- What are the key observable feature that signify easy access?

## Appendix D: Permissions to Conduct the Study

Andrew Ojulong

Msc.In Information Sciences Student, MUK

Reg No. 2014/HD05/2159U

Tel: 0781 308440

29<sup>th</sup> September 2017

The Head of Department,  
Master of Veterinary Preventive Medicine,  
COVAB, Makerere University.

Dear Sir/Madam,

### Re: Request for Permission to conduct a research Study in your Department.

This is to request you permit me conduct a study entitled "*Utilization of eBooks by Students of Master of Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University: A Comparative Study*" in your department. I would like to be introduced to the Master of Veterinary Preventive Medicine students and your library.

The study seeks to understand and compare the status of eBooks usage and how graduate students access and utilize eBooks to solve their information needs and what they perceive as problematic. Data collection methods shall consist of interviews and document review. Interviewees shall be students of Master of Veterinary Preventive Medicine who shall be available during the time of the study. Documents shall include the library statistics, usage reports, terms and conditions of using eBooks, annual reports and other written literature on eBooks. Please note that all information obtained shall be for academic purposes only.

Attached is the Introduction Letter from the Head of Department.

Sincerely,

  
Andrew Ojulong

Andrew Ojulong  
Msc.In Information Sciences Student, MUK  
Reg No. 2014/HOD05/2159U  
Tel: 0781 308440

29<sup>th</sup> September 2017

The Head of Department,  
Master of Veterinary Preventive Medicine,  
COVAB, Makerere University.

Dear Sir/Madam,

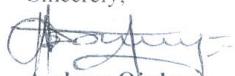
**Re: Request for Permission to conduct a research Study in your Department.**

This is to request you permit me conduct a study entitled "*Utilization of eBooks by Students of Master of Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University: A Comparative Study*" in your department. I would like to be introduced to the Master of Veterinary Preventive Medicine students and your library.

The study seeks to understand and compare the status of eBooks usage and how graduate students access and utilize eBooks to solve their information needs and what they perceive as problematic. Data collection methods shall consist of interviews and document review. Interviewees shall be students of Master of Veterinary Preventive Medicine who shall be available during the time of the study. Documents shall include the library statistics, usage reports, terms and conditions of using eBooks, annual reports and other written literature on eBooks. Please note that all information obtained shall be for academic purposes only.

Attached is the Introduction Letter from the Head of Department.

Sincerely,

  
Andrew Ojulong

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facebook:www.facebook.com/cocismak

## COLLEGE OF COMPUTING & INFORMATION SCIENCES

### EAST AFRICAN SCHOOL OF LIBRARY AND INFORMATION SCIENCE (EASLIS)

September 22, 2017

The Head of Department  
Master of Veterinary Medicine  
College of Veterinary Medicine and  
Animal Resources and Biosecurity  
Makerere University

Dear Sir/Madam

#### RE: INTRODUCTION LETTER – 2014/HD05/2159U

This is to introduce to you the above named student of East African School of Library and Information Science under the College of Computing and Information Sciences, Makerere University. He is offering a Master of Science in Information Science.

As part of the degree programme, he is required to carry out a research which he intends to do in your organization. The topic of his research is entitled: ***"Utilization of eBooks by Students of Master of Internal Medicine and Master of Veterinary Preventative Medicine of Makerere University: A Comparative Study".***

The purpose of this communication is to request you to offer him the necessary assistance required.

Please note that all information obtained shall be for academic purposes only.

Sincerely,

Dr. Joyce Bukirwa  
**HEAD OF DEPARTMENT**



Andrew Ojulong

Msc.In Information Sciences Student, MUK

Reg No. 2014/HD05/2159U

Tel: 0781 308440

29<sup>th</sup> September 2017

The Head of Department,  
Master of Internal Medicine,  
College of Health Sciences, Makerere University.

Dear Sir/Madam,

**Re: Request for Permission to conduct a research Study in your Department**

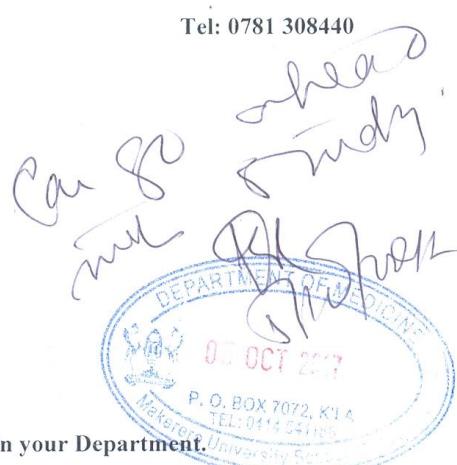
This is to request you permit me conduct a study entitled: "*Utilization of eBooks by Students of Master of Internal Medicine and Master of Veterinary Preventive Medicine of Makerere University: A Comparative Study*" in your department. The study seeks to understand and compare the status of eBooks usage and how graduate students access and utilize eBooks to solve their information needs and what they perceive as problematic.

Data collection methods shall consist of interviews and document review. Interviewees shall be students of Master of Medicine in Internal Medicine and Master of Veterinary Preventive Medicine who shall be available during the time of the study. Documents shall include the library statistics, usage reports, terms and conditions of using eBooks, annual reports and other written literature on eBooks. Please note that all information obtained shall be for academic purposes only.

Attached is the Introduction Letter from the Head of Department.

Sincerely,

  
Andrew Ojulong



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## COLLEGE OF COMPUTING & INFORMATION SCIENCES EAST AFRICAN SCHOOL OF LIBRARY AND INFORMATION SCIENCE (EASLIS)

September 22, 2017

The Head of Department  
Master of Internal Medicine  
College of Health Sciences  
Makerere University

Dear Sir/Madam

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As part of the degree programme, he is required to carry out a research which he intends to do in your organization. The topic of his research is entitled: "*Utilization of eBooks by Students of Master of Internal Medicine and Master of Veterinary Preventative Medicine of Makerere University: A Comparative Study*".

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Dr. Joyce Bukirwa  
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**LIBRARY & INFORMATION SCIENCES**