

**AN ASSESSMENT OF SELECTED E-RESOURCES: CAB
ABSTRACTS AND CABI COMPENDIA AT THE
UNIVERSITY OF NAIROBI**

By

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(Bsc. AGHE, PGDMC)

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DECLARATION

I Festus Muitherero Njogu, declare that this dissertation is my original work and has not been presented to any other institution for the award of a degree.

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DEDICATION

I dedicate this dissertation to my wife Grace Wanjiku and my children Latisha Wambui, Ryan Njogu and Deron Ndegwa. Thank you for your love, support and inspiration. You all drive me to dream, pursue and achieve.

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ABBREVIATIONS AND ACRONYMS

AGHE	Agriculture and Human Ecology extension
AGORA	Access to Online Global Research in Agriculture
AGRA	Alliance for Green Revolution in Africa
AGRICOLA	AGRICultural OnLine Access
AGRIS	International System for Agricultural Science and Technology
AJOL	African Journals Online
ARDI	Access to Research for Development and Innovation
BAI	Biological and Agricultural Index Plus
BIOSIS	Biological Abstracts
CABI	Centre for Agriculture and Biosciences International
CAVS	College of Agriculture and Veterinary Sciences
CSA	Cambridge Science Abstracts
DOAR	Directory of Academic Open Access Repositories
E-Books	Electronic books
eIFL	Electronic Information for Libraries (eIFL.net)
FARA	Forum for Agricultural Research in Africa
GARA	Global Agricultural Research Archive
GDP	Gross Domestic Product
HINARI	Health InterNetwork Access to Research Initiative
IFLA	International Federation of Library Associations and Institutions
INASP	International Network for the Availability of Scientific Publications
ICT	Information Communication Technology
IT	Information Technology

JSTOR	Journal Storage
KENET	Kenya Education Network
KLISC	Kenya Libraries and Information Services Consortium
KIPS	Kenya Information Preservation Society (KIPS)
KNLS	Kenya National Library Service (KNLS)
M&E	Monitoring and Evaluation
MSc	Master of Science
NEPAD	New Partnerships for Africa's Development
OARE	Online Access to Research in the Environment
OPAC	Online Public Access Catalogue
PERii	Programme for the Enhancement of Research Information
PGDMC	Post Graduate Diploma in Mass Communication
PhD	Doctor of philosophy
RIN	Research Information Network
RUFORUM	Regional Universities Forum for capacity building in Agriculture
TEEAL	The Essential Electronic Agricultural Library
TOT	Training of Trainers
UoN	University of Nairobi
WoS	Web of Science

ABSTRACT

Africa's agricultural productivity is lower compared to other continents in part due to a shortfall in the number of people with the necessary agricultural productivity skills. Universities, form an essential pipeline for development of experts in agricultural production. Today, electronic information resources (e-resources) are at the heart of knowledge management and research has shown that proper utilization of e-resources positively impacts scholarly work. E-resource availability has been a major problem especially in African universities, but several initiatives have increased availability. These include collaboration between Centre for Agriculture and Biosciences International (CABI) and Regional Forum for capacity building in agriculture (RUFORUM); which has given 32 RUFORUM member universities access to CAB Abstracts and CABI Compendia. However, availability of e-resources does not automatically lead to proper utilization. This study sought to determine awareness, usage and impacts of CAB Abstracts and CABI Compendia among librarians, lecturers and students at the University of Nairobi; with a view to advice on how to increase e-resource utilization at the university. Questionnaires were administered and personal interviews conducted on librarians and users. Results showed that only 24% of users were aware of both resources. There was also limited use of these resources attributable to low awareness and 88.5% of the users had not been trained on these resources. Poor access to computers connected to the internet was rated as the top problem in accessing and using e-resources by 65.8% of users. Overall, it was evident that these e-resources were not being optimally used. The users who had used the e-resources reported saving time and improvement in quality of their research. In order to realize these and other benefits attributed to e-resources; systematic awareness creation campaigns and regular trainings on available e-resources were among recommendations that were made from this research.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

According to the Alliance for Green Revolution in Africa (AGRA), agriculture employs approximately 65% of Africa's working population and contributes substantially to the Gross Domestic Product (GDP). A comparison of African agricultural productivity to other continents reveals a disparity in output caused by shortfall in the number of people with requisite agricultural productivity skills (AGRA, 2013). Chan *et al.*, (2011) highlighted that the capacity to carry out research and share knowledge generated is gaining appreciation as essential to all areas of human development including improvements in education, health care, policy making and enhanced food security. In light of this, institutions of higher learning are increasingly playing a pivotal role in empowering graduates with the qualifications needed to produce new knowledge via research (Varghese, 2007).

Fitzgerald and Lindow (2013), highlight the importance of universities in the creation of a continuous flow of qualified personnel and generation of innovations using science to help African agriculture thrive amidst many challenges. Central to this are the university libraries. According to Gakibayo *et al.*, (2013), University libraries have to be a major channel for the transfer of technology from the developed countries to the developing countries especially in Africa with subscription to online databases being the best way for provision of access to research through e-resources. Research Information Network and the Consortium of Research Libraries (2007), affirm that for centuries academic libraries have been at the heart

of research in all subjects and although technological developments have brought changes in the way research is done, librarians and researchers are adapting rapidly to these changes in order to reap maximum benefits. Poll and Payne (2006), summarise these benefits as: recruitment and retention of excellent academic staff and students; effective teaching resulting in improved performance by students; an increased number of graduates securing employment after examinations; effective research resulting to high usage of research, more published research, more special grants, honours, awards and higher academic status of universities.

According to Research Information Network (2007), researchers are embracing the use of digital resources which they access directly through their personal computers in offices or at home. There has also been a sharp decrease in the number of researchers visiting their institution's library regularly especially in sciences as most researchers utilize digital aids to locate print based and electronic resources in order to save time. Electronic information is now a main resource in university libraries with e-resources immensely changing how University libraries handle and manage information (Gakibayo *et al.*, 2013). Obura and Magara (2007), attribute the adoption of electronic resources to the ease of access to information using the internet and the timely dissemination of international and local research findings. According to Chan *et al.*, (2011), peer reviewed journals, most of which are offered electronically, are the main channel of dissemination of research. However, researchers in developing countries face the challenge of access to some of these journals and other academic publications.

Salaam and Aderibigbe (2010), affirm that the quality of services offered by libraries and the adequacy of their information resource collections, greatly affects the quality of institutions

of higher learning. Harle (2009), records that African universities have for a long time accessed poor collections of information resources because of their limited budgets and the high cost of purchasing and shipping printed resources from abroad. This has over time resulted in low research output in Africa (Shibanda, 2006). The rapid expansion of higher education in Africa has led to the development of online platforms of education such as distance and online learning to meet demand. Success or failure of these platforms largely depends on provision and management of a variety of electronic information resources by institutions of higher education (Harle, 2009). Regional Universities Forum for capacity building in Agriculture (RUFORUM, 2014) highlights that Centre for Agriculture and Biosciences International (CABI) and the Regional Universities Forum for capacity building in Agriculture (RUFORUM) are providing African universities with access to important scientific information in order to strengthen higher agricultural education in Africa. Through a strategic collaboration between these two organizations, 32 universities now have privileged access to CABI Compendia and the CAB Abstracts Database through the CAB Direct interface. Among the beneficiaries of this collaboration is one of Kenya's top research institutions: The University of Nairobi (RUFORUM, 2014).

According to UoN (2014) the university was established in 1956 as the Royal Technical college, in 1970 it was renamed the University of Nairobi and transformed into the first national university in Kenya. Since then, the university has undergone major transformations and now has six colleges each covering courses in one of the following areas: Agriculture & Veterinary Sciences, Architecture & Engineering, Biological & Physical Sciences, Education & External Studies, Health Sciences, Humanities and Social sciences. UoN (2013), states that the University produces considerable academic output in terms of scholarly work contributing towards Kenya's development. To support excellence in the scholarly work at

the university, libraries across the six colleges provide both print and non-print information resources. The electronic resources are provided through the university's library services portal within the university's network and off campus through a Virtual Private Network.

According to Harle (2010), the University of Nairobi today has an e-resource collection approaching that of major European universities. Unique to this e-resource collection is the CAB Abstracts database and CABI Compendia. CAB Abstracts offers researchers' instant access to more than 10 million records with more than 350,000 abstracts added to it each year. It covers applied economics, environment, food science and nutrition, veterinary sciences and agriculture (CABI, 2014b). Pearce and Monck (2006), describe the CABI Compendia as a range of encyclopaedic reference resources containing multimedia tools for researching specific areas of interest which include: Animal Health, Aquaculture, Crop Protection, Forestry and Invasive Species. Adoption and use of these and other electronic resources has its associated problems, which hinder effective utilization (Salaam and Aderibigbe, 2010). Since the availability challenge has potentially been overcome at the University of Nairobi, Harle (2010) emphasizes the need to explore other areas associated with e-resources to ensure optimal utilization. This study focuses on evaluating awareness, access and use, as well as the impacts of utilizing CAB Abstracts and CABI Compendia at University of Nairobi's College of Agriculture and Veterinary Sciences (CAVS).

1.2 Problem statement

Electronic information resources offer students, lecturers, librarians and researchers, ease of use, speed, ability to search multiple files simultaneously, ability to print, save and repeat searches, access up to date content remotely as well as access to information restricted to a given geographical area or institution with links to more related content (Obura and Magara, 2007). Research Information Network (2011) reports an improvement in performance of United Kingdom universities as a result of e-journal use; the universities won more contracts and grants, increased the number of published papers, sustained high levels of citation impact and supported a growing number of doctoral students. Salaam and Aderibigbe (2010), urge that proper access and use of electronic information resources positively impacts scholarly work but there are challenges that impede the access and utilization of these important resources. The operational definition of access is as explained by Johnson *et al.*, (2012) as the provision of proper technological hardware, software, and internet connections accompanied by user instructions on how to effectively utilize e-resources. Methods of access vary from link servers, proxy servers, in-library connections and virtual access to e-resources.

Many studies carried out on the awareness, access, use and impacts of e-resources in many academic institutions across Africa, have identified numerous issues that hinder optimal use of these resources and recommendations have been given for improvements in respective study areas (Kiondo, 2008). After reviewing over 180 Information Communication Technology authorities in Africa, Shibanda (2006) summarises the issues facing the use of digital resources as: subscription payments, Information Communication Technology, automation strategies, availability of telecommunication infrastructure, telecommunication infrastructure policies, staff skills, availability of broadband networks, number of staff, end-

user training, points of access, internet connectivity problems, computer viruses, back-up services, mode of internet access using passwords versus internet protocols and electricity supply and reliability. In the face of decreasing resources and competition between increasing alternatives for attention and information, libraries need to assess and reveal value of their collections and services (Tenopir, 2013). Megersa and Mammo (2008) highlight the need to study the access, usage and impacts of electronic resources on groups of users in African university libraries to justify the big investments that go into sustaining continuous provision of these resources.

The University of Nairobi library has in its list of e-resources; the CAB Abstracts database, which according to Kawasaki (2004) is the most comprehensive database in its coverage of key agricultural journals. Proper access and use of these e-resources, offers opportunities for users to obtain accurate and timely literature in applied economics, environment, food science & nutrition, veterinary sciences, agriculture, animal health, aquaculture, crop protection, forestry and invasive species. According to Manda and Nawe (2008) when information resources are made available, it does not mean that information will be accessed and used by the intended beneficiaries because of many reasons which include but are not limited to: awareness of the resources, ability to access, limited time, limited information retrieval skills and knowledge of the academic value held by such information. There is therefore need to carry out a study on awareness, access and use of electronic resources with a particular focus on CAB Abstracts and CABI Compendia among students, lecturers, librarians and researchers at the University of Nairobi; to investigate its potential impacts on studying, teaching and research at the University. Such an evaluation will help in ensuring optimal utilization of these resources for the benefit of the different user groups and the University (Rosenberg, 2008).

1.3 Objectives of the Study

Overall Objective

To evaluate the awareness, access, use and impacts of CAB Abstracts and CABI Compendia among e-resource users at the University of Nairobi

Specific Objectives

This study aimed at the following specific objectives: -

1. Determine the awareness of CAB Abstracts and CABI Compendia among Librarians, Lecturers and students at the University of Nairobi
2. Evaluate the use of CAB Abstracts and CABI Compendia by Librarians, Lecturers and students at the University of Nairobi
3. Determine the perceived impacts of CAB Abstracts and CABI Compendia among librarians, lecturers and students at the University of Nairobi
4. Identify factors influencing access of CAB Abstracts and CABI Compendia by Librarians, Lecturers and Students at the University of Nairobi

1.4 Research Questions

The following research questions formed the basis of this research: -

1. What is the level of awareness of CAB Abstracts and CABI Compendia among Librarians, Lecturers and Students at the University of Nairobi?
2. How do Librarians, Lecturers and Students use CAB Abstracts and CABI Compendia at the University of Nairobi?
3. What are the perceived impacts of CAB Abstracts and CABI Compendia use among Librarians, Lecturers and Students at the University of Nairobi?
4. What are the factors influencing access of CAB Abstracts and CABI Compendia among Librarians, Lecturers and Students at the University of Nairobi?

1.5 Justification of the Study

Universities are major contributors to the development of African agriculture. The quality of information that scholars and researchers are exposed to determines the quality of their work. The University of Nairobi library services department offers its users various electronic resources via its library services portal, including the CAB Abstracts database and CABI Compendia (Crop Protection Compendium, Animal Health Production Compendium, Aquaculture Compendium and Forestry Compendium). This study builds on other case studies done on similar initiatives namely: Access to Online Global Research in Agriculture (AGORA), The Essential Electronic Agricultural Library (TEEAL) and International Network for the Availability of Scientific Publications (INASP) in African universities, with a focus on CAB Abstracts and CABI Compendia. These databases are among the most comprehensive in their coverage of agricultural information. The research produced hitherto limited research in the area of agricultural e-resource awareness, access, use and impacts.

Studies have shown that electronic information resource availability does not necessarily mean that they will be accessed and utilized by the target beneficiaries. Both agricultural resources are designed to help students, lecturers and librarians carry out their work and research more effectively, therefore, knowledge generated will contribute in understanding utilization and impacts of these resources to librarians, researchers, students and lecturers at the University of Nairobi. Data from this study forms a foundation for a wider evaluation of access and impacts of use of the databases within the wider RUFORUM network of universities. It will offer insight into the value of the collaboration between CABI and RUFORUM which offers free access of these resources among RUFORUM universities. The findings of this research will be useful to University of Nairobi library services department in that it will help in formulation of campaigns to increase awareness, access and use of e-resources at the university.

1.6 Limitations of the Study

The study was carried out at a time when the only undergraduate students who were in session at the College of Agriculture and Veterinary Sciences were first and second year students. Therefore the results of the undergraduate respondent category were not inclusive of the third and fourth years. Students from some departments for example; department of clinical studies and the department of public health pharmacology and toxicology were also not in session at the time of the study. To try and overcome these limitations, purposive sampling technique was used to select the sample with an inclusion criterion that only users of e-resources participated in the research. Initial discussions with students, librarians and lecturers revealed that postgraduate students were more exposed to e-resources. Findings of this study should therefore be interpreted in light of the above mentioned limitations.

1.7 Definition of terms

Access: The provision of proper technological hardware, software, and internet connections accompanied by user instructions on how to effectively utilize e-resources. Methods of access vary from link servers, proxy servers, in-library connections and virtual access to e-resources (Johnson *et al.*, 2012)

Use: In this document use refers to the correct and intended purpose with which e-resources are acceptably associated i.e. academic research or study. According to Bevana *et al.*, (1991) use and usability lie in the interaction of the user with the system or product and can be measured by assessing satisfaction, acceptability and user performance,

Databases: Collections of data stored on computers or servers for easy access and retrieval (Johnson *et al.*, 2012)

E-resources: Any work encoded and availed for access through a computer including electronic data available by remote access and direct access also known as fixed media (The Library of congress, 2008).

E-resources are also defined as systems in which information is electronically stored and made available via electronic systems and computer networks; examples are: E-books, Online Public Access Catalogue (OPAC), CD-ROMs, Online-Databases, E-journals, and Internet resources (Velmurugan, 2013).

E-book - Electronic book - A book provided in a digital format for checkout or use via an Internet browser, a computer, or another electronic device like an e-book Reader (Johnson *et al.*, 2012)

E-journal - Electronic journal - A journal provided in a digital format for access via an Internet browser, a computer or other electronic device (Johnson *et al.*, 2012)

ICT: an acronym taken to stand for Information and Communication Technology. It generally relates to technologies used for accessing, gathering, manipulating and communicating information. The technologies could include hardware, software and connectivity e.g. via the internet or other networks (Margaret, 2005)

Impacts: Primary and secondary, positive and negative, medium or long-term effects produced by development interventions. These effects may be direct or indirect, intended or unintended (DAC, 2002)

Knowledge: A blend of data and information, combined with skills, expert opinion and experience; resulting in a valuable asset that helps in making decisions. In organizations, knowledge is thought of as being applied information, information with judgment, know-how, or the capacity for effective action. It may be explicit, tacit, collective, and/or individual (Serrat, 2009)

Knowledge Management: it is systematic and explicit management of processes that enable vital collective and individual knowledge resources to be identified, formed, stored, shared, and utilized to benefit an individual or organization. It is a practical expression of the fusion of organizational learning and information management (Serrat, 2009)

CHAPTER TWO

2.0 LITERATURE REVIEW

Drucker (2001) projected that knowledge would be the next society's key resource; he said that the coming society would be led by knowledge and knowledge workers would be the leading group in its workforce. He also projected that a major characteristic of this society would be the absence of borders, given that knowledge moves more readily than money. More than a decade later and at the heart of knowledge management are electronic information resources, commonly referred to as e-resources (RIN, 2011). Today, one area that needs a substantial flow of the right knowledge is African Agriculture, which according to AGRA (2013) employs about 65% of Africa's working population. When compared with other continents, Africa's agricultural productivity lags behind due to many challenges; key among them being identifying and equipping enough people with the right skills as an opportunity measure to increase agricultural production.

According to FARA (2006), agricultural research uses creativity, indigenous knowledge and scientific methods to exploit opportunities and solve problems in agriculture; which leads to generation of innovations used by farmers and other stakeholders in agricultural value chains who include producers, transporters, service providers, processors, traders, consumers among others. However, there is an inadequacy of investments to produce and maintain individuals with the skills to drive generation and dissemination of agricultural innovations and technologies that are responsive to farmers needs. NEPAD (2003) observes that African agriculture suffers from the lack of scientific and practical skills and knowledge in critical areas. African countries should therefore, increase funding for agricultural institutions and

promote agricultural education, research and extension systems that are accountable to and responsive to the needs of agribusinesses, consumers, farmers and other stakeholders (NEPAD, 2003)

According to FARA (2006), urgent action needs to be taken to ensure high quality agricultural education both at graduate and postgraduate levels throughout Africa. This is because tertiary agricultural education determines the quality of expertise and competence of professionals, scientists, teachers, technicians, business leaders and civil servants who work in agriculture and related industries; it also raises the capacity of these individuals both to generate and access knowledge to solve prevailing problems and to disseminate the same to others (FARA, 2006). The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) is consortium of 46 universities operating in 22 countries in Africa that has been working to help universities in Africa build capacities and foster innovations that respond to demands of smallholder farmers (Apio, 2014). This has been achieved through training of high quality researchers, generating impact-oriented research output, and maintaining collaborative working relationships among governments, researchers, national agricultural research institutions and farmers (RUFORUM, 2014).

In 2012, RUFORUM and Centre for Agriculture and Biosciences International(CABI) entered into a strategic collaboration with the primary goal of strengthening tertiary agricultural education in Africa through provision of privileged access to valuable scientific information. This was accomplished through provision of access to the CAB Abstracts database through the CAB Direct interface and CABI Compendia to all the universities that make up the RUFORUM consortium (RUFORUM, 2014b). RUFORUM has facilitated training of hundreds of young researchers who are pursuing careers and coming up with new

ways of doing agriculture helping thousands of farmers (Fitzgerald & Lindow, 2013). CABI is an international not-for-profit organization headquartered in United Kingdom whose mission is to improve people's lives worldwide by providing information and applying scientific expertise to generate solutions for problems in agriculture and the environment (CABI, 2014b). CABI's main activities revolve around scientific research, international development, knowledge management and publishing. The CAB abstracts database is fully searchable and it is offered via: CABI's platform known as CAB Direct (CABI's own platform), Dialog, Dimdi, EBSCOhost, OvidSP, STN International and Thomson Web of Knowledge. Its coverage of applied life sciences includes environment, veterinary sciences, applied economics, food science, nutrition and agriculture (<http://www.cabi.org>)

According to Kawasaki (2004), librarians need the most comprehensive databases for the benefit of their users. Knowing the database with the most comprehensive coverage may also translate into cost saving. After analysing seven life sciences databases for scanned and indexed agriculture journal titles, CAB Abstracts had the best results and was ranked as the most comprehensive. From a total of 542 primary agriculture journals examined, CAB Abstracts emerged best after comparisons with Biological and Agricultural Index plus (BAI), Web of Science, Agris, Biosis, Agricola and CSA Life Sciences. Kawasaki (2004) concludes that it would be duplication of effort carrying out an agriculture literature search in any or all of the other life sciences databases; in the absence of CAB Abstracts, then one would need to be knowledgeable in searching multiple databases to conduct a comprehensive search.

Velmurugan (2013) argues that, advances in technology and e-publishing have enabled obtaining information on local, regional, national and international levels easier. This is because electronic resources overcome the traditional barriers of space and time. Huge

amounts of scholarly literature in the form of books, reports, journals among others are now published electronically. Recognition of the great potential for better services offered by Information and Communication Technologies has made many libraries in institutions of higher learning opt for the electronic platforms. The Library of congress (2008) defines e-resources as any work encoded and availed for access through a computer including electronic data available by remote access and direct access also known as fixed media. Velmurugan (2013) further defines e-resources as systems in which information is electronically stored and made available via electronic systems and computer networks; examples are: E-books, Online Public Access Catalogue (OPAC), CD-ROMs, Online-Databases, E-journals, and Internet resources.

According to Harle (2010) many African universities have impressive collections of electronic information resources, but this has not always been the case. Giving a brief history of e-resources in African universities, Masinde *et al.*, (2011), highlight that the cost sharing in higher education which was brought about by the Structural Adjustment Programs (SAPs), coupled with a reduction in governments' spending on education, resulted in reduced subscription to journals by African libraries. This led to the need for strong interventions in the 1990's to redeem the situation. Harle (2010) observes that the situation began to improve with the advent of electronic journals in the late 1990s supported by increased numbers of titles and schemes that offered access either free of charge or at a subsidised rate. These included United Nations' Health InterNetwork Access to Research Initiative (HINARI), Access to Online Global Research in Agriculture (AGORA), Online Access to Research in the Environment (OARE), International Network for the Availability of Scientific Publications' Programme for the Enhancement of Research Information (PERii) and

Electronic Information for Libraries (eIFL.net). However, these initiatives were donor funded and would not be sustainable in the long term without funding (Gathoni *et al.*, (2011).

According to Gathoni *et al.*, (2011), Kenya was connected to the internet in 1996, followed by emergence of e-resources services in university libraries. Since then, libraries have faced numerous challenges including cost of these resources, marketing, training users on usage and e-resources collection management. To address these challenges, initiatives like the Kenya Education Network (KENET) and the Kenya Libraries and Information Services Consortium (KLISC) were formed. Today, these and other initiatives have greatly resolved the initial challenges of connectivity and general availability of e-resources. Harle (2010) concurs that over the years the availability challenge has largely been resolved bringing thousands of journals to African universities. He highlighted the need to look at other areas concerning e-resource use that may be affecting access and effective utilization of these resources by students and academics. Megersa and Mammo, (2008) emphasize that one major factor that determines utilization of e-resources is awareness of their availability.

Tenopir (2011), highlights that many libraries have collected usage logs that reveal a great increase in download of electronic resources over the last couple of years. Academics are accessing and reading e-articles at increasing rates. These implicit values however do not show satisfaction, purpose or outcomes of use (Tenopir, 2011). Megersa and Mammo (2008), urge that sustained investments in the provision of e-resources demand the demonstration of positive impacts on academic achievements. Their study of the utilization of PERI resources in Ethiopia found that 91% of the respondents reported an improvement in the standard of their academic work after using the e-resources. 97% of the librarians reported that the resources had improved standard of service delivery at the library. The study

recommends that individual institutions should carry out investigations about the use and non-use of e-resources to identify institution specific challenges. Gathoni *et al.*, (2011) emphasizes that one way of identifying the dynamic challenges of e-resources is through Monitoring and Evaluation (M&E). Monitoring and evaluation helps in assessment of impacts of e-resources on users, which is vital in identifying ways of improving their use. According to Rosenberg (2008), successful Monitoring and evaluation helps in identifying underutilized resources, documenting outcomes and impacts, providing information useful in decision making and planning; it also helps in assessment of an organizations performance.

According to Poll & Payne (2006) there are quantitative and qualitative methods of measuring impact of libraries and information services. Quantitative methods seek to gauge competencies or behaviour changes or to determine correlations between people's professional or academic success and library use. Some quantitative techniques include: use of tests to assess user skills before and after use of library services, data mining/performance monitoring, analysis of citations and unobtrusive observation. Qualitative or "soft" methods assess outcomes through evaluating users' opinions and experiences. These methods include: users' self-assessment of skills and competencies, surveys, discussion groups, focus groups and interviews. Qualitative methods yield rich personal judgements and experiences with subjective bias because they show the "perceived outcome". In order to validate these results comparison can be done with statistics or quantitative methods. The "anecdotal" evidence generated by these methods is invaluable because it makes statistics believable and understandable. ACAPS (2012) urges that qualitative methods of research and analysis add value by exploring and identifying intangible factors like individual feelings, cultural expectations, gender roles, relationships and perceptions held by people. As a result, smaller purposefully chosen sample sizes can be used since some informants are more likely to give

greater understanding of a phenomenon, depending on a variety of factors which include; their economic, social, educational and cultural position in a given community.

Sainsbury & Corden (2006) underscore that inclusion of verbatim quotations from respondents in research is now standard practice in qualitative social research. It is a requirement by some research funders for direct quotations to be part of final reports. This approach is being supported through improvement of formal methods for assessment of policy-related qualitative studies and critical appraisal, with the intention of grounding practice and policy in best evidence. Use of verbatim quotations is particularly useful within the following constructs: to deepen understanding; as illustration; to give participants a voice; to enhance readability; as the matter of enquiry; as explanation and as evidence. In a survey examining the state of access to e-resources in twenty-three academic and research institutions in Tanzania, Manda (2008), revealed that all institutions were trying to avail more computers and staff with the right skills to support efficient use of e-resources. A monitoring and evaluation report of e-resources in Kenyan research and academic institutions by Gathoni *et al.*, (2011), reports poor internet connectivity, lack of access to a computer, lack of awareness, lack of awareness on e-resource training, lack of searching skills, unfriendly interfaces just to mention a few, as the barriers to access and use of e-resources. The report strongly recommends that institutions need to avail more computer terminals in libraries, increase bandwidth capacity and train more staff to assist students and academics.

Harle (2010) advises that for users to efficiently utilize e-resources they must: (i) be aware of their availability and scholarly value and (ii) know how to access and retrieve information from them. A survey carried out at Chancellor College University of Malawi, University of

Nairobi, National University of Rwanda and the University of Dar es Salaam by Harle (2010) showed that it was difficult to raise awareness of e-resources among researchers despite training and promotional activity which could be attributed to users perception of the value of such resources to their work/study. Awareness was nonexistent or not satisfactory according to 29% of the respondents while 40% of the respondents felt they had good awareness. Only 16% felt that their level of awareness of e-resources offered by their libraries was high. When asked about access, 37% reported poor or unsatisfactory access to search tools, while 34% reported satisfactory access; only 30% reported good or very good access to search tools. Of all the universities however, users at the University of Nairobi were most positive with almost half reporting good or very good access to the basic search tools.

In an exploratory study on measuring impact of internet on students' academic life, Dave (2012), found that there was overreliance on Google as a source of information among the students which could be due to ease of access and use, he also found that a good number of the students use the internet for entertainment and emails. When it comes to study and academic information search, the internet has brought significant changes for college students. Internet was preferred to the library as the primary place for information searches by an overwhelming number of college students; this shows the shift from printed information resources to electronic resources. The study revealed that students spent one to two hours online daily and majority of them did so at cyber cafes and at home. According to Masinde *et al.*, (2011), observations have shown that availability of e-resources does not necessarily mean they will be significantly utilized; giving universities access to e-resources is only the first of a series of activities meant to increase access to online research. Harle (2010) emphasizes that problems of access to these e-resources can only be understood through a deeper analysis of factors, which determine how easily academics and students can

access and make good use of e-resources. This study is therefore designed to generate knowledge on the access, use and the impacts of CABI online resources at the University of Nairobi's College of Agriculture and Veterinary Sciences.

2.1 Theoretical framework

This study was guided by the Theory of Change. Centre for theory of change (2014) defines the theory of change as: All building blocks necessary to achieve a given long-term goal. This set of connected building blocks interchangeably known as results, outcomes, preconditions or accomplishments, is depicted on a diagram referred to as a pathway of change or a change framework, which is a detailed representation of the change process. James (2011) defines the theory of change as an ongoing process of deep thinking to look at change, how it occurs and what that means for the roles organizations play in a given group of people, sector or context. Although its roots are much older; the theory was developed from two streams of development and social programming practice: evaluation and informed social action. From the evaluation point of view the theory of change is a part of programme theory, an evaluation thought developed from 1960s which urges a clearer focus on the theoretical basis of programmes, clearer expression of how programme planners view relationships between inputs and outcomes, and how programmes are planned to work, to improve evaluations and programme performance (Vogel, 2012).

As adapted in this study, theory of change postulates that the awareness, access, and use of the CAB abstracts database and CABI Compendia by RUFORUM universities' students, lecturers and librarians are activities, outputs and outcomes that are intended to bring about innovative research outputs responsive to the demands of smallholder farmers and strengthen tertiary agricultural education systems in Africa.

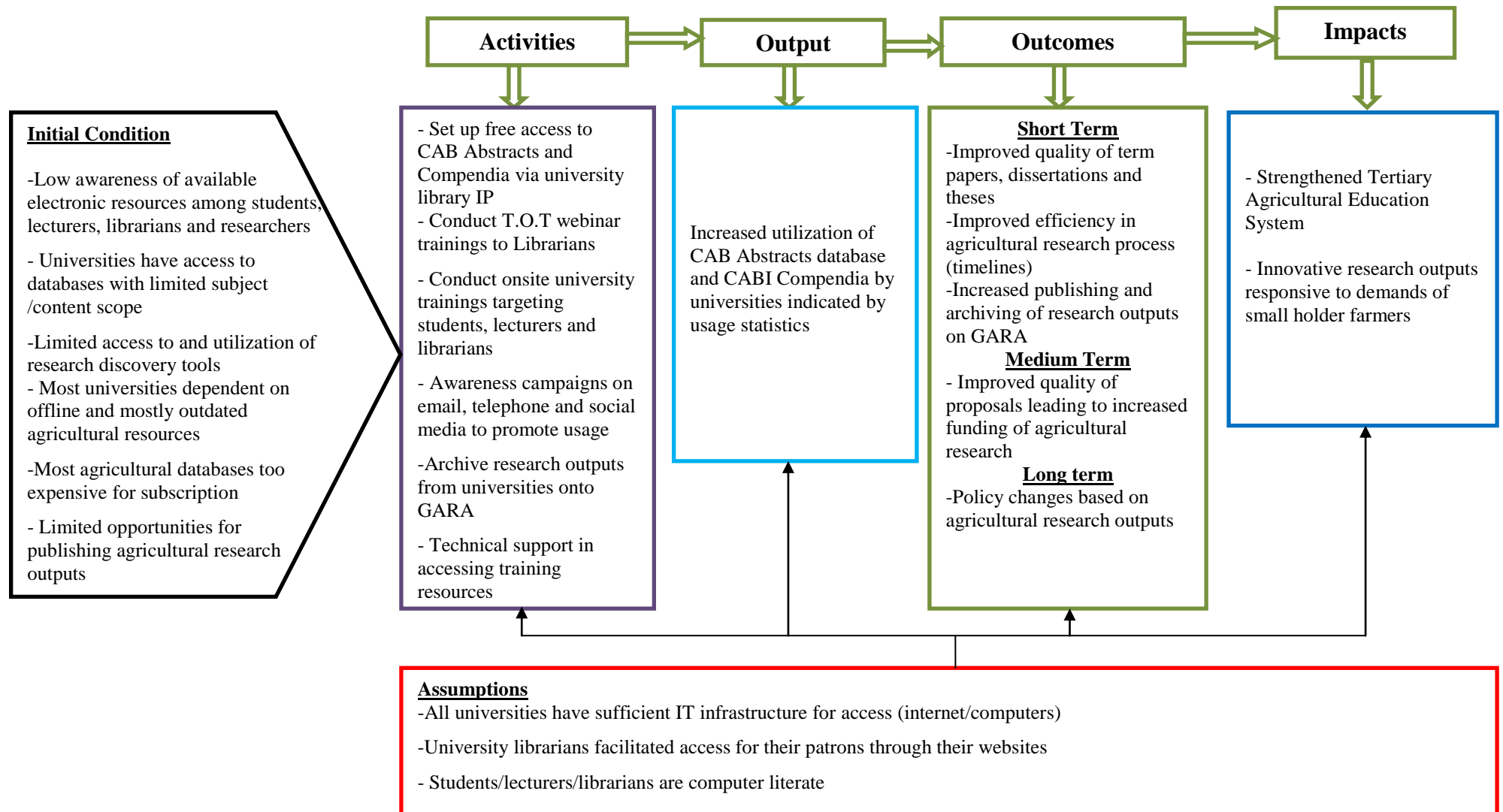


Figure 1: Theoretical framework /Change framework/Pathway of change

Adapted from: Vogel (2012)

2.2 Conceptual framework

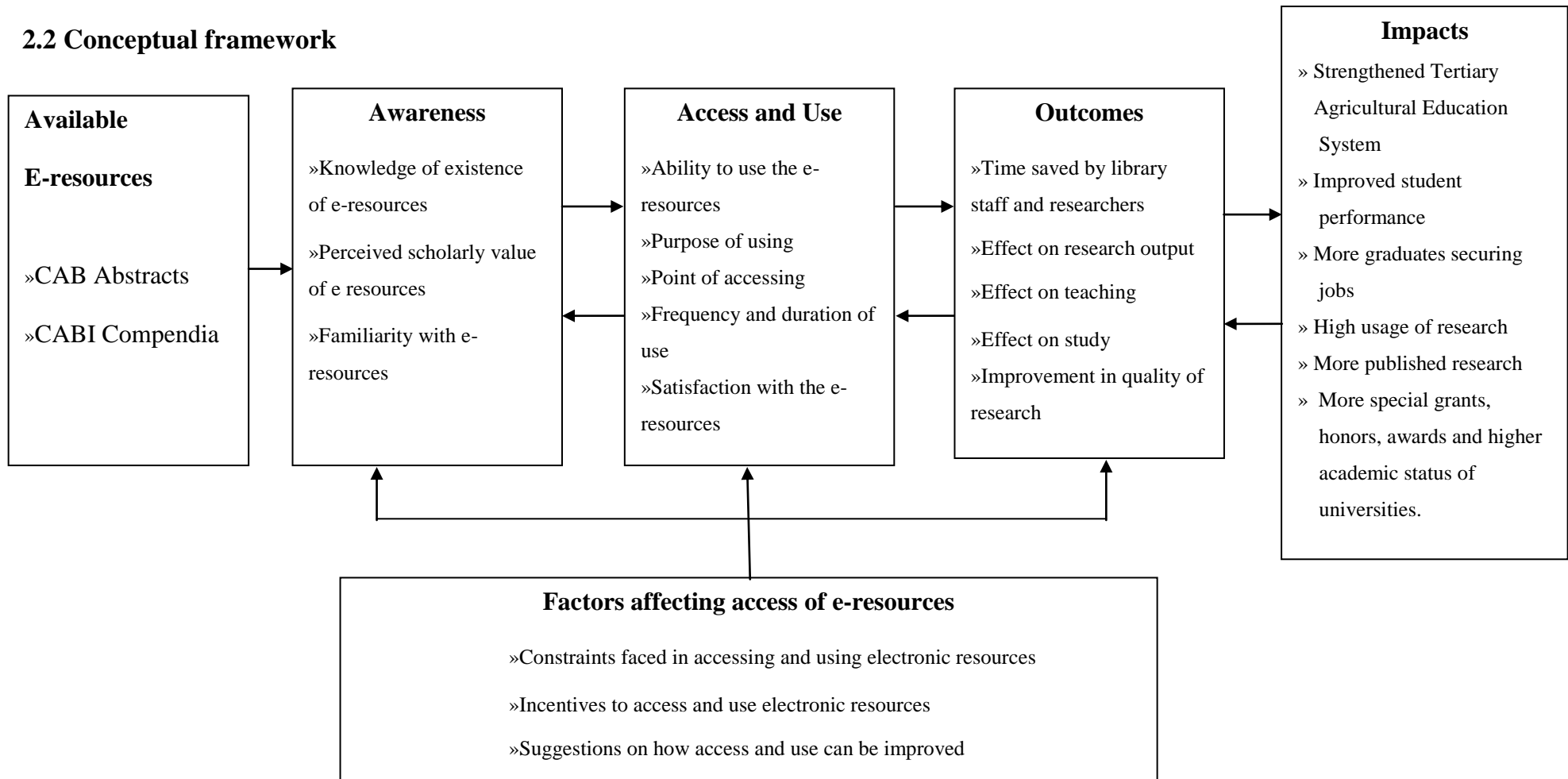


Figure 2: Conceptual framework

Source: Own conceptualization

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study area

University of Nairobi's College of Agriculture and Veterinary Sciences (CAVS) was established in 1985 by the University Act and is made up of the Faculty of Agriculture, Faculty of Veterinary Medicine and Wangari Maathai Institute for Peace and Environmental Studies (UoN, 2014). The Faculty of Agriculture offers eight undergraduate programmes which cover: agriculture; range management; education and extension; horticulture; agro-ecosystems management; agribusiness; food nutrition and dietetics. Masters programmes in the faculty cover agricultural information and communication management; land and water management, horticulture; agronomy; dry land agriculture; pathology; ecology; livestock production systems; genetics and breeding; soil science; crop protection; livestock production systems; applied human nutrition; agricultural engineering; resource management; ecology and applied economics (UoN, 2012). The Faculty of Veterinary sciences offers undergraduate programmes in: veterinary medicine; biomedical technology; wildlife management; leather science; fisheries and aquaculture management. It also offers masters, PhD, post graduate certificate, diploma and certificate programmes in the above mentioned areas (UoN, 2012b). Wangari Maathai Institute for peace and Environmental studies cultivates positive ethics practices and values regarding the environment by training individuals who promote holistic sustainable development, foster peace and link theory with practice (UoN, 2014).

Map showing where University of Nairobi's College of Agriculture and Veterinary Sciences (CAVS) is located.

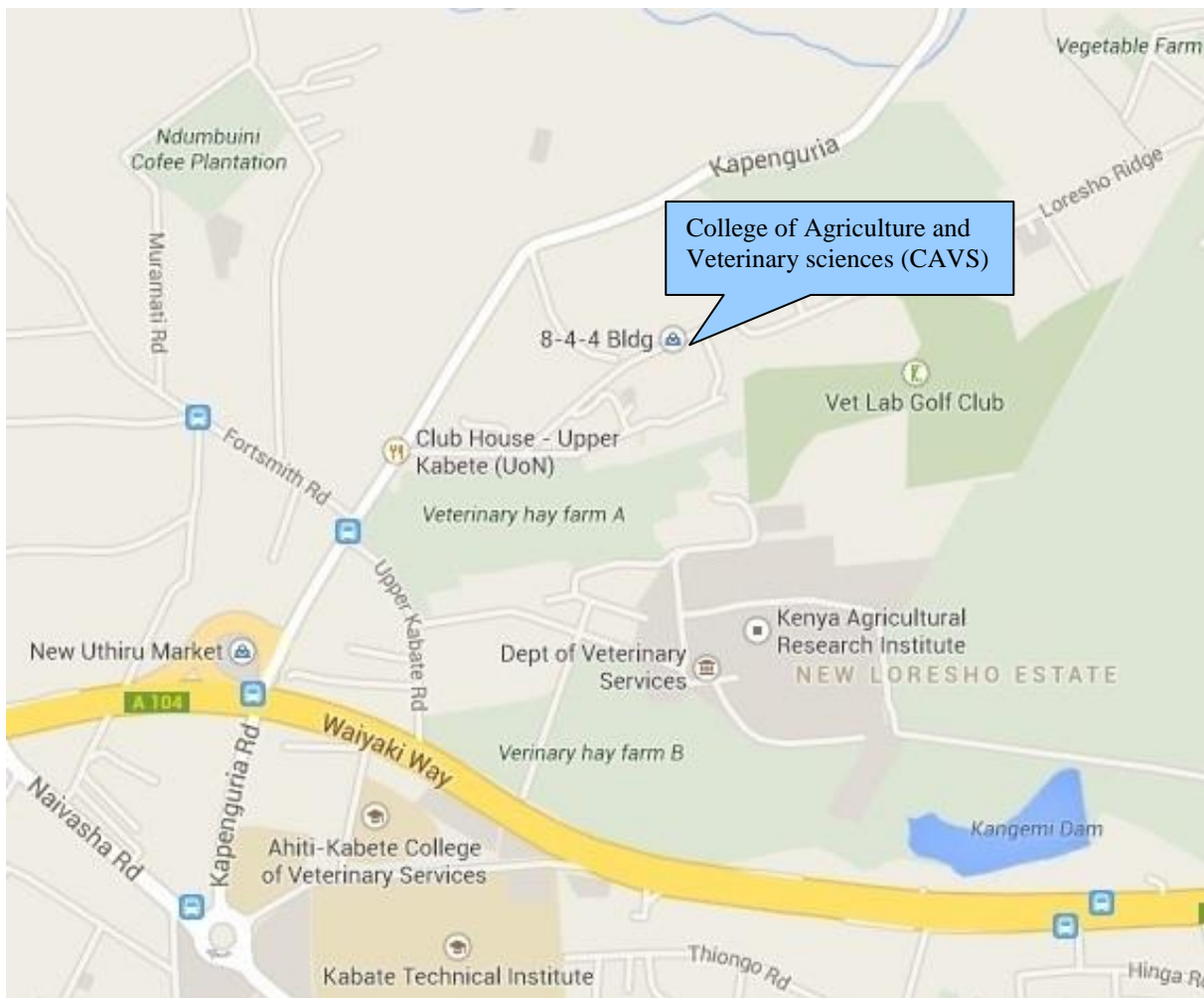


Figure 3: Map showing location of CAVS

Source: Google maps (2014)

University of Nairobi Library System acquires, organises and disseminates information to support the University's mission. It provides reference, reading, research and other library services to staff, students and to a group of qualified outsiders. The system comprises of twelve libraries spread across the six colleges with an estimated total stock of 500,000 volumes including periodicals, books and non-print materials (University of Nairobi, 2012). The library department offers numerous electronic resources including electronic journals, electronic books, and electronic databases. This is accomplished through collaboration with

many organisations that have similar goals which include Electronic Information for Libraries (EIFL), International Federation of Library Associations and Institutions (IFLA), International Network for Availability of Scientific Publications INASP), Kenya Library and Information Services Consortium (KLISC), Kenya National Library service (KNLS), Dspace, The Kenya Information Preservation Society (KIPS), Centre for Agriculture and Biosciences International (CABI) and the Regional Universities Forum for capacity building in Agriculture (RUFORUM).

3.2 Study design

This research was descriptive and qualitative, conducted through a cross sectional case study. The researcher used a two staged approach to gather data using questionnaires and key informant interviews. (i) One questionnaire was specifically designed for and administered to librarians and (ii) another questionnaire was for users who comprised lecturers, post-graduate students and undergraduate students. Personal interviews were then conducted with librarians, students and lecturers who had interacted with CABI's online resources. In the interview stage the researcher examined the perceived impact of the e-resources on librarianship, study and teaching.

3.3 Sampling procedure

In this study respondents were in three categories that shared similar characteristics i.e. librarians, lecturers, undergraduate students and post graduate students. Based on staff and student lists that were availed to the researcher by the Faculty of Agriculture and the Faculty of Veterinary science, the total population was 1,114. This comprised of 712 undergraduate students 203 post graduate students, 192 lecturers and 7 librarians.

To come up with the sample size for the study, the formula below was used:

$$n = \frac{N}{1+N(e)^2}$$

Where:

n = category minimum sample size

N = Population Size

e = Level of precision (0.1)

(Israel, 2012)

Given that the total population according to the lists provided was 1,114 therefore:

$$\begin{aligned} \text{Minimum sample} &= \frac{1,114}{1 + 1,114 (0.1)^2} \\ &= \frac{1,114}{1,115 * 0.01} = \frac{1,114}{11.15} = \underline{\underline{100}} \end{aligned}$$

A minimum sample of 100 respondents was arrived at.

Purposive sampling technique was used to select the sample. Based on the overall objective of the study which was “To evaluate the awareness, access, use and impacts of CAB Abstracts and CABI Compendia among e-resource users at the University of Nairobi”; an inclusion criterion was used and only people who were e-resource users were selected for the study. Questionnaires were administered to all the 7 librarians. In order to achieve proportional representation among the user categories, 100 respondents in each user category were exposed to the inclusion criterion. A total of 150 questionnaires were administered but during data cleaning, only 117 questionnaires were selected for analysis; these comprised 55 postgraduate students, 40 undergraduate students and 22 lecturers. Network/snowball sampling was used to identify candidates for interviews which were designed to answer the

research question on impacts of e-resources. Respondents who indicated having utilised CAB Abstracts and CABI Compendia in the questionnaire stage were selected for interviews. They also identified people in their network who had utilised the resources. Personal interviews were conducted on a total of 9 people who comprised 2 librarians, 3 postgraduate students and 4 lecturers.

3.4 Data Analysis

In this study simple descriptive analysis was done on the data collected using IBM SPSS Statistics for Windows version 22; this was on awareness of CAB Abstracts, the frequency of access and the factors influencing access and use of the databases as well as impacts of using the databases. Data that was collected using the questionnaires was presented using a combination of simple statistical and graphical techniques which included frequency distributions, histograms, bar charts, pie charts and simple percentages. Thematic analysis and summary was done on the data collected using personal interviews. The responses from the interviewees which were recorded on video were transcribed and the major themes of the interviews were summarized and presented in the form of direct quotations.

CHAPTER FOUR

4.0 RESULTS

4.1 E-resource use and its impacts among CAVS librarians

4.1.1 Demographic characteristics of librarians

Demographic information of the librarians consisted of age, gender, qualification, specialization, marital status and nationality. The analysis of the age distribution of respondents involved in the study as presented in Figure 4 below reveals that 43% are between 30 and 40 years old, 14% are aged 25-30 years and 14% below 25 years.

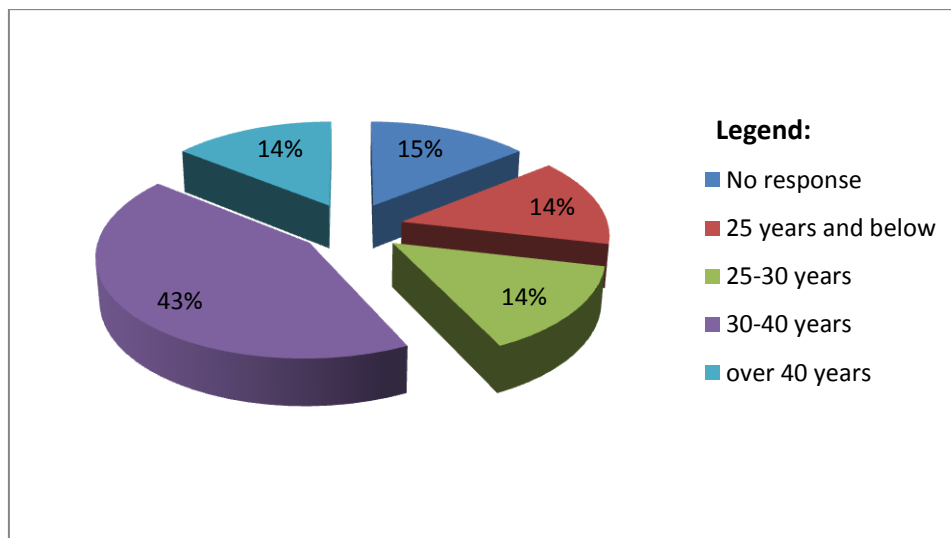


Figure 4: Age distribution of librarians

At the College of Agriculture and Veterinary Sciences library, 57% of the librarians were males while 43% were females. Among the female librarians, 66% of them had obtained postgraduate education compared to 25% of the males.

4.1.2 Characteristics of library services at CAVS

The library had one librarian who acted as an electronic resources coordinator. According to 83% of librarians; the target users are staff, students and researchers at University of Nairobi plus external users. The remaining 17% responded that the target users are staff, students and researchers at UoN only. The approximate combined number of both physical and electronic titles was found to be more than 10,000 titles. According to 86% of librarians, information resources are archived in both print and digital formats while 14% responded that information resources are archived only in digital format. All librarians confirmed the existence of a digital repository in the library but they differed on the software platform hosting the repository with 42% saying the software platform was Dspace while 29% said it was hosted in the library website. The remaining 29% did not know the platform hosting the digital repository.

On web/online presence it was found that the university library has a webpage on the main university website. The college library had an ICT department/unit to assist in ICT matters. On staffing, 86% of librarians were of the opinion that the ICT department/unit unit was adequately staffed with qualified personnel while 14% were of the opinion that the ICT unit was not adequately staffed with qualified personnel. There was a computer laboratory specifically provided for electronic resources use in the library. The number of computers available for users at the library was found to be between 5 and 20.

The perception of Information Technology (IT) infrastructure adequacy was explored and 71.4% of the librarians rated the IT infrastructure at the CAVS library as good while 28.6% rated it fair as shown in Figure 5:-

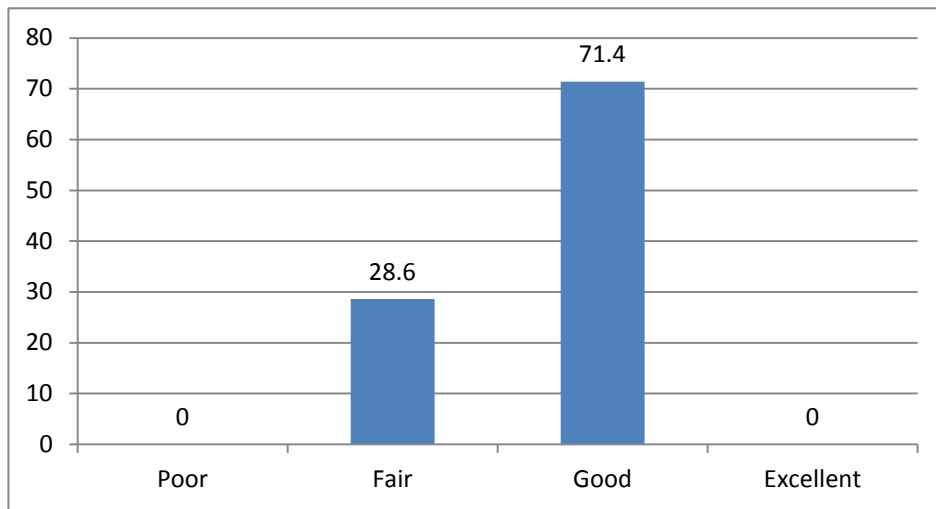


Figure 5: Library IT infrastructure rating

On budgetary allocation for provision of e-resources, 29% said that the budgetary allocation was not adequate while 29% said that the allocation was adequate, 42% said they did not know about the budgetary allocation and its adequacy. The questions on the approximate budget percentages that were allocated to e-resources and the approximate percentages that should have been allocated to e-resources were not answered. The reason given was that issues of budget allocations for e-resources were dealt with at the University level and not at college level.

There were no resources at the library to provide information services to blind people. 86% of librarians were of the opinion that the lack of specialized disabled friendly training on e-resource use was the main challenge hindering provision of information services to the visually impaired. Lack of appropriate disabled friendly policies and their implementation; lack of formal involvement of the University and support structure for ICT for the disabled and limited flexibility in training options for persons with disability were selected as challenges by 57% of the librarians. Limited availability of specialized disabled friendly hardware and software resources due to budget constrains was a challenge according to 29%

of the librarians. Only 14% of the librarians felt that limited finances were a challenge hindering provision of information services to the visually impaired.

4.1.3 Awareness of CAB Abstracts and CABI Compendia among librarians

The research investigated the use of social media to provide information services to users. The results were as follows: 71% of librarians responded that social media was used to provide information services while 29% said social media was not used. On the specific platforms used, 57% of librarians responded that both Face book and Twitter were used while 29% responded that only Face book was used; 14% responded YouTube and LinkedIn. On the use of social media to create awareness of CAB Abstracts and CABI Compendia 58% responded that social media was not used while 28% were not sure. Only 14% reported having used social media to notify users on CAB Abstracts and CABI compendia as shown in Figure 6:-

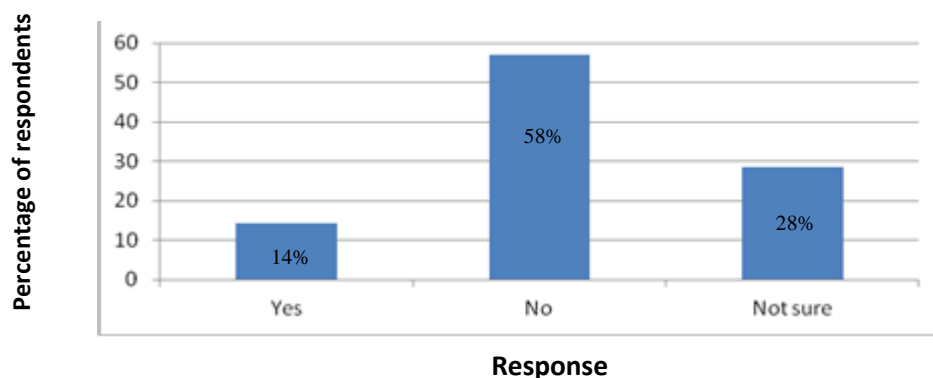


Figure 6: Notification to users about CAB Abstracts and CABI Compendia using social media

Reasons for the library not using social media were examined and 58% responded that they did not know while 14% responded that staff lacked interest in social media, 14% felt that no

one had been assigned that role and 14% felt that the organizational policy does not allow use of social media.

On the library information literacy unit/module being taught as a common course 57.1% of librarians responded that it was offered as a common course while 42.9% said that it was not offered as a common course. On training in the use of CAB Abstracts and CABI Compendia 43% were trained while 43% were not trained; 14% did not know whether they had been trained. Out of the 43% that had been trained; 14% were trained through CABI Webinar while 29% had been trained through a combination of CABI webinars, on campus training by CABI staff and self tutorial from CABI website. Figure 7:-

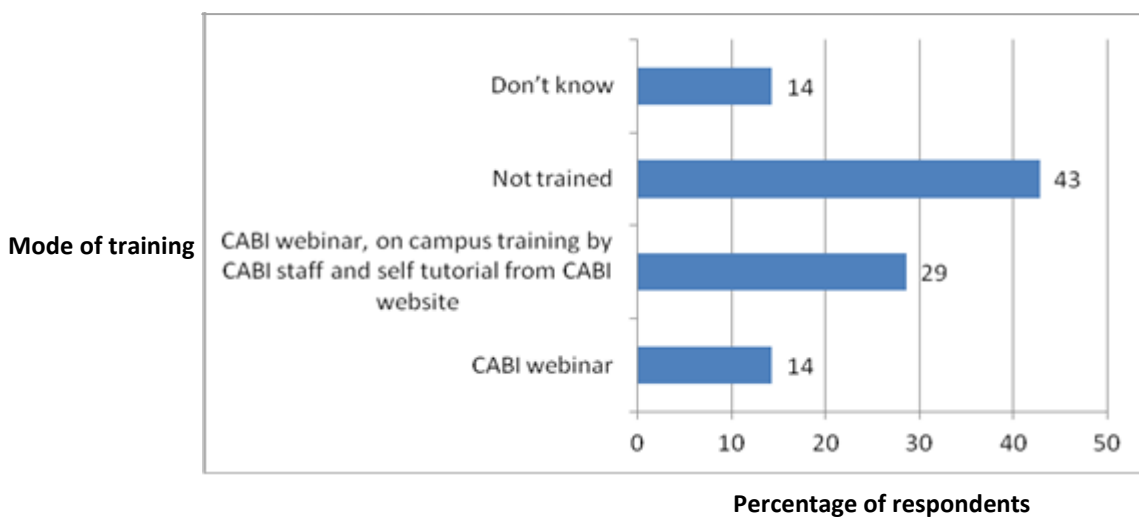


Figure 7: Training on the use of CAB Abstracts and CABI Compendia

After initial training on CABI online resources, 43% of librarians said no in-house training had been carried out at CAVS library while 28% said that an in-house training was carried out; 29% were not sure whether an in-house training had been conducted. All librarians were of the opinion that CAB Abstracts and CABI Compendia were not adequately promoted within the College of Agriculture and Veterinary Sciences.

In order to increase awareness of CAB Abstracts and CABI Compendia among users; 84% of librarians suggested there should be more trainings and workshops, 70% suggested there should be use of flyers, leaflets and posters, 28% suggested advertising on departmental notice boards and the University website while 14% suggested the use of incentives as shown in Figure 8:-

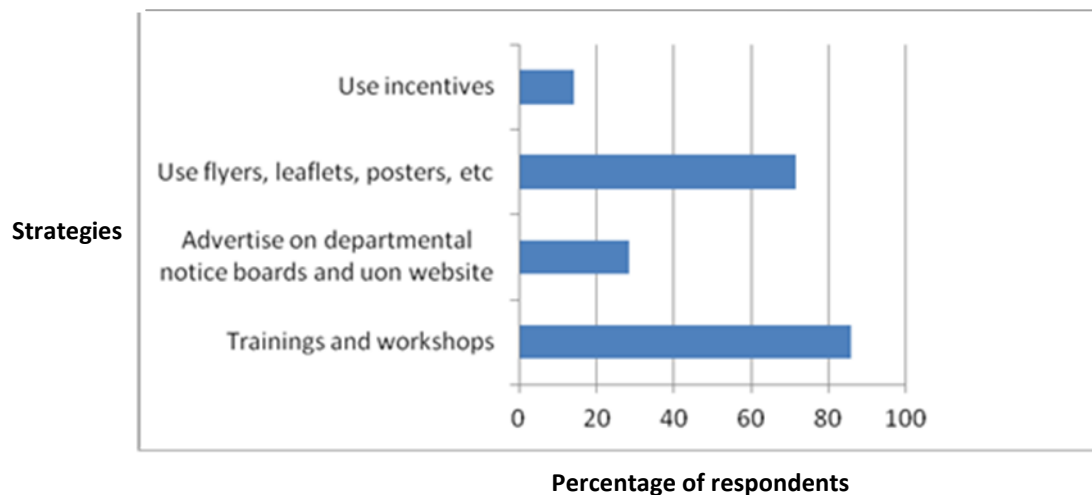


Figure 8: Ways of increasing awareness of CABI online resources at CAVS

4.1.4 Usage of CAB Abstracts and CABI Compendia

The research investigated how access to electronic resources was set up and 86% responded that electronic resources were set up for access through a combination of institutional IP range, username and passwords plus offline external hard drives. The remaining 14% responded that access was via institution IP range only. On how end users access electronic resources, 86% responded that user's accessed electronic resources both on campus via IP and remotely via a portal while 14% responded that users accessed e-resources on campus via IP address only. All librarians were of the opinion that The University of Nairobi library was

a member of Kenya Libraries and Information Services Consortium (KLISC) that helps it in the purchase of electronic resources.

On the use of federated search engines to facilitate searches conducted on its electronic resources; 42% of librarians said the library does not use federated search engines while 30% said that federated search engines are used; 28% were not sure. According to the e-resources coordinator, the federated search engine used in CAVS library was LibHub. On whether CAB Abstracts and CABI Compendia are covered by searches conducted by the federated search engine 72% were not sure while 28% said the CABI online resources were not covered.

When asked about their level of knowledge in using CAB Abstracts and CABI Compendia, 57% rated moderate, 29% rated themselves poor and 14% reported having never used the resources: Figure 9. None of the librarians rated themselves as advanced.

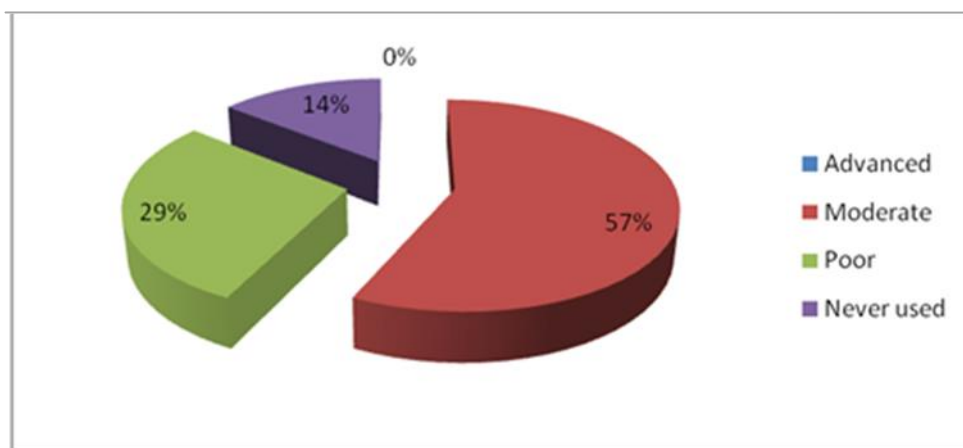


Figure 9: Level of knowledge in using CABI online resources

The research sought to know the duration that the e-resources section remains open for access by users per day and 72% of librarians responded 6-8 hrs, 14% said 8-10hrs and 14% said above 10hrs. The research further investigated the average number of users who visit the e-

resources section per day and 42% of librarians said 10-20 users, 30% said less than 10 users, 14% said more than 20 users and 14% said they did not know. The number of library staff assigned to the e-resource section was investigated and 85.7% of librarians said two staff worked at the e-resources section while 14.3% said that one staff works at the section.

Provision for users to connect their computers/laptops to the internet in the library was looked into with 71% of librarians responding that there was no provision, while 29% said there was such a provision. On the mode of connection available in the library for users to connect their computers to the internet, 71.4% responded that they did not know while 28.6% said Ethernet cables. Skills that end users mostly required help with were explored and 50% of the librarians responded that users required help with full text searches only, 16.7% gave a combination of searching skills and full text searches, 16.7 gave a combination of searching, citation, referencing and exporting skills while another 16.7% gave a combination of searching skills, citation and referencing skills as shown in Figure 10.

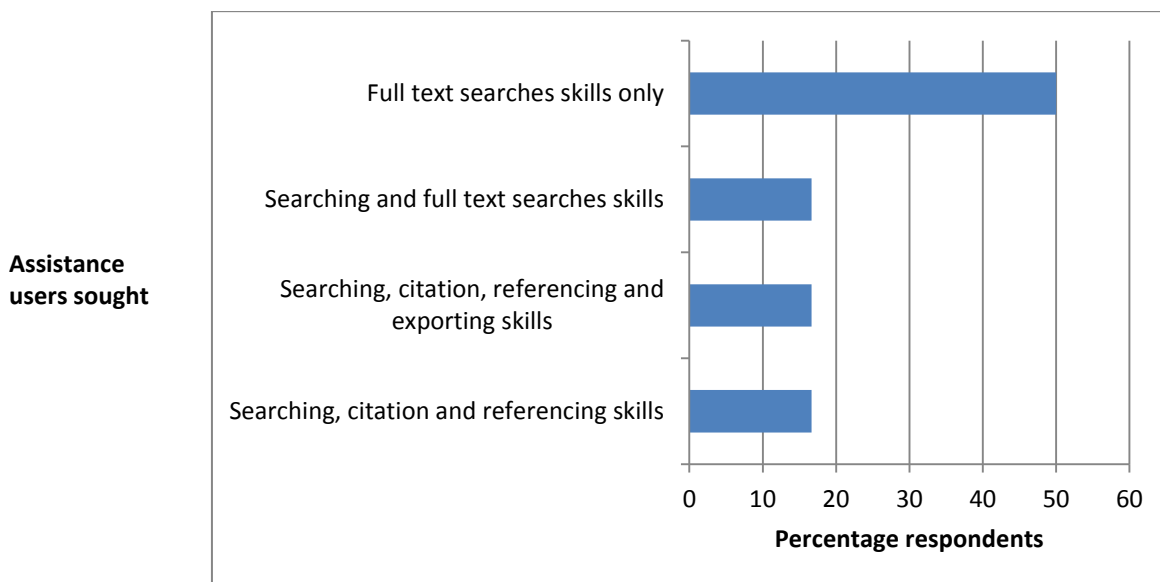


Figure 10: Skills most users require help with

Training on access and use of e-resources was investigated and 86% of librarians said they had been trained while 14% said they had not been trained. Out of the 86% that had been

trained 72% said the training had improved their ability to access and use e-resources a lot while 14% said it had improved their ability to access e-resources a little as shown in the Figure 11.

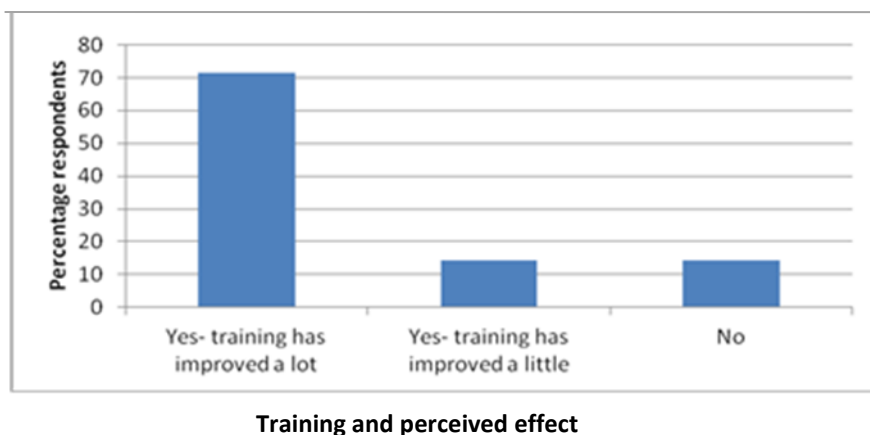


Figure 11: Training on e-resources and its effect

When asked whether they had been trained on access and use of CAB Abstracts and CABI Compendia, 43% said they had been trained while 57% said they had not been trained. Out of the 57% not trained 14% said they were not aware of any such training, 14% said other responsibilities prevented them from attending trainings and 29% said that the semester schedule would not allow them attend the trainings as shown in the Table 1.

Table 1: Training on access and use of CABI online resources

Training on use CABI e-resources	Percent	Reason why not trained	Total percentage
Yes	43%	-	43%
No	57%	Not aware	14%
		Semester schedule	29%
		Other responsibilities	14%
Total	100%	-	100%

When asked about what areas they would like emphasized in future trainings on CABI online resources, 72% said that regular trainings should be carried out, 14% gave a combination of searching skills and flexible trainings while 14% gave a combination of searching skills, citation and referencing skills as shown in Figure 12.

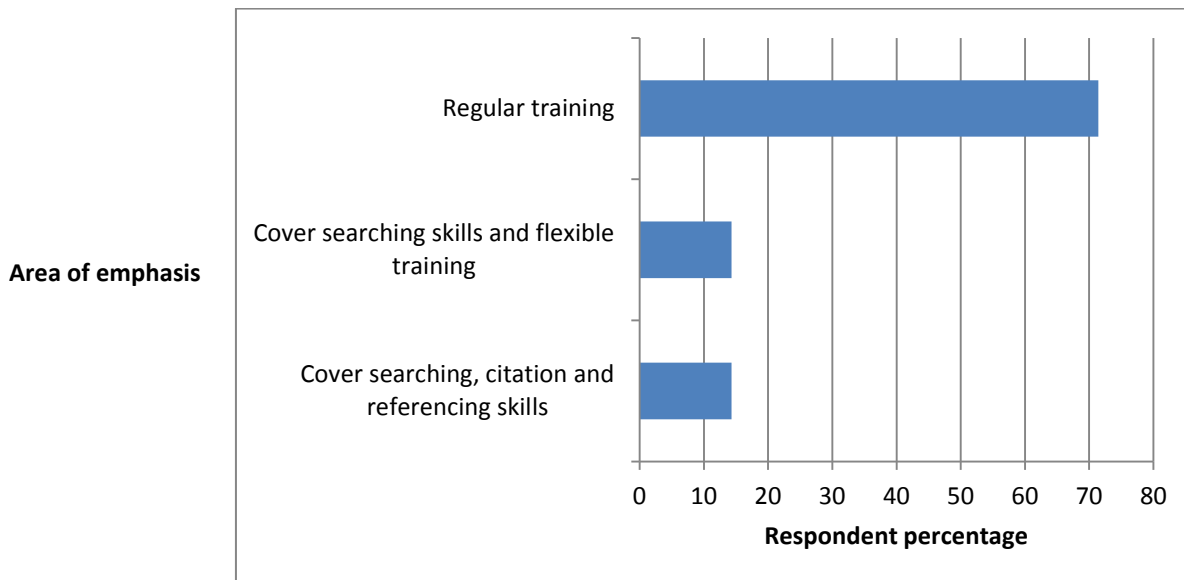


Figure 12: Ways to improve trainings on CABI resources in the future

On whether they would recommend CABI’s online resources to other libraries, 56% of librarians said they would definitely recommend while 44% said they would probably recommend. Tracking and analyzing e-resource usage statistics in the library was examined and 86% of library staff said they don’t track and analyze e-resource use statistics while 14% said they track and analyse e-resource usage statistics. The research sought to know what the librarians perceived as the best way to help users make better use of CAB Abstracts and CABI Compendia, 86% suggested awareness creation and advertising, 70% suggested intensive trainings that would include foreign students and 28% suggested connecting more computers to the internet and e-resources. Figure 13.

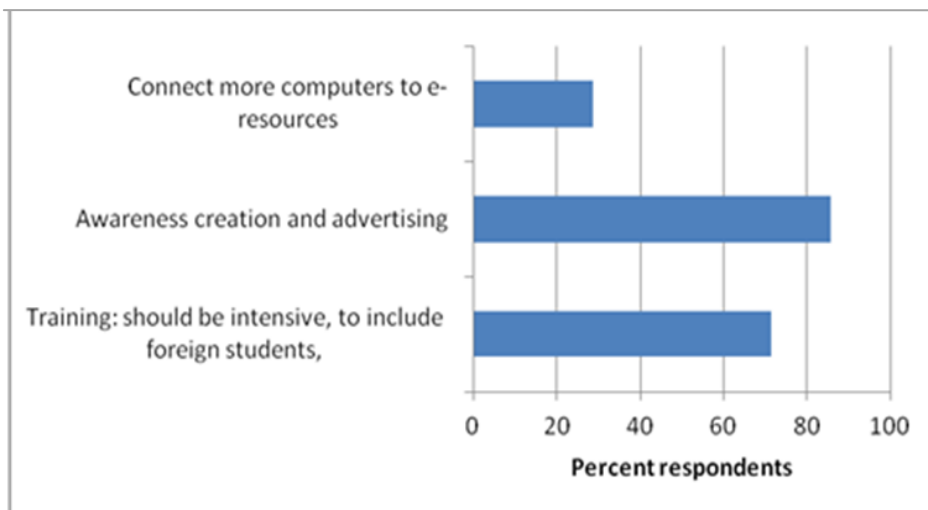


Figure 13: Ways to improve use of CAB Abstracts and CABI Compendia

4.1.5 Impacts of CAB Abstracts and CABI Compendia

The perceived impacts of CAB Abstracts and CABI Compendia on users and their study/work was explored and 86% of the librarians were of the opinion that the resources improved information access and retrieval, increased research output and reduced time searching for content online; 71% were of the opinion that the resources improved quality of research output and increased scope and volume of relevant search results while 43% were of the opinion that the resources improved grades and improved referencing skills. This is shown in Figure 14.

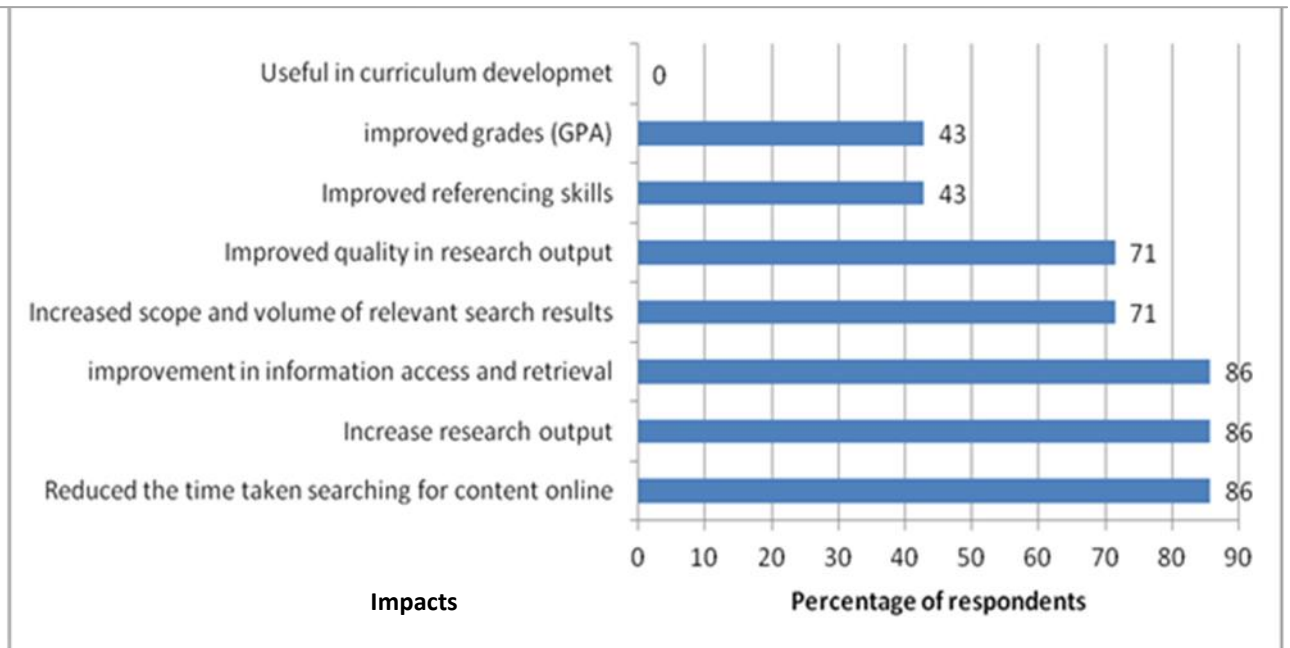


Figure 14: Impacts of CAB Abstracts and CABI Compendia on users study/research

4.1.6 Key informant interviews on impacts of CAB Abstracts and CABI

Compendia



HARUN MUGO

College Librarian – College of Agriculture and Veterinary Sciences

According to Harun Mugo, the college librarian, CAB Abstracts and CABI Compendia give users access to information that is regularly updated. These resources save time by offering ease of access from any location. The wide scope covered by these resources makes them a rich source of information for many students. When used, these resources improve the quality of research and help avoid plagiarism; it also helps students in networking with professionals in their area of study.

Question 1: How has CAB Abstracts and CABI Compendia supported you in your work as a librarian?

“Initially, we used printed books and journals, but we are moving towards a digital library. We started with CD based e-resources which were updated annually. With online resources like CAB Abstracts and CABI Compendia whose databases are regularly updated, we have adequate agricultural information.”

“The databases are very resourceful and can be accessed from all University of Nairobi campuses. Users can now comfortably access the literature from wherever they are, which has helped us deliver library services at the click of a button saving on time.”

“The wide coverage by CABI online resources makes them useful to many students in various academic fields. Plant Science students get a lot of relevant information from these databases and so do the veterinary students.”

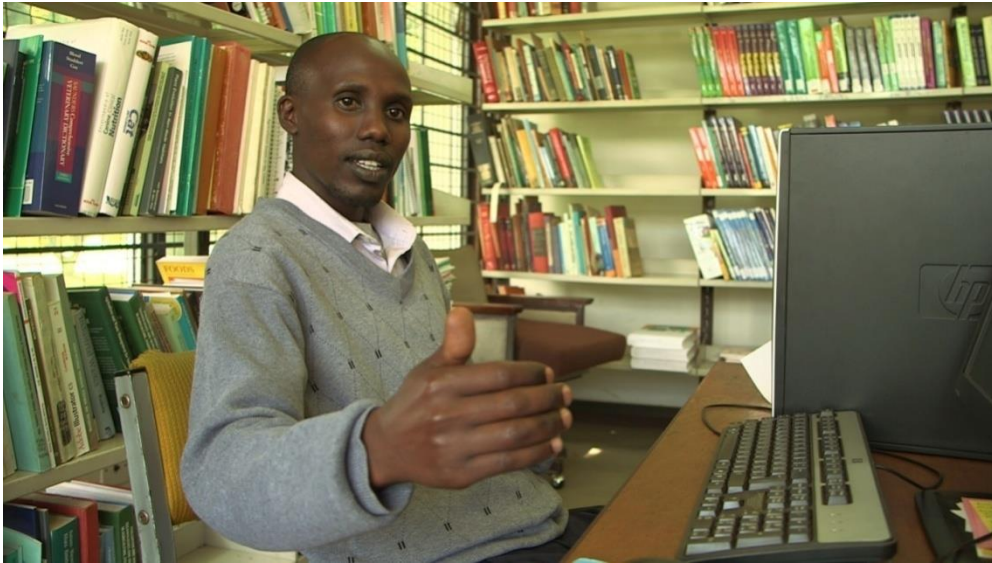
HARUN MUGO: College Librarian – College of Agriculture and Veterinary Sciences

Question 2: In your own opinion what impacts/effects does using CAB Abstracts and CABI Compendia have on library users?

“These resources contribute to the quality of their work, especially because updated information is provided. This helps to avoid duplication of research since the databases show research areas handled by others, which makes a researcher avoid doing what has already been done by others.”

“Users get information from wherever they are at the click of a button, this saves on time spent doing research. It also gives opportunities for students to collaborate with other willing researchers tackling similar fields, since all that information is provided.”

HARUN MUGO: College Librarian – College of Agriculture and Veterinary Sciences



RICHARD MUTUKU

Librarian – College of Agriculture and Veterinary Sciences

According to Richard Mutuku, a librarian at CAVS, CABI online resources save on time and improve the quality of research among users.

Question 1: How has CAB Abstracts and CABI Compendia supported you in your work as a librarian?

“CABI online resources are part of the tools we use to direct students on where to get information and help advance their academic work. Users get the information they need within a shorter period which saves of time.”

Question 2: In your own opinion what impacts/effects does using CAB Abstracts and CABI Compendia have on library users?

“When users look for information online using these resources, they get information promptly especially when they use the right search terms. The resources also save users time because they are easy to use. The fact that the information is updated regularly means that the quality of research our users produce is high.”

RICHARD MUTUKU: Librarian – College of Agriculture and Veterinary Sciences

4.1.7 Factors influencing access and use of CAB Abstracts and CABI Compendia

The research explored the factors that encourage users to utilize CAB Abstracts and CABI Compendia and 86% of librarians said ease of access, 71% said ease of use, reasonable results given and relevant content, 57% said friendly interface and 14% said credibility as shown in the Figure 15.

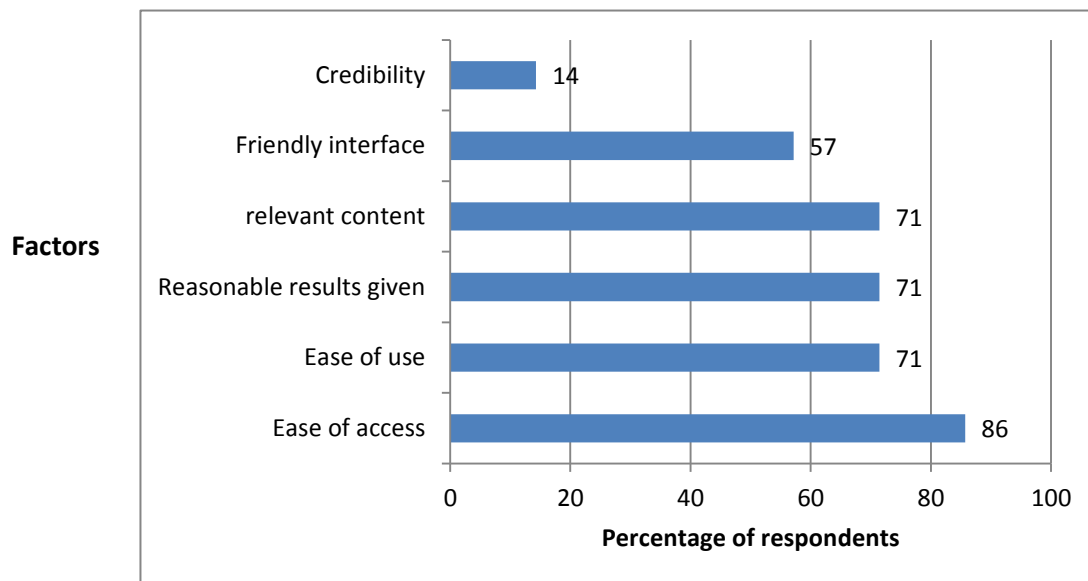


Figure 15: Factors that encourage users to utilize CAB Abstracts and CABI Compendia

4.2 E-resource use and its impacts among students and lecturers

4.2.1 Demographic characteristics of lecturers and students

The demographic characteristics investigated included respondents age, gender, area of academic specialization, education level and marital status. The age of respondents was examined and 52 % of the respondents were found to be 25 years and below, 28.4% were between 26 and 35 years, 8.3% were between 36 and 45 Years and 11% were 46 years and above.

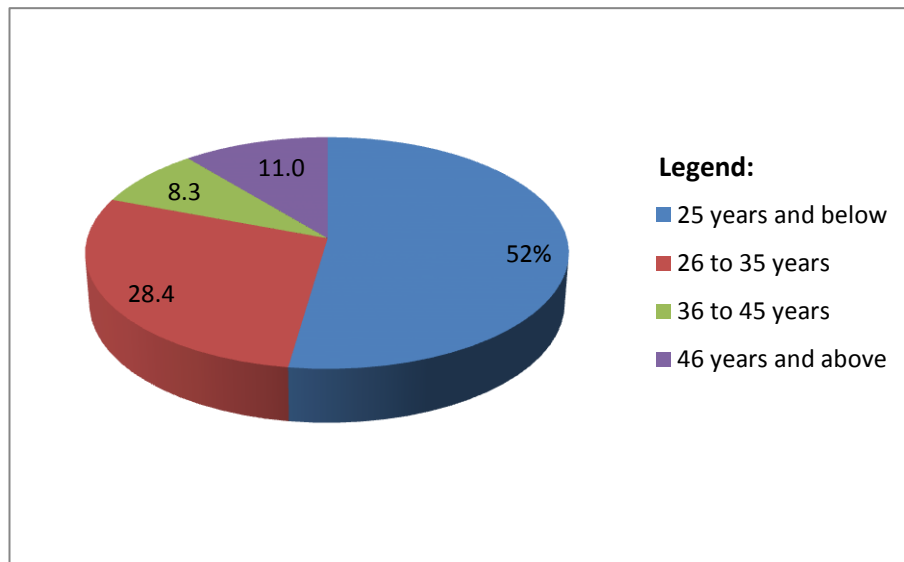


Figure 16: Age groups of respondents

On gender, 75% of the respondents were males while 25% were females. The male (n = 88) respondents comprised 32 % postgraduate students, 28% undergraduate students and 15% lecturers, while the female respondents (n = 29) comprised 15% postgraduate students, 6% undergraduate and 4 % lecturers. The qualification of the respondents was looked into and 47 % of the respondents were postgraduate students, 34 % were undergraduate students while 19% were teaching staff. According to areas of academic specialization 28 of the respondents specialized in Veterinary Medicine, 21 of them specialized in agricultural economics, 22

specialized in crop sciences, 14 specialized in food sciences, 12 specialized in environmental sciences, 11 specialized in soil sciences, 4 specialized in information science, 3 in agricultural engineering and 2 in aquaculture. On their marital status, the findings revealed that 67% were married while 33% were single.

4.2.2 Users' characteristics

The frequency of visiting the library was explored and 25% of the respondents reported using the library daily; 34% visited weekly; 12% visited monthly; 25% were infrequent library users while 4% of the respondents reported never having used the library. Majority of the undergraduate students use the library either daily or weekly while a majority of lecturers use the library either monthly or infrequently; this may be attributed to their busy schedules and access to computers and Ethernet in their offices. Majority of post graduate students use the library either weekly or infrequently as shown in Figure 17.

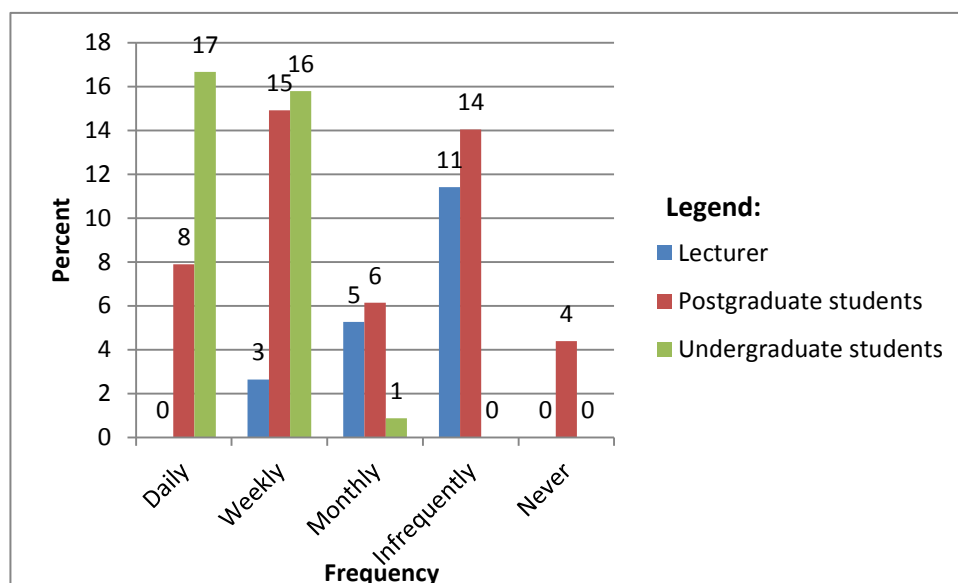


Figure 17: Frequency of using the library

The library resources that the users utilized were examined and 54% of lecturers used print books, 31% used print journals, 13.6% used e-books, 4.5% used audio-visual and 31% used e-journals. As for post graduate students: 41.5% used print books, 24.5% used print journals,

20.7% used e-books, 1.8% used audio-visual and 33.9% used e-journals. The low use of e-books by post graduates may be attributed to the fact that e-journals are the primary channel for distribution of research according to several scholars For undergraduate students; 81.5% of them used print books, 7.9% used print journals, 5.3% used e-books, 0% used audio-visual and 7.9% used e-journals as shown in Table 2.

Table 2: Library resources used by lecturers, post-graduate and undergraduate students in their study/research

Respondent category	Print books	Print journals	e-books	Audio-visual	e-journals
Lecturers (n =22)	54%	31%	13.6%	4.5%	31%
Postgraduate students (n = 55)	41.5%	24.5%	20.7%	1.8%	33.9%
Undergraduate students (n = 40)	81.5%	7.9%	5.3%	0%	7.9%

According to the analysis, undergraduates use print books more than the other categories at 81.5% probably because they visit the library more often. Lecturers utilize print journals more than the other categories at 31%; post graduate students use e-books more than in the other categories at 20.7% and lecturers use audio-visual materials more than the other categories at 4.5%; post graduate students lead in the use of e-journals at 33.9%. The level of skills in using the internet was explored and the findings showed that 53 % of the respondents rated their knowledge of using the internet as moderate while 44 % rated their knowledge as advanced, only 3 % rated themselves as poor users. Figure 18.

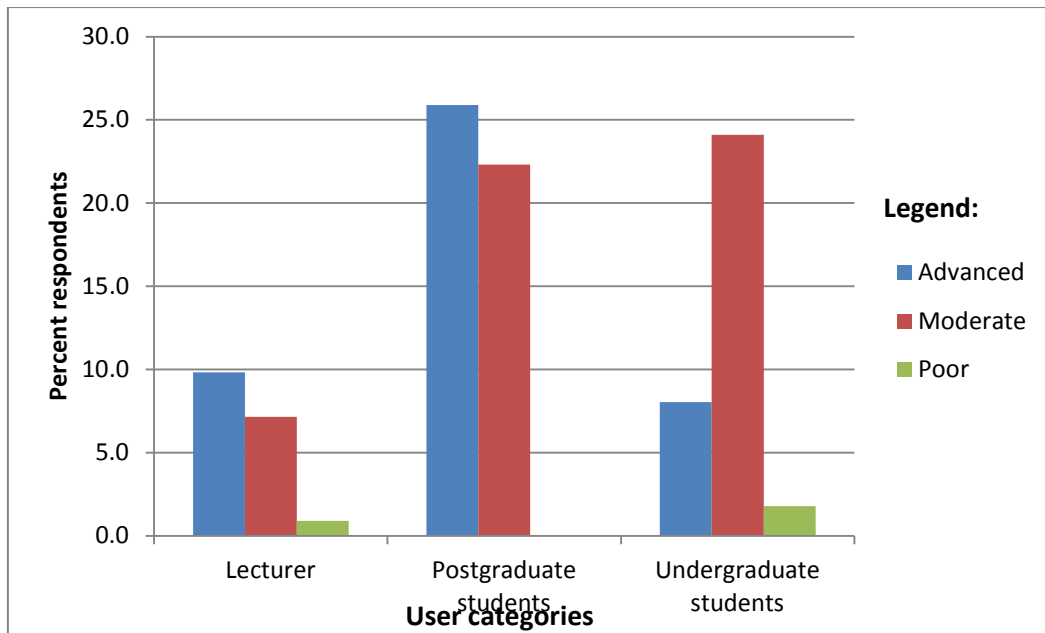


Figure 18: Perception on the current level of knowledge in using the internet by the users

The research also investigated whether e-resources were used in research/teaching/study. The findings disclosed that 95% of the respondents used them while 5% said they do not use them in their work and study.

The way users accessed e-resources was investigated and the findings showed that 67% accessed e-resources using laptops; 36% through computer labs; 35% used mobile phones; 14% using library PCs; 12% using campus WiFi; 9% using office PC while 6% used other means such as tablets. This is shown in Figure 19.

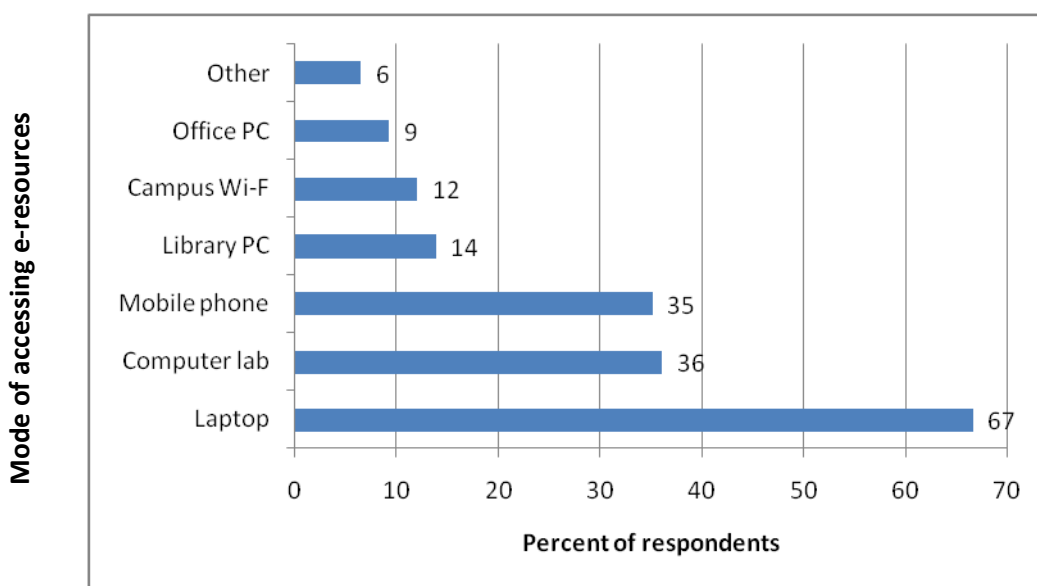


Figure 19: How users access electronic resources

4.2.3 Awareness of CAB Abstracts and CABI Compendia among lecturers & students

The research sought to establish the level of awareness of e-resources among users at CAVS. A question of whether they were aware of e-resources provided by the university library was asked and the results revealed that 93 % of the users were aware while 7 % were not aware of the e-resources offered by University of Nairobi library. Awareness of e-resources was investigated and results disclosed that 68 % were aware of 1- 5 electronic resources offered by the library; among these 68%: 14% were lecturers, 32% were postgraduate students and 22% were undergraduate students. Those who were aware of 6-10 e-resources were 19%: 3% were lecturers, 9 % were postgraduate students and 7 % were undergraduate students.

Channels through which users had learnt about the e-resources they knew about were examined and the results as shown in Figure 20 showed that 33% had learnt about e-resources through library workshops/exhibitions; 21% through lecturers; 21% through librarians; 19% through colleagues; 16% checked on library website; 15% through e-mails and 10% through other sources such as reading flyers and leaflets.

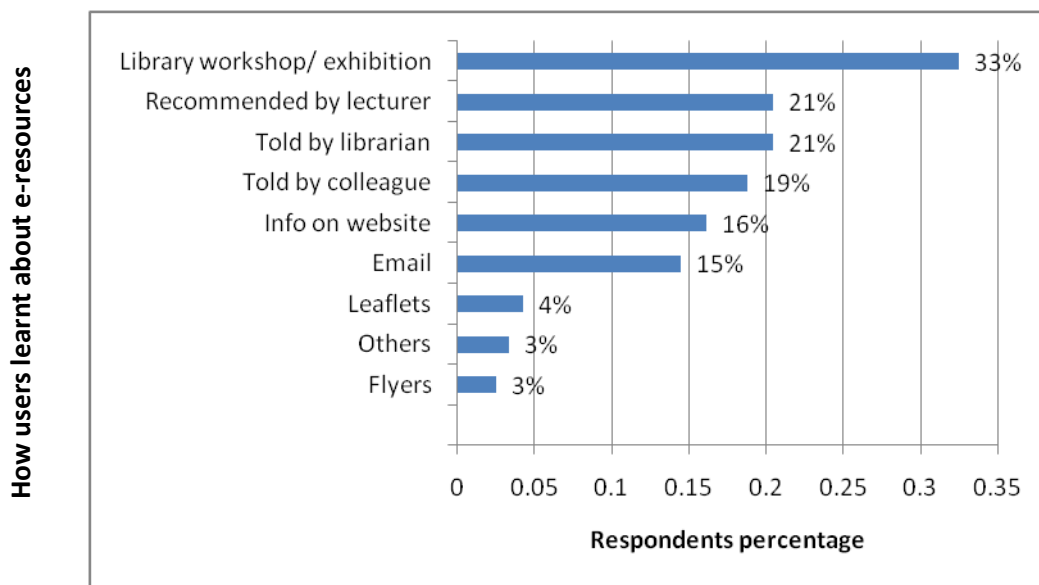


Figure 20: How users knew about e-resources

The level of awareness about CAB Abstracts and CABI Compendia was examined and the results indicated that 63% were not aware of both resources; 24% were aware of both resources; 11% were aware of only one of the two resources while 2% said they did not know. Figure 21

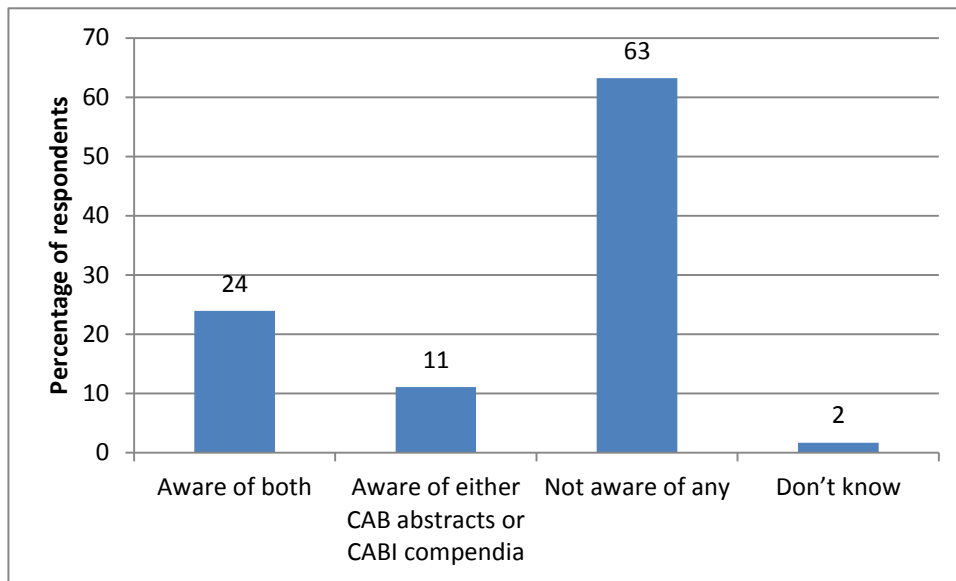


Figure 21: Awareness of CABI online resources

Further analysis indicated that each set of respondents had learnt of CABI online resources from several sources. For the undergraduates, 7.5% had learnt about CABI online resources through information on the website while in the postgraduates category 11% learnt about these resources through recommendation by librarians. For lecturers, 9.5% had learnt through library workshops and exhibitions as shown in Figure 22.

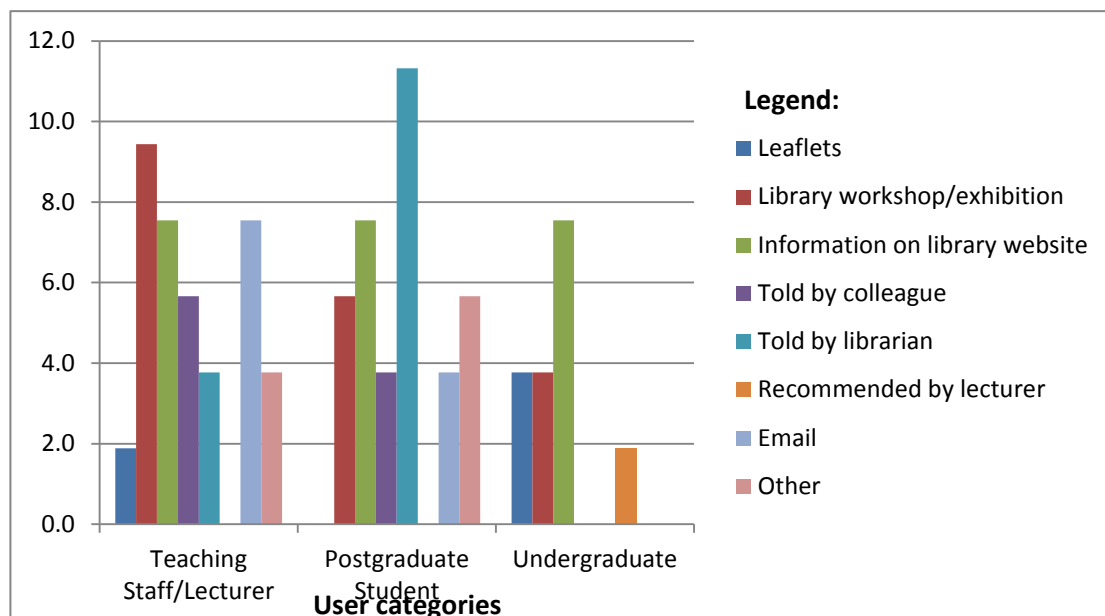


Figure 22: Mode of learning for those aware of CABI

The location preferred by users to access e-resources was examined and 62 % preferred other areas within the campus outside the library, 24 %, preferred inside the library while 10 % preferred to access the resources off-campus. Among users who preferred accessing e-resources outside the library but within the campus; 30 % were postgraduate students; 18 % were undergraduate while lecturers were 14%. Among those who preferred accessing e-resources inside the library; 11.7 % were undergraduates, 10.7 % were postgraduates and 2 % were lecturers. Majority of the users across the different user categories preferred accessing e-resources from elsewhere on campus as shown in Figure 23.

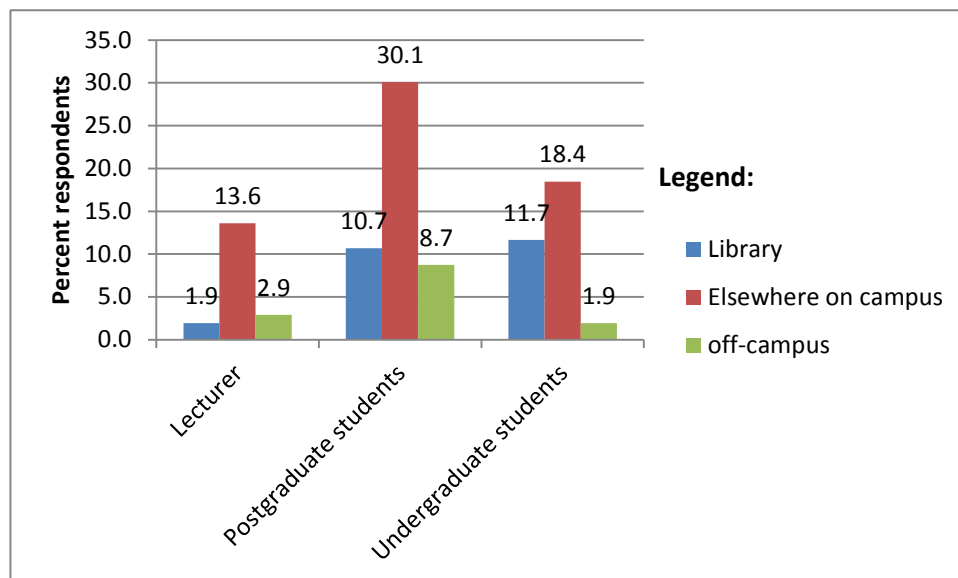


Figure 23: Where users prefer to access e-resources from

4.2.4 Usage of CAB Abstracts and CABI Compendia by lecturers and students

The research sought to find out which online resources are mostly accessed by users. The results revealed that 89% of the respondents accessed Google/ Google scholar; 47 % accessed AGORA; 32 % accessed HINARI; 23 % accessed OARE; 22 % accessed AJOL; 17 % accessed CABI abstracts; 6 % accessed TEEAL and 2 % accessed CABI compendia as shown in Figure 24. The low access and use of CAB abstracts and CABI Compendia may be

as a result of low awareness among users; the resources have also been available for a shorter time compared to the other agricultural e-resources.

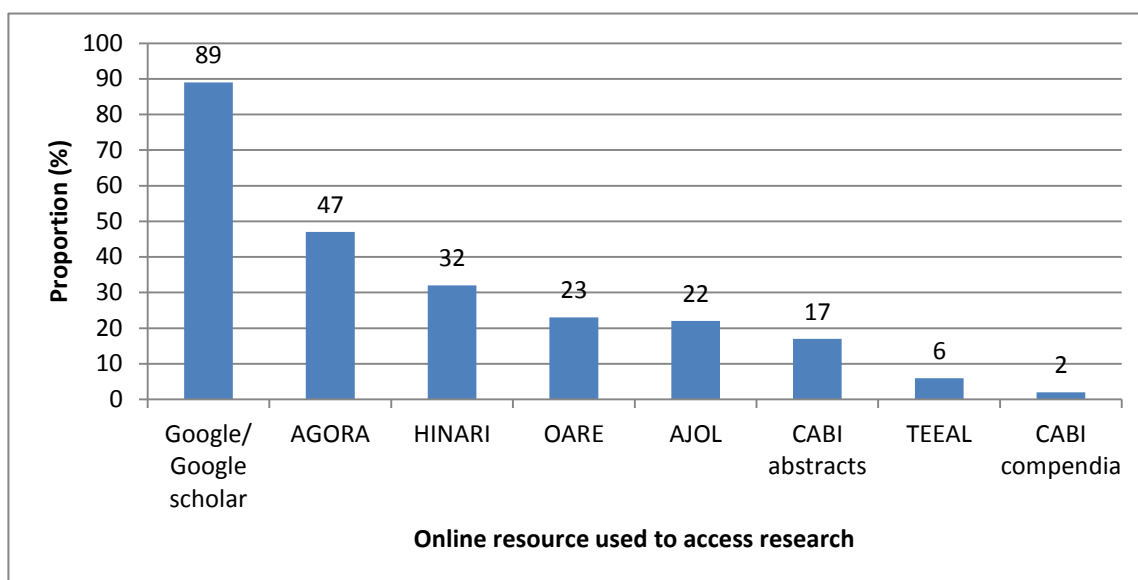


Figure 24: Most accessed and used e-resource tools

To find out the frequency of using the e-resources, factor analysis was carried out on the preferred agricultural e-resource. Respondents were asked to rank the various options. Four points hedonic scale was used to rate the number of times an agricultural e-resource was used where 1 was at least 2-3 times a week, 2 was once a week, 3 was once a month while 4 was once per semester. The most frequently used e-resources were Google/ Google scholar (1.29 ± 0.602), OARE (2.08 ± 1.164) and AGORA (2.09 ± 1.159). Other E-resources used were HINARI, AJOL, CAB Abstracts among others as shown in Table 3:-

Table 3: Factor analysis to reveal frequency of accessing agricultural e-resources

Agricultural e-resources	Frequency of use	
	Mean	Std. Deviation
Google/ Google scholar	1.29	0.602
OARE	2.08	1.164
AGORA	2.09	1.159
HINARI	2.25	1.104
AJOL	2.48	1.022
CAB abstracts	2.5	1.058
Forestry compendium	2.63	1.302

TEEAL	2.85	0.987
Crop protection compendium	3	1.155
Animal Health and Production compendium	3	1.225
Aquaculture compendium	3.75	0.463

The challenges users face when accessing and using e-resources were also examined and results showed that 66 % of the respondents felt that poor internet connection was a challenge they faced; 30% felt that lack of computers/ laptops was a challenge; 20% felt that complexity of online resources was a challenge while 17% of the respondents felt that lack of knowledge and skills in using the e- resources was a challenge. Figure 25.

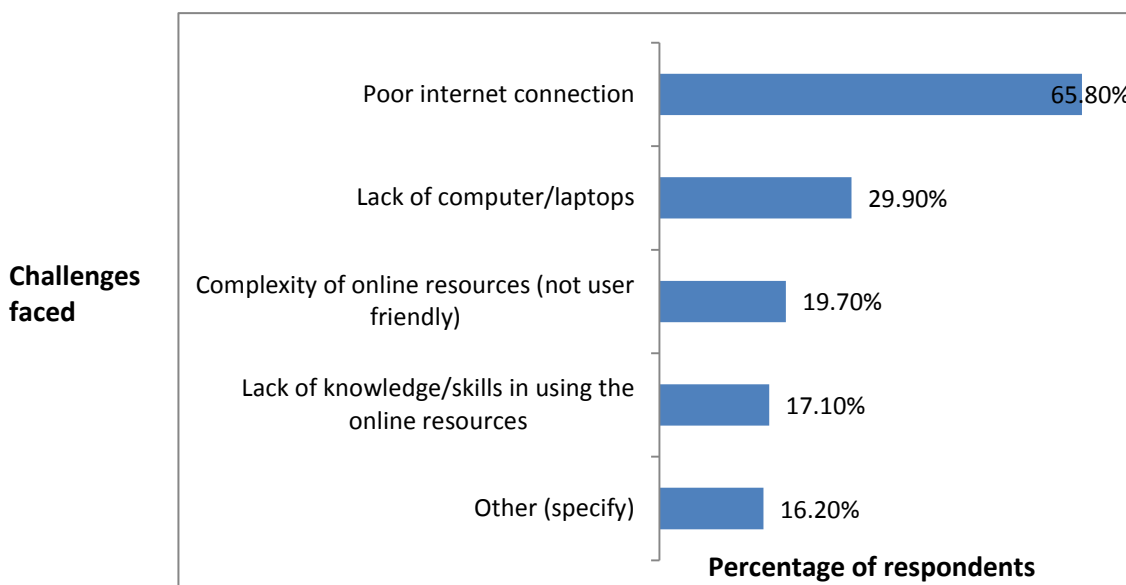


Figure 25: Challenges faced in accessing and using available online resources at the university

The research investigated whether the users had received training on e-resources and the results indicated that 59 % had been trained on access and use of e-resources while 40.7% had not been trained. Among those who were trained, 25.7% were postgraduate students, 21.2% were undergraduate students while 12.4 % were lecturers. Further analysis showed that for those not trained, 40 % had not been aware of any training; 34 % could not attend training sessions due to lack of time during the semester; 9 % were not interested and 15 % had other reasons. Across all the user categories lack of awareness about training on e-resource was the main reason they attributed to not having been trained. The effectiveness of

the trainings received on improving user ability to access and use electronic resources was examined and the results indicated that 56 % were of the opinion that the trainings had improved their ability to access and use e-resources a lot; 40% said it had improved their ability a little while 4 % said there was no improvement despite the fact they had attended the trainings. The research sought to find out how many users had been specifically trained on the access and use of CAB Abstracts and CABI Compendia. The findings revealed that 88.5% had not been trained on use of CABI online resources while 11.5% had been trained on CAB Abstracts and CABI Compendia. Table 4.

Table 4: Users trained on access and use of CAB Abstracts and CABI Compendia

Training on access and use of CAB Abstracts and CABI Compendia	Lecturers (%)	Postgraduate students (%)	Undergraduate students (%)	Total (%)
Yes	3.5	3.5	4.4	11.5
No	15.9	43.4	29.2	88.5
Total	19.5	47.8	33.6	100.0

The reasons why users had not been trained on CABI online resources were investigated and results showed that 76% of the respondents were not aware of any CABI trainings hence they had not made an attempt to attend the trainings; 14% had rigid semester programs that could not allow them to attend trainings; 4% had no interest in being trained on use of CABI online resources and 21% had other reasons for not being trained as shown in Figure 26.

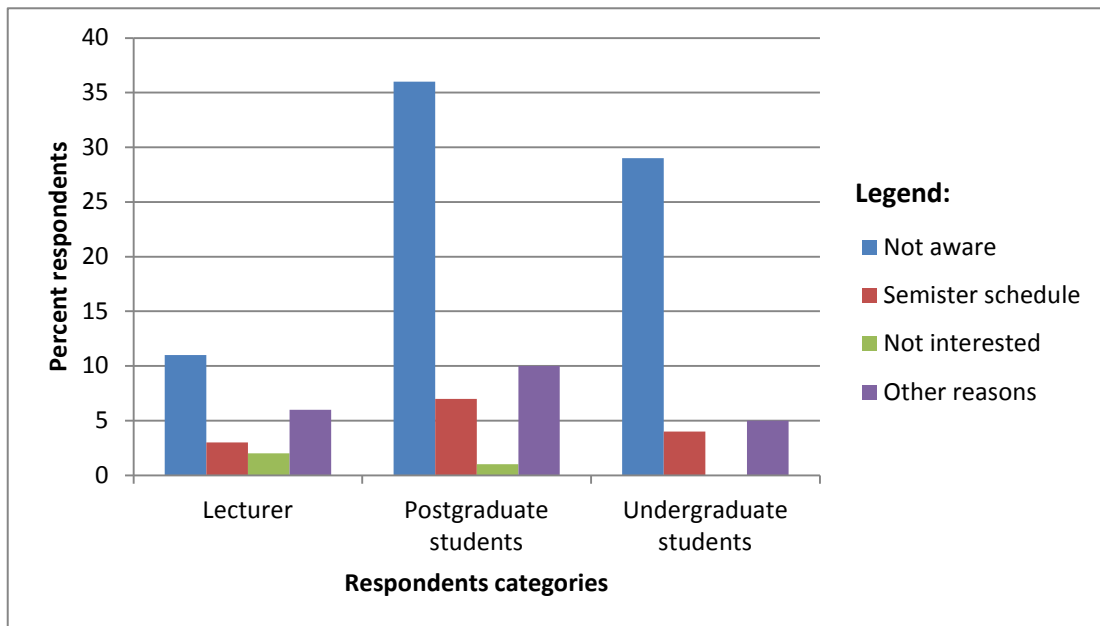


Figure 26: Reasons why some had not being trained on use of CAB Abstracts and CABI Compendia

The study examined the usage of CAB Abstracts and CABI Compendia in study/research and teaching. Findings showed that 78% had not used CAB Abstracts and Compendia while 22% reported that they used the resources either in research, study or teaching. Further analysis on the frequency of use revealed that 11% used CABI online resources on monthly basis, 10% on weekly basis and 6% once every 3 to 4 months as shown in Figure 27 below.

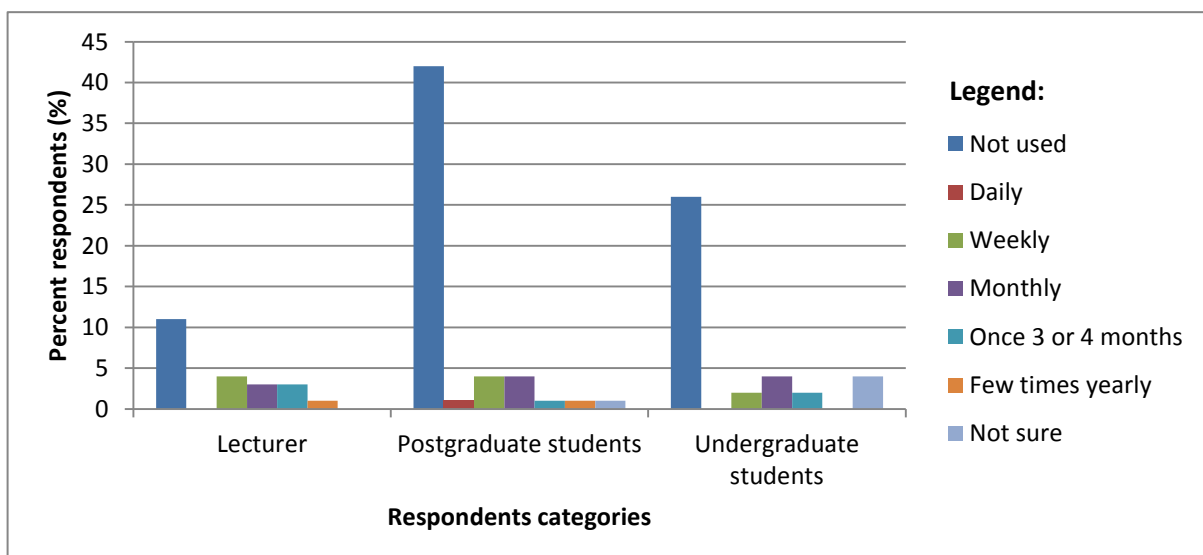


Figure 27: Frequency users utilized CAB Abstracts and CABI Compendia in study/teaching and research

Further analysis showed that for the 33 users who had used CABI online resources; 73% mostly used CAB abstracts; 15% mostly used Crop Protection Compendium; 9% mostly used Animal Health and Production Compendium and 3% mostly used the Forestry Compendium. The study looked into how the users assess their skills in utilizing CABI online resources. The results indicated that 36% of lecturers, 47% of postgraduate students and 47% undergraduate students had not used these resources at all. Further analysis showed that 13% lecturers, 34% postgraduate students and 29% undergraduate students assess their skills in using CABI online resources as poor. 24% of undergraduate students, 17% of postgraduate and 51% of the lecturers were either good or fair users of CABI online resources. Only 2% of postgraduate students were very good users as shown in Figure 28.

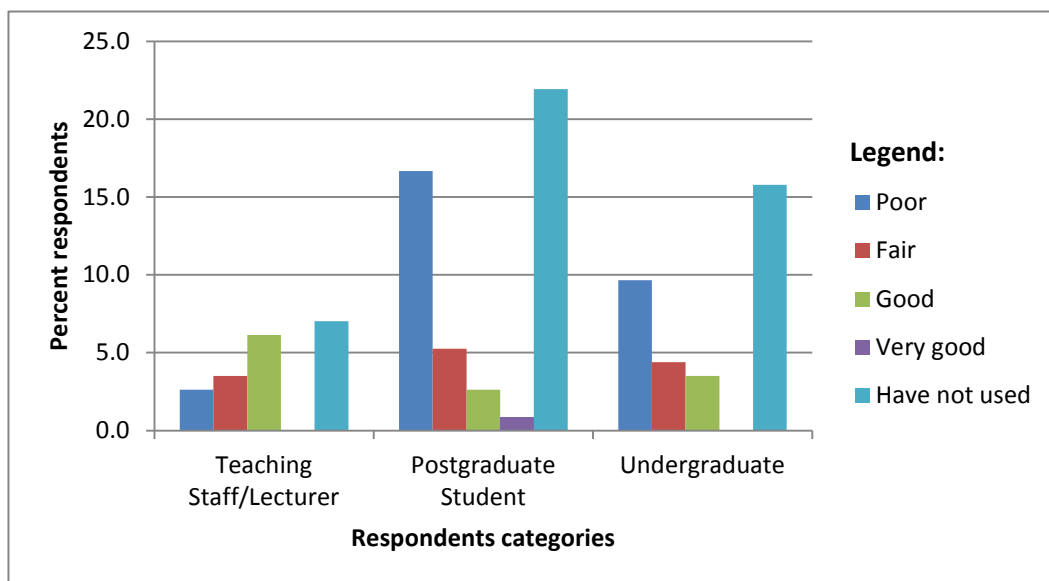


Figure 28: How respondents view their skills using CABI e-resources

The research explored the purposes for using CABI online resources and a total of 33 respondents reported using the resources for different purposes; 42% used the resources to write proposals and articles; 39% used them to get information for consultancies and professional research; 25% used the resources when doing assignments and 19% used them when preparing for projects and university examinations. Figure 29.

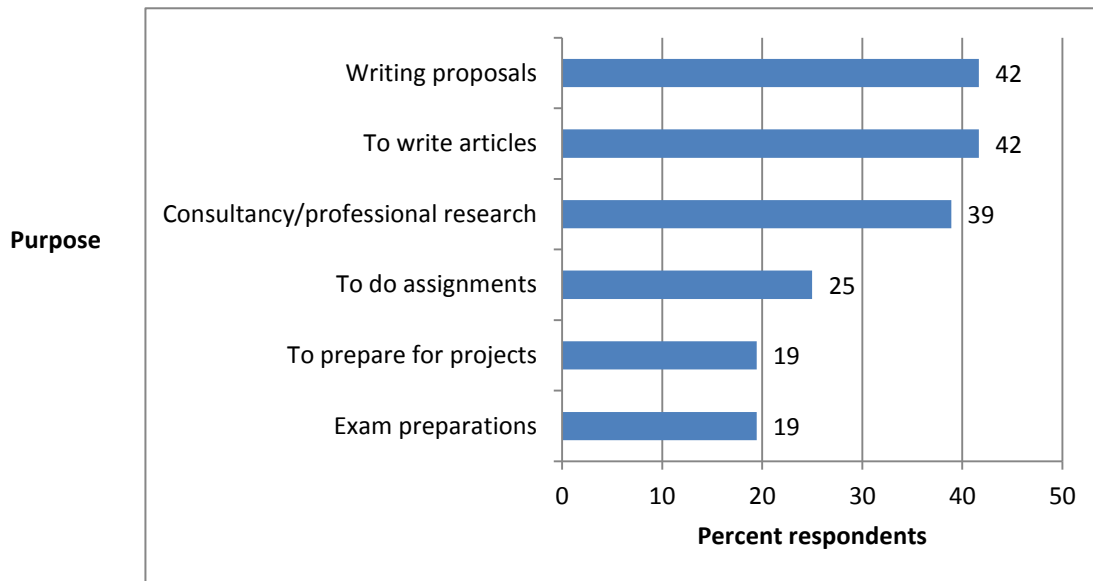


Figure 29: Reasons for using CAB Abstracts and CABI Compendia

The duration of using CABI Online resources was assessed and results showed that 64% of the users used the resources for 1-2 hours; among these, 18% were lecturers, 24% were postgraduate students while 22% were undergraduates. Those who used CABI e-resources for less than an hour were 32% while those who used the resources for more than 3 hours were 4%. Figure 30.

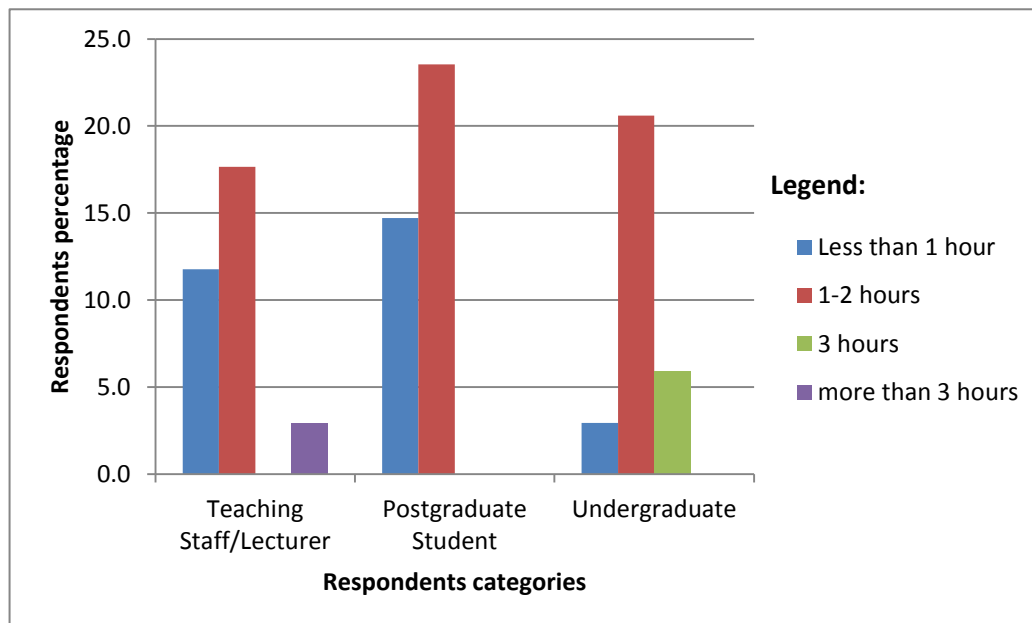


Figure 30: Length of time users utilize CAB Abstracts and CABI Compendia each time they access

The study investigated the probability of using CAB Abstracts and CABI Compendia in the future and findings showed that 43% were likely to use CABI e-resources in future; among these, 10% were lecturers, 15% were post graduate students and 18% were undergraduate students. About 25% suggested that they were very likely to use CABI's e-resources; among these, 10% were lecturers, 6% were postgraduate students and 8% were undergraduate students. About 21% said they were not sure if they are to use CABI's e-resources.

Users perception of the relevance of the information contained in CABI e-resources was examined and 50% of the lecturers, 50% of the postgraduate students and 80% of the undergraduate students found the information relevant. About 41% of lecturers, 35% of postgraduate students and 11% of undergraduate students found the information very relevant as shown in Figure 31.

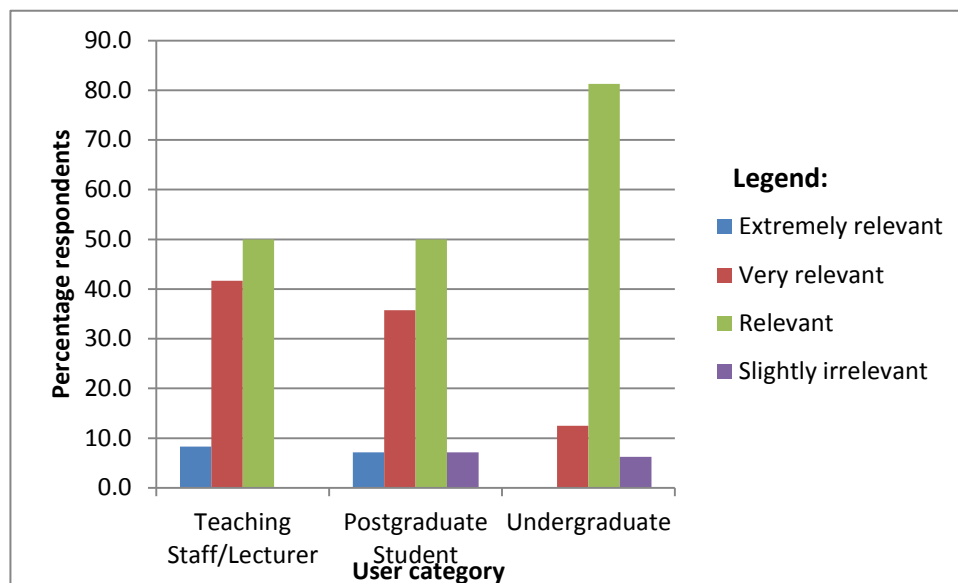


Figure 31: Users' perception on the relevance of information in CABI e-resources

The likelihood to recommend CABI e-resources to fellow students/ staff was investigated. The results showed that 54% of the teaching staff, 40% of postgraduate students and 53% of undergraduate students would definitely recommend CAB Abstracts and CABI Compendia to

their colleagues. About 39% of teaching staff, 30% of postgraduate students and 26% of undergraduates said they would probably recommend CABI e-resources to colleagues. About 15% said they were not sure; 4% said probably not and 2% said definitely not.

4.2.5 Impact of electronic resources on teaching, research and study

The research sought to find out the perceived impacts of electronic resources on the respondents teaching, learning and research activities. The results revealed that e-resources had enhanced information access and retrieval for 50% of the users, 34% said e-resources had increased their research output, 32% said that they had improved on referencing skills, 31% said e-resources had reduced time taken to access online content, 24% said e-resources had increased quality, scope and volume of research output, 10% said e-resources had improved curriculum development and students grades while 2% reported other benefits as shown in Figure 32.

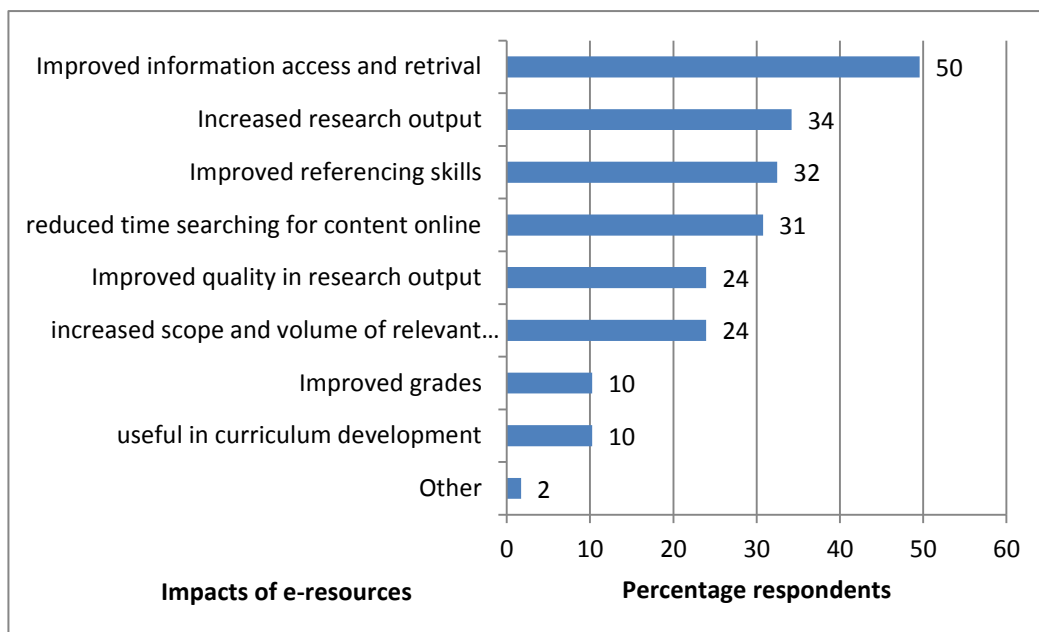


Figure 32: How e-resources has impacted teaching /learning/research activities among users

4.2.6 Key informant views on CAB Abstracts and CABI Compendia



ODONGO MESO

Msc. Crop protection student - CAVS

According to Odongo Meso using CAB Abstracts and CABI Compendia improved the quality of her research work. These resources helped her to know what has been done by others in her area of study which gave her a better understanding of the subject and possibly helped her avoid plagiarism.

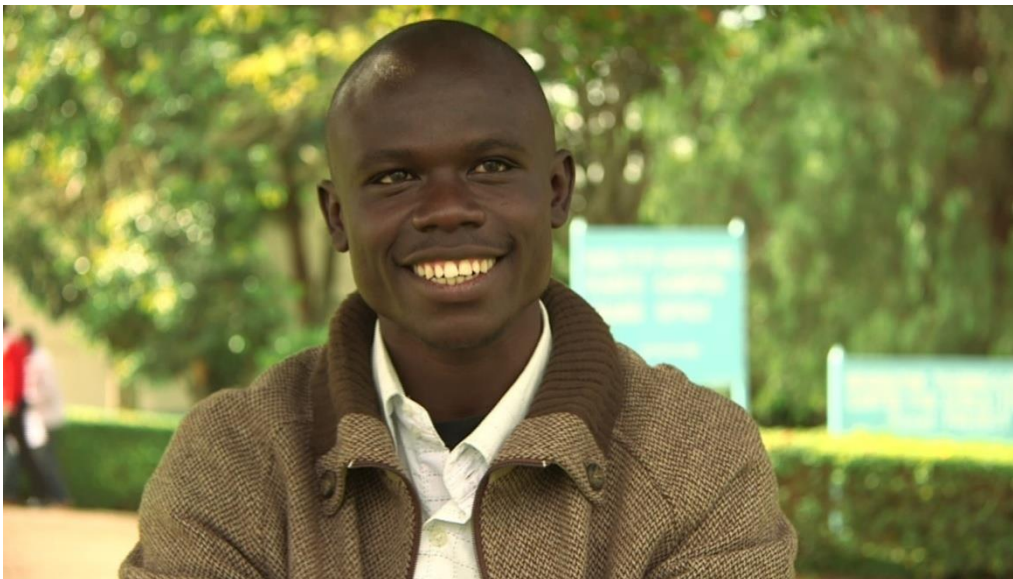
Question 1: In your own opinion, what are the possible effects/impacts of using CAB Abstracts and CABI Compendia in your study?

“In my opinion the fact that CABI is an international organisation gives the information they offer more credibility and authenticity because the information goes through a series of authentication processes by people who are authorities in their fields of knowledge. Using such information in my study definitely improves the quality of my research work.”

Question 2: How has CAB Abstracts and CABI Compendia supported you in your study/research?

“I have used CABI Compendia for the images; I have gotten pictures of Cassava bacterial blight which I have used in my proposal and in my work for presentations to show the disease. There are good photographs showing the different stages of the disease. I have also gotten abstracts of work that has been previously done by people in the country and outside the country.”

“These resources are very useful because you even get maps of where the diseases have occurred before....the abstracts might not give you full publications but you get a feel of what has been done which makes it really helpful. It was hard to find work that had been done and published in Kenya but I got assistance on this from CABI online resources that helped me identify knowledge gaps on Cassava bacterial blight.”



OLIVER OTIENO

Msc. Crop protection student - CAVS

For Oliver Otieno, CAB Abstracts and CABI Compendia saved him time and improved the quality of his research work making it possible for his research to be considered for publication.

Question 1: In your own opinion, what are the possible effects/impacts of using CAB Abstracts and CABI Compendia in your study?

“The literature contained in the databases was comprehensive having been done by specialists in various fields. This enabled me to save on time that would have otherwise been spent looking for the same information in several other databases.”

Question 2: How has CAB Abstracts and CABI Compendia supported you in your study/research?

“In my study CABI provided photographs and instant access to journals for my reference. The datasheets that I got from CABI Compendia were detailed covering many different species.”

“CABI compendia provided me with wide subject coverage especially for horticulture, breeding, crop protection and plant pathology all of which were relevant to my study. Am confident that my research will produce papers that will be considered for publishing”



AIDAH MUGAMBI

Msc. Student- Agricultural Resource Management

According to Aidah Mugambi, CAB Abstracts and CABI Compendia are comprehensive especially in the area of crop protection. They help save time and improve the quality of her research.

Question 1: In your own opinion, what are the possible effects/impacts of using CAB Abstracts and CABI Compendia in your study?

These resources have a search process that is efficient which saves time. I personally believe that these databases have improved the quality of research that I am doing. As I pursue my MSc, I will need to look for background information and do literature review. One does not need to look for information about major diseases elsewhere; as long as I will have access to these resources, I know I will find what I need.

Question 2: How has CAB Abstracts and CABI Compendia supported you in your study/research?

“Generally, these e-resources are good and very useful especially for researchers in my field. I have used CAB Abstracts and Compendia in doing my assignments. In one assignment we were tasked with creating a list of tropical pests. We used the two resources; CAB Abstracts and the Crop Protection Compendium which I found very useful because we found all the literature we needed.”



Dr. DOUGLAS MIANO

Plant virologist and Lecturer CAVS

For Dr. Douglas Miano, CAB Abstracts and CABI Compendia are comprehensive in their subject coverage which helps him acquire a global perspective of diseases and pests. According to him, they help save time and develop students into better professionals who can generate solutions for real world problems.

Question 1: In your own opinion, what are the impacts of using CAB Abstracts and CABI Compendia in teaching/lecturing?

“These resources are usually my first stop when I want to get a world perspective of where diseases and pests have been spotted; maps are particularly useful for this purpose. I also advise my students to start with CAB Abstracts and Compendia. Exposing students to the right information develops them into professionals who can generate real solutions for challenges all over the world.”

“You save time using these resources since they offer information that is well synthesized which gives you a clear picture of where to begin and possibly how to proceed.”

Question 2: In your own opinion what are the possible changes of skills/competencies in

students who utilise CAB Abstracts and CABI Compendia?

“Students who use these resources have a broader picture of what is going on from the word go other than where you have to keep on shopping for information from one source to another which takes time. The bringing of information into one package makes it easy for students. Students who use these resources have an advantage but they should also learn that it will be difficult for one resource to cover all the aspects.”



Prof. PAUL KIMANI

Department of Plant Science and Crop Protection - CAVS

According to Prof. Paul Kimani, CAB Abstracts and CABI Compendia help in identification of research gaps within a short time. They are comprehensive in their coverage of agricultural topics and they are a good starting point for novice researchers because of the summarised nature of abstracts. These e-resources save students time and money both of which are in short supply for most. These resources help improve research work by introducing students to

scientific writing and methodologies. The comprehensive coverage helps enrich research work and avoid doing what has already been done by others.

Question 1: In your own opinion, what are the impacts of using CAB Abstracts and CABI Compendia in teaching/lecturing?

“I mainly teach plant breeding, genetics, seed science and technology. I have used CABI online resources for a long time since when they used to have hard copies of the abstracts. They are extremely useful particularly in research and also in teaching because very often when you are doing research you need to access global data and you need to identify possible research gaps. Using the abstracts helps you to get to the bottom of your subject within a short time. The abstracts are very well summarised and therefore they give you essential information, which you can incorporate in teaching materials.”

“In agriculture, these resources are useful on multiple topics, in my case the focus has been breeding of specific crops and seed science. These resources have considerable impact especially when used by tutors of specific courses.”

“Many people will agree that reading and understanding scientific articles requires quite a bit of concentration and several skills but when put in an abstract form which has all the essential components, then it is easier for students to comprehend and start from before they go to the main paper. Researching global literature can be very rough especially for a newcomer before they can focus on their subject.”

“Students operate on minimal budgets and therefore we are grateful for these resources because there is no charge for students using them. With e-resource platforms, given that it is almost mandatory for students to have laptops, it is easy for students to access and transfer information through the university’s internet services.”

“It is important to realize that undergraduate and graduate students have very tight schedules. They have a short period within which they have to search through literature,

write their term papers and present which puts pressure on. When they find useable resources like the CAB Abstracts it helps them a lot.”

“Comparing with most of the other databases, getting what you want takes less time with the abstracts plus the abstracts cover a wide geographical aspect and are interlinked to other open access databases.”

Question 2: In your own opinion what are the possible changes of skills/competencies in students who utilise CAB Abstracts and CABI Compendia?

“These resources introduce students to scientific writing which is important because usually when students present their work for conferences the first thing organisers ask for is the abstract.”

“Besides helping students identify research gaps, the full text articles are also very rich in methodologies which helps students to quickly sift through research and see which papers they should focus on to conduct their research.”

“A person who does not use the CABI databases has lesser access to global literature which can lead to shallow research when one does work already done by others. A student who has little access to literature is really at a big disadvantage; on the other hand those who have access to literature present very good term papers and theses because they are able to do a critical analysis of their subject. There is a big difference and it affects quality.”



Dr. WILLIAM MUIRU

Lecturer - Department of Plant Science and Crop Protection

For Dr. William Muiro, CAB Abstracts and CABI Compendia are comprehensive in their coverage of pests and diseases and they are regularly updated. According to him the use of these resources improves student performance. They improve student IT skills, save time and increase accuracy in Pest Research Analysis.

Question 1: In your own opinion, what are the impacts of using CAB Abstracts and CABI Compendia in teaching/lecturing?

“I started using CABI Abstracts when I was doing my masters degree. When am teaching I normally advise my students to use the Compendia because in their research, they have to get the most detailed information about the pests and diseases that they are working on. The Compendia are a good starting point.”

“We have been working with a programme called Plantwise where we train plant doctors. Farmers visit them with their plant specimens, and the plant doctors diagnose the plant health problem and give advice on the necessary remedy processes. This process requires a

lot of information, and the Compendia is one of the resources that we use in training the doctors to be conversant with these plant health problems.”

“I personally like the CABI resources because the Compendia give relevant and very comprehensive information especially to me as a lecturer and even for my students.

The things that we deal with are very dynamic, and there is need for current information. One of the major impacts is that the resource keeps us updated and in touch with what is happening by continuously providing information as the things change.”

Question 2: In your own opinion what are the possible changes of skills/competencies in students who utilise CAB Abstracts and CABI Compendia?

“Students who have been using CAB Abstracts and CABI Compendia have better research skills and generally perform well in my class. The Compendia assists students in the Pest Research Analysis (PRA), which enables them identify the pests found in different nations accurately and faster. Additionally it sharpens their Information Communication Technology skills on how to navigate through the system conducting simple and advanced searches.

These resources stand out from the other e-resources because the other resources are too wide, and getting some specific information needed from them might take too long. Actually, the processes they have are long, and they make students give up along the way. With CAB Abstracts and the Compendia, you quickly narrow down directly to what you want. This saves on time spent conducting searches.”



Prof. JAMES MUTHOMI

Associate Professor- Department of Plant Science and Crop Protection

According to James Muthomi, CAB Abstracts and CABI Compendia are comprehensive in coverage of plant pathology and the mode of presentation makes them easy to use. The maps and pictures help improve student diagnostic skills.

Question 1: In your own opinion, what are the impacts of using CAB Abstracts and CABI Compendia in teaching/lecturing?

“I have been using CABI abstracts for the last 14 years. To effectively teach plant pathology, I must have access to published research and information, and CAB Abstracts enables this. I also find the CABI Compendia are very useful in phytosanitary subjects especially in relation to trade. It illustrates a clear representation of plant diseases incidences geographically by use of maps which are intuitively linked to related metadata. This resource shows clearly in which countries each disease is found, and this assists in designing the appropriate management processes. The datasheets have pictures of the pests and diseases which are useful for pest and diseases identification lecture sessions. The accompanying literature for

plant diseases, their causal agents and their distribution provides a useful reference for my lecture notes.”

Question 2: In your own opinion what are the possible changes of skills/competencies in students who utilise CAB Abstracts and CABI Compendia?

“Users of these CABI e-resources have an advantage because it provides information on all diseases, not only those found at the students’ environment, but also those that may be found elsewhere. They enhance the diagnostic skills of students, since they will be able to visually see and conceptualise the diseases they are working on, which is very important for diagnosis. This helps because when a student is sent to the field and sees the disease, he/she will be able to relate it with what he/she saw in class and hence make the right diagnosis. The language used in Compendia is simple which makes it easy for the students to understand and it highly assists on the ground where farmers need help.”

4.2.7 Factors influencing access of CAB Abstracts and CABI Compendia

The research examined factors that influence access and use of CAB Abstracts and CABI Compendia and the findings indicated that:

- (i) 50% of the respondents were unfamiliar with the resources and lacked adequate awareness on using them; 43% said the available internet speed was slow; 32% reported that they had no passwords to access the resources which influenced their access.
- (ii) 22% reported lack of laptops/ personal computers as factors that influences their access and use of the resources.
- (ii) Other reasons included lack of skills in using the e-resources, complexity of the resources, the long time it takes to get information and electricity outages. Figure 33.

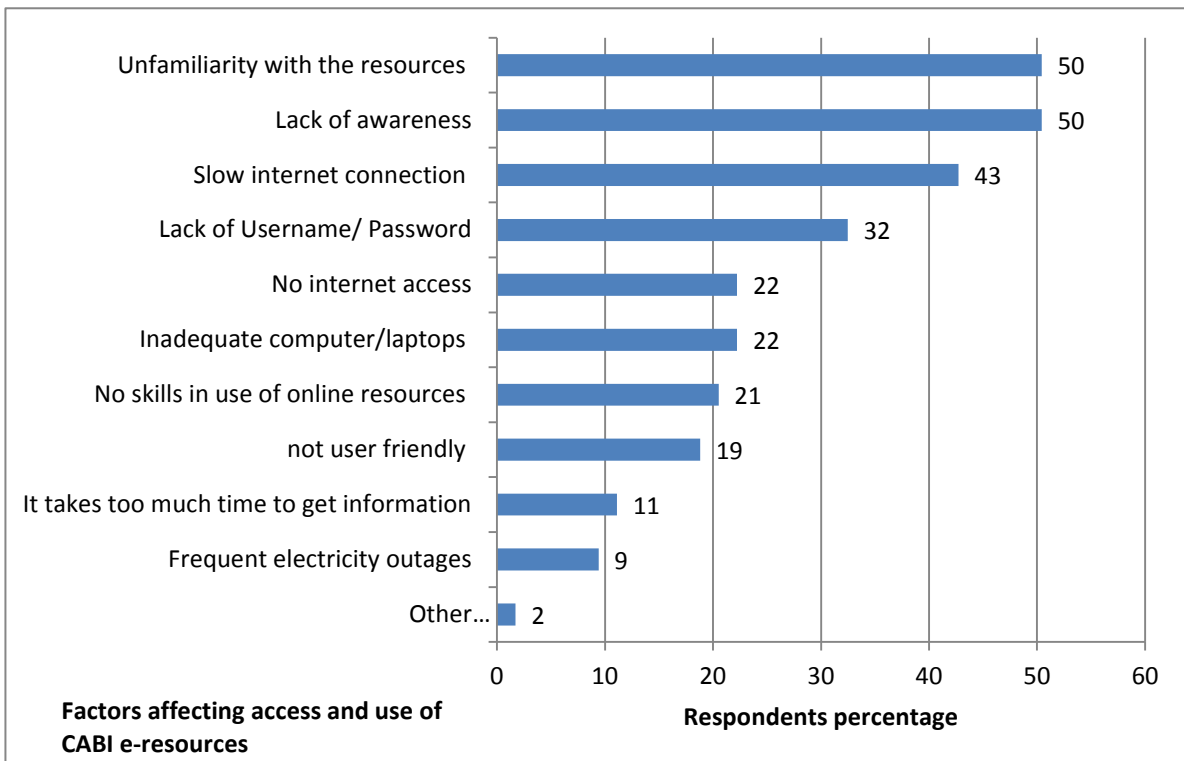


Figure 33: Factors influencing access of CAB Abstracts and CABI Compendia

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Awareness of CAB Abstracts and CABI Compendia

The first objective was to determine awareness of CAB Abstracts and CABI Compendia among Librarians, Lecturers and Students. The study revealed the following key findings under this objective: less than half of the librarians had been trained on the use of CABI online resources. The few that had been trained did not carry out in-house trainings on their fellow librarians. The low awareness of these resources among librarians, students and lecturers could be attributed to low promotion of the resources within the College of Agriculture and Veterinary Sciences; a view that was held by all the librarians. A majority of the users were only aware of between one to five e-resources offered by the library. Majority were not aware of both CAB Abstracts and CABI Compendia. Those who were aware of these resources had learnt about them through recommendation by library assistants (post graduates), workshops and exhibitions (lecturers) and information on websites (undergraduates). The results on this objective agree with Megersa and Mammo, (2008) who emphasize that lack of awareness about e-resources as one of the barriers to effective access and use of e-resources. Perceived scholarly value of CAB Abstracts and CABI Compendia was high among users given that most rated the relevance of the resources either relevant or very relevant. Majority said they would recommend the resources to fellow users. This is a key ingredient in raising awareness and use of the e-resources according to Harle (2010); who

advises that users must first be aware of e-resource availability and scholarly value for them to efficiently use e-resources. According to the results of this study, more trainings and workshops on CABI online resources coupled with the use of flyers, leaflets and posters to promote these resources would be the best way of raising awareness among users

5.1.2 Access and use of CAB Abstracts and CABI Compendia

The second objective was to evaluate the usage of CAB Abstracts and CABI Compendia by Librarians, Lecturers and Students. The results revealed the following key findings under this objective: the e-resources section in the library was open for six to eight hours although the users who had access to wireless fidelity (Wi-Fi) internet or Ethernet connection would access the e-resources whenever they wanted. Despite the fact that librarians should offer support to users, most of them were found to have moderate to poor knowledge of using CABI online resources; this could be attributed to the fact that more than half of the librarians had not been formally trained on the use of these e-resources. This is in line with the findings of Shibanda (2006) who indicated staff skills and lack of end user training as key challenges facing the use of digital resources. Majority of the librarians did not track or analyse e-resources usage statistics. According to Tenopir (2011) deeper tracking and analysis of e-resource usage logs can provide useful insights into user satisfaction with e-resources, purpose of access and outcomes of use. Most users preferred to access e-resources within campus but outside the library and laptop computers were the most preferred devices of accessing e-resources. Google and Google scholar were the most accessed online resources by a majority of the users. These finding agree with Dave (2012) who found overreliance on Google as a source of information by students, he also found that the internet was preferred to the library as the primary place for information searches by an overwhelming number of

college students. His study revealed that students spent one to two hours online daily and majority of them did so at cyber cafes and at home. Most of the users had been taken through training on general use of e-resources but very few had been trained on the use of CAB Abstracts and CABI Compendia. The low number of those trained on the use of CABI online resources may explain why a majority of the users did not use these resources in their study, teaching or research. Among CABI online resources, CAB abstracts was the one used by most users followed by Crop Protection Compendium, Animal Health and Production Compendium while the Forestry Compendium was used by the least people; this may be attributed to the nature of the CAB Abstracts database, which according to Kawasaki (2004) is the most comprehensive database in its coverage of key agricultural journals. CABI online resources were mostly used for the purposes of writing proposals and articles followed by getting information for consultancies and professional research.

5.1.3 Impacts of CAB Abstracts and CABI Compendia

The third objective was to describe the impact/s of using CAB Abstracts and CABI Compendia among Librarians, Lecturers and Students. The results revealed the following key findings: According to a majority of the librarians CAB Abstracts and CABI Compendia improved information access and retrieval among users. The e-resources also increased research output and reduced time spent searching for content online. These resources also improved the quality of research output among users and increased scope and volume of relevant search results. According to users, e-resources enhanced information access and retrieval, increased their research output, improved on referencing skills and had reduced time taken accessing online content. This is possible because as Velmurugan (2013) argues; e-publishing enables obtaining information on local, regional, national and international

levels easier given that e-resources overcome the traditional barriers of space and time. From the key informant interviews the following themes came to the fore as impacts of CAB Abstracts and CABI Compendia: For librarians, CAB Abstracts and CABI Compendia give users access to comprehensive and current information. These resources save time by offering ease of access from any location. The resources improve the quality of research and possibly help avoid plagiarism by letting users know what has already been done by others in their area of research. For users, the use of CAB Abstracts and CABI Compendia improves the quality of research work. This is similar to the findings of Megersa and Mammo (2008), whose study of the utilization of e-resources in Ethiopia found that nearly all respondents reported an improvement in the quality of their academic work after using the e-resources. In the same study nearly all librarians reported that the resources had improved standard of service delivery at the library. According to users CAB Abstracts and CABI Compendia also help in quick identification of research gaps and assist researchers gain a global understanding of their research area which possibly avoids duplication of researches. The resources save users time and money by offering summarised information in form of abstracts electronically. A study on the impact of e-resource use on research output by Manda and Nawe (2008) revealed that use of e-resources positively impacts research by improving research techniques, accessing a wide range of research findings and information that is up-to-date, improving research techniques and skills to find new research areas. According to users, CAB Abstracts and CABI Compendia develop users into better professionals who can generate solutions for real world problems. They are a good starting point for new researchers to know more about their area of study and learn skills in scientific writing and methodology. The use of these resources improves student performance; improves student IT skills and increases accuracy in pest and disease diagnostic skills. All these impacts agree with Poll and Payne (2006), who records impacts of e-resources as improved performance by students;

saving time; an increased number of graduates securing employment after examinations; effective research resulting to high usage of research, more published research, more special grants, honors, awards and higher academic status of universities.

5.1.4 Factors influencing access of CAB Abstracts and CABI Compendia

The fourth objective was to identify the factors influencing access of CAB Abstracts and CABI Compendia among Librarians, Lecturers and Students. The results revealed the following key findings: According to librarians, ease of access is what encourages most users to access and use CAB Abstracts and CABI Compendia followed by the ease of use, reasonable results given during searches and relevant content. According to the users the topmost factors affecting access and use of CAB Abstracts and CABI Compendia were unfamiliarity with the resources and lack of awareness followed by slow internet speeds. Other factors were lack of passwords and lack of laptops/personal computers. When asked to rank the challenges they face when accessing and using e-resources; poor internet connection emerged as the biggest challenge followed by lack of computers/ laptops, complexity of online resources and lack of knowledge and skills in using the e- resources. These findings concur with a monitoring and evaluation report of e-resources in Kenyan research and academic institutions by Gathoni *et al.*, (2011), which records the barriers to access and use of e-resources as: poor internet connectivity, lack of access to a computer, lack of awareness, lack of awareness on e-resource training, lack of searching skills and unfriendly interfaces. The report strongly recommends that institutions should provide more computer terminals in libraries, increase bandwidth capacity and train more staff to assist students and academics.

5.2 Conclusions

Based on these findings, it was concluded that:

- Among the CABI online resources, CAB Abstracts is the one accessed and used most at the College of Agriculture and Veterinary Sciences.
- CABI online resources were mostly used for the purposes of writing proposals and articles, getting information for consultancies and professional research; which if amplified can lead to immense benefits including improved performance by students; saving time; effective research, and ultimately better performance across the agriculture sector.
- The impacts of CAB Abstracts and CABI Compendia on users study/work were; improving information access and retrieval, increasing research output, reducing time spent searching for content online and improving the quality of research output.
- Unfamiliarity with the resources and lack of awareness were the key factors affecting access and use of CAB Abstracts and CABI Compendia.
- Awareness of CAB Abstracts and CABI Compendia among librarians, lecturers and students at the College of Agriculture and Veterinary Sciences was low which corresponds to low utilization across all respondent categories.
- Librarians at CAVS had moderate to poor knowledge of using CAB Abstracts and CABI Compendia.
- There was low tracking and analysis of e-resource usage statistics at the CAVS library.
- When it comes to the point of access, most users prefer accessing e-resources outside the library but within campus and laptops are the device of choice for accessing these resources.

- Of all the available e-resources, Google and Google scholar are more accessed and used.

5.3 Recommendations

- *E-resource promotion*

Given that CABI online resources were mostly used for the purposes of writing proposals and articles followed by getting information for consultancies and professional research; it is recommended that these resources be promoted among postgraduate students and lecturers who require specialized and focused information about their areas of study. CABI online resources and other agricultural e-resources should also be systematically promoted across librarians, lecturers and students at the College of Agriculture and Veterinary Sciences through regular trainings, workshops, flyers, leaflets, posters, university website, social media among other channels. The promotion should be continuous and should involve university top management, librarians, lecturers and students.

- *Capacity building*

In order to assist users in efficiently utilising the available e-resources, librarians should be continuously capacity built on new and existing e-resources.

- *Continuous tracking and analysis of e-resources*

A system should also be put in place to track, analyse and report the e-resource usage statistics to gain insight on the trends which will help in coming up with strategies to ensure optimal utilisation of e-resources.

- *Strengthening internet access through Wi-Fi*

Given that most users use laptops to access e-resources and their most preferred location of access is within campus but outside the library; it is recommended that Wireless Fidelity (Wi-

Fi) internet should be strengthened across the College of Agriculture and Veterinary Sciences in order to provide easy and convenient access to e-resources.

- *Trainings on key e-resources per discipline*

Different departments should identify e-resources that are most relevant to the programmes they offer and trainings on the proper use of these resources carried out continuously in order to discourage overreliance on Google and Google scholar.

5.4 Suggestions for further study

Based on the findings of this study, the research recommends that further research be done on access and use of e-resources among different faculties and specific academic programmes at different stages of student life. In-depth research should be done on undergraduates, post graduate and lecturer. This will help gather more insight on the information seeking behaviour and requirements of users pursuing specific disciplines and it will assist in better decisions to optimise e-resource access and use.

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APPENDICES

Appendix 1: Letter of introduction 1



Njogu Festus M
+254 723388881
Muitherero@gmail.com
20th June 2014

To: Heads of departments

Faculty of Agriculture
P.O Box 29053-00625
KANGEMI

Thro'
Supported
Dean Faculty of Agriculture
P.O Box 29053-00625
KANGEMI

20/06/2014

Dear sir/madam,

RE: CASE STUDY AT COLLEGE OF AGRICULTURE AND VETERINARY STUDIES

My name is Njogu Festus M, a Master of Science degree student in Agricultural Information and Communication Management (AICM) Reg. No. A56/80627/2012 at the Department of Agricultural Economics, University of Nairobi

I would like to carry out the above mentioned exercise in the College of Agriculture and Veterinary Sciences in June and July 2014. My focus of study is 'Assessment of agricultural e-resource use and its impact: the case of University of Nairobi'.

The purpose of this letter is to request you to provide me with class lists of both undergraduate and post-graduate students in session and the telephone contacts of all class representatives. These lists will be used as sampling frames after which a questionnaire will be administered to those selected. Thank you.

Yours truly,

Njogu Festus M,

Appendix 2: Letter of introduction 2

Njogu Festus M
+254 723388881
Muitherero@gmail.com
20th June 2014

To: Heads of departments

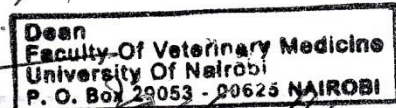
Faculty of Veterinary Sciences
P.O Box 29053-00625
KANGEMI



Thro'

Dean Faculty of Veterinary Sciences
P.O Box 29053-00625
KANGEMI

*Assist the student
please*



Dear sir/madam,

RE: CASE STUDY AT COLLEGE OF AGRICULTURE AND VETERINARY

STUDIES

My name is Njogu Festus M, a Master of Science degree student in Agricultural Information and Communication Management (AICM) Reg. No. A56/80627/2012 at the Department of Agricultural Economics, University of Nairobi.

I would like to carry out the above mentioned exercise in the College of Agriculture and Veterinary Sciences in June and July 2014. My focus of study is 'Assessment of agricultural e-resource use and its impact: the case of University of Nairobi'.

The purpose of this letter is to request you to provide me with class lists of both undergraduate and post-graduate students in session and the telephone contacts of all class representatives. These lists will be used as sampling frames after which a questionnaire will be administered to those selected. Thank you.

Yours truly,

Festus

Njogu Festus M,

Appendix 3: Letter of introduction 3

Njogu Festus Muitherero

+254 723388881

Muitherero@gmail.com

20th June 2014

To: _____

College of Agriculture and Veterinary sciences

University of Nairobi

P.O Box 29053-00625

KANGEMI

Dear sir/madam,

RE: CASE STUDY AT COLLEGE OF AGRICULTURE AND VETERINARY

STUDIES

My name is Njogu Festus Muitherero, a Master of Science degree student in Agricultural Information and Communication Management (AICM) Reg No A56/80627/2012 at the Department of Agricultural Economics, University of Nairobi.

I would like to carry out the above mentioned exercise in the College of Agriculture and Veterinary Sciences in June and July 2014. My focus of study is **‘Assessment of agricultural e-resource use and its impact: the case of University of Nairobi’**.

I am pleased to inform you that you have been selected to participate in this study. Findings of this study may be published and used to improve library services. The outcome of the study will be availed to you on request. Thank you.

Yours truly,

Njogu Festus M,

Appendix 4: Questionnaire to assess agricultural e-resource use and its impact among students/ lecturers/ researchers at the University of Nairobi

Date _____/_____/_____ (Day/Month/Year) Questionnaire Code |__|__|__|

Name of Interviewer.....

This case study aims to evaluate the impact of CABI’s online databases at the University of Nairobi (UoN). It will investigate the impact of access and use of CAB Abstracts and Compendia at UoN in order to make recommendations on how best to improve capacity building and access to agricultural e-resources. Findings of this study may be published and used to improve library services. The information provided will be fully anonymous with no identities being revealed. Do you wish to continue with the interview?

Yes [] No []

Contact for clarification

Njogu Festus M
Msc Agricultural Information and Communication Management
University of Nairobi
Email: muitherero@students.uonbi.ac.ke

SECTION 1: UNIVERSITY OF NAIROBI DEMOGRAPHICS

1. Respondent details

Name	Age (yrs)	Sex (1)	Qualification (2)	Specialization (3)	Marital status (4)	Nationality (5)

CODES FOR RESPONDENT DEMOGRAPHICS	
(1) Sex: 1- Male 2 – Female	
(2) Qualification: 1. Research Scientist 2. Teaching Staff/Lecturer 3. Non-teaching staff 4. Librarian 5. Postgraduate Student 6. Undergraduate (3) Specialization: 1. Agricultural Economics 2. Soil Sciences 3. Crop Sciences 4. Veterinary Medicine 5. Environmental Sciences 6. Aquaculture 7. Food Sciences 8. Agric Engineering 9. Information Sciences 10. Other (specify).....	(4) Marital status: 1. Married 2. Single 3. Divorced 4. Separated 5. Widowed 6. N/A 7. Don’t Know Other (specify) (5) Nationality 1. Kenyan 2. Other (specify).....

Email address..... (Optional)

Telephone Number..... (Optional)

2. How often do you use the Library?
(A) Daily [] (B) Weekly [] (C) Monthly [] (D) Infrequently [] (E) Never []
3. Which Library resources do you use?
(A) Print Books [] (B) Print Journals [] (C) Electronic books [] (D) Audio-visual []
(E) Electronic Journals []
4. How would you rate your current level of knowledge in using the internet?
(A) Advanced [] (B) Moderate [] (C) Poor [] (E) Never Used []
5. Do you use Electronic resources in your research/lecture/studies?
(A) Yes [] (B) No []
6. If yes, how do you access electronic resources?
(A) Laptop [] (B) Office PC [] (C) Library PC [] (D) Mobile phone [] (E) Computer
Lab [] (F) Cybercafé [] (G) Campus Wi-Fi [] (H) Other (please specify).....
7. If not using any of the above mentioned resources, kindly state the reasons why
(A) Not aware [] (B) Poor internet connectivity [] (C) Unfriendly Interface [] (D) Lack
of access to computer [] (E) Lack of searching skills [] (F) Other (please
specify).....

SECTION 2: OBJECTIVE BASED QUESTIONS

Objective 1: Determine awareness of CAB Abstracts and CABI Compendia

8. Are you aware of electronic information resources provided by the UoN Library? (**tick one**)
(A) Yes [] (B) No []
9. How many electronic resources are you aware of?
(A) More than 10 [] (B) 6-10 e-resources [] (C) 1-5 e-resources [] (D) None []
10. (i) How did you learn about the electronic resources?
(A) Leaflets [] (B) Flyers [] (C) Library workshop/exhibition [] (D) Information
on library website [] (E) Told by colleague [] (F) Told by Librarian [] (G)
Recommended by lecturer [] (H) Email [] (I) Other
(specify).....
- (ii) Are you aware of CABI's online resources: the CAB Abstracts and CABI
Compendia?
(A) I am aware of both [] (B) I am aware of one (specify).....
(C) Not aware of both []
- (iii) If you are aware, how did you learn about the CAB Abstracts and CABI Compendia
electronic resources?
(A) Leaflets [] (B) Flyers [] (C) Library workshop/exhibition [] (D) Information
on library website [] (E) Told by colleague [] (F) Told by Librarian [] (G)

Recommended by lecturer [] (H) Email [] (I) Other
(specify).....

11. From which location do you prefer to access electronic resources inclusive of CAB Abstracts and CABI Compendia?

(A) Library [] (B) Elsewhere on campus [] (C) off-campus []

12. Among the resources listed below, which ones do you own, have access to and which ones do you use to access e-resources (**mark using a circle in the corresponding box**)

S/No	Information Sources	Own		Have access to		Used to access electronic resources	
		Yes	No	Yes	No	Yes	No
1.	Desk top computer	Yes	No	Yes	No	Yes	No
2.	University Local Area Network	Yes	No	Yes	No	Yes	No
3.	Internet via Broadband modem	Yes	No	Yes	No	Yes	No
4.	Intranet	Yes	No	Yes	No	Yes	No
5.	Internet via WiFi	Yes	No	Yes	No	Yes	No
6.	Laptop computer	Yes	No	Yes	No	Yes	No
7.	Tablet	Yes	No	Yes	No	Yes	No
8.	Smart phone	Yes	No	Yes	No	Yes	No
9.	Other (specify).....	Yes	No	Yes	No	Yes	No

13. In your opinion what should be done to increase awareness of CAB Abstracts and CABI Compendia among students/lecturers/researchers?

.....

14. Do you think electronic resources are adequately promoted in your institution?

(A) Yes [] (B) No []

Objective 2: Determine the usage of CAB Abstracts and CABI Compendia

15. (i) Out of the listed online resources, which one(s) do you mostly access and use in your work/studies?

- (A) AGORA [] (B) AJOL []
 (C) TEEAL [] (C) CAB Abstracts []
 (D) HINARI [] (E) CABI Compendia (specify).....
 (F) Google/Google scholar [] (G) OARE []

(H) Other (specify).....

(ii) Please specify the frequency of your use of the above mentioned agricultural electronic resources

(Likert scale 1=at least 2-3 times a week

2=Once a week

3=Once a month

4=Once per semester

S.No	Resource name	Frequency
1	AGORA	
2	TEEAL	
3	HINARI	
4	AJOL	
5	CAB Abstracts	
6	Crop Protection Compendium	
7	Animal Health and Production Compendium	
8	Forestry Compendium	
9	Aquaculture Compendium	
10	OARE	
11	Google/Google scholar	
12	Other	

16. What challenges do you face in accessing and using available online resources at your university?

(A) Poor internet connection []

(B) Lack of computer/laptops []

(C) Lack of knowledge/skills in using the online resources []

(D) Complexity of online resources (not user friendly) []

(E) Other (specify).....

17. (i) Have you ever been trained on the access and use of e-resources?

(A)Yes [] (B) No []

(ii) If not trained on use of electronic resources, please give reason(s)

(A) Not aware [] (B) Semester schedule [] (C) Not interested []

(D) Other (specify).....

(iii) If Yes, What was the mode of training and how would you rate this training?

	Excellent	Satisfactory	Poor
Lectures			
Librarian			
Workshop			
Self-learning modules			
Demonstrations			
Other (specify).....			

(iv) Has your training improved your ability to access and use electronic resources?

(A) Yes- A lot [] (B) Yes-A little [] (C) No []

18. (i) Have you ever been trained on the access and use of CAB Abstracts and CABI Compendia?

(A) Yes [] (B) No []

(ii) If not trained on use of CAB Abstracts and CABI Compendia please give reason(s)

(A) Not aware [] (B) Semester schedule [] (C) Not interested [] (D) Other (specify).....

(iii) If Yes, What was the mode of training and how would you rate this training?

	Excellent	Satisfactory	Poor
Lectures			
Librarian			
workshop			
Self-learning modules			
Demonstrations			
Other (specify)			
.....			

19. (i) Do you use CAB Abstracts and CABI Compendia in your study/teaching/learning/research? (**tick one**)

(A) Yes [] (B) No []

If NO explain why.....
.....

(ii) If yes, how often do you use CAB Abstracts and CABI Compendia? (**tick one**)

- (A) Daily []
- (B) Weekly []
- (C) Monthly []
- (D) Every 3-4 months []
- (E) Yearly []
- (F) Not sure []

20. Which of these CABI e-resources do you mostly use /teaching/learning/research? (**tick one**)

- (A) CAB Abstracts []
- (B) Crop Protection Compendium []
- (C) Animal Health and Production Compendium []
- (D) Forestry Compendium []
- (E) Aquaculture Compendium []

21. Overall how do you rate your current level of knowledge in using CAB Abstracts and CABI Compendia? (**tick one**)

- (A) Poor []
- (B) Fair []
- (C) Good []
- (D) Very Good []

(E) Excellent []

22. What was the purpose for using CAB Abstracts or CABI Compendia in your study/teaching/learning/research? **(tick those that apply)**

- (A) To write articles []
- (B) To do assignments []
- (C) Exam preparations []
- (D) Consultancy/professional research []
- (E) Writing proposals []
- (F) To prepare for projects []
- (G) Other, specify.....

23. On average, how much time do you spend using CAB Abstracts and CABI Compendia each during each session? **(tick one)**

- (A) Less than 1 hour []
- (B) 1-2 hours []
- (C) 3 hours []
- (D) More than 3 hours []

24. How likely are you to use CAB Abstracts and CABI Compendia in the future? **(tick one)**

- (A) Very Unlikely []
- (B) Unlikely []
- (C) Not sure []
- (D) Likely []
- (E) Very likely []

25. How would you rate the relevance of content found in CAB Abstracts and CABI Compendia? **(tick one)**

- (A) Extremely relevant []
- (B) Very relevant []
- (C) Relevant []
- (D) Slightly irrelevant []
- (E) Very irrelevant []

26. Would you recommend CAB Abstracts and CABI Compendia to a fellow student/lecturer/researcher? **(tick one)**

- (A) Definitely Not []
- (B) Probably Not []
- (C) Not sure []
- (D) Probably []
- (E) Definitely []

27. How would you rate CAB Abstracts and CABI Compendia on each of the following? **(tick one)**

1 = Good 2 = Fair 3 = Poor 4 = Don't know

	Good	Fair	Poor	Don't Know
1. Accessibility				

2. Accuracy				
3. Ease of use				
4. Usefulness				
5. Completeness				

28. What would you like to be improved to help you make use of CAB Abstracts and CABI Compendia better?

.....
.....
.....
.....

Objective 3: Determine the impact of CAB Abstracts and CABI Compendia at the University of Nairobi

29. How has e-resources impacted your teaching /learning/research activities?

- (A) Improvement in information access and retrieval []
- (B) Increased research output []
- (C) Improved referencing skills []
- (D) Improved quality in research output []
- (E) Improved grades (GPA) []
- (F) Reduced the time taken searching for content online []
- (G) Increased scope and volume of relevant search results []
- (H) Useful in curriculum development []
- (I) Other specify.....

30. Overall how has CAB Abstracts and CABI Compendia helped you in your study/teaching/learning/research?

.....
.....
.....
.....

Objective 4: Identify factors influencing access and use of CAB Abstracts and CABI Compendia

31. What factors encourage you to use CAB Abstracts and CABI Compendia? (**tick those that apply**)

- (A) Ease of access []
- (B) Ease of use []
- (C) Friendly interface []
- (D) Reasonable results given []
- (E) Scholarly content []
- (F) Relevant content []
- (G) Other, specify.....

32. Indicate which factors influence your access and use of CAB Abstracts and CABI

Compendia by **TICKING Yes or No (YES=1 and NO=2)** in the table below

S. No	Challenges	Answer	
		YES	NO
1.	Lack of computer/laptops		
2.	Complexity of online resources (not user friendly)		
3.	No internet access		
4.	Lack of Username/ Password		
5.	Slow internet connection		
6.	Lack of awareness		
7.	Lack of knowledge/skills in using the online resources		
8.	Frequent electricity outages		
9.	It takes too much time to get information		
10.	Unfamiliarity with the resources		
11.	Other (specify).....		

33. In your own opinion, how do you think CAB Abstracts and CABI Compendia have helped you to contribute to the body of knowledge in your field of study teaching/learning/research?

.....

.....

.....

.....

.....

.....

.....

.....

34. Would it be okay to contact you in the future as a follow up to this interview to learn from your experiences in interacting with CABI's online databases?
 (A) Yes [] (B) No []

Appendix 5: Questionnaire to assess agricultural e-resource use and its impact among librarians at the University of Nairobi

Date _____/_____/_____ (Day/Month/Year) Questionnaire Code |__|__|__|

Name of Interviewer.....

This case study aims to evaluate the impact of CABI’s online databases at the University of Nairobi (UoN). It will investigate the impact of access and use of CAB Abstracts and Compendia at UoN in order to make recommendations on how best to improve capacity building and access to agricultural e-resources. Findings of this study may be published and used to improve library services. The information provided will be fully anonymous with no identities being revealed. Do you wish to continue with the interview?

Yes []

No []

Contact for clarification

Njogu Festus M

Msc Agricultural Information and Communication Management

University of Nairobi

Email: muitherero@students.uonbi.ac.ke

SECTION 1: UNIVERSITY OF NAIROBI DEMOGRAPHICS

1. Respondent details

Name	Age (yrs)	Sex (1)	Qualification (2)	Specialization (3)	Marital status (4)	Nationality (5)

CODES FOR RESPONDENT DEMOGRAPHICS	
(1) Sex: 1- Male 2 – Female	
<p>(2) Qualification:</p> <ol style="list-style-type: none"> 1. Diploma 2. Degree 3. Post graduate 3. Master of Science degree 4. PhD <p>(3) Specialization:</p> <ol style="list-style-type: none"> 1. Library and information science 2. Knowledge management 2. Scholarly Publishing 3. Record & Archives Management 4. Communication 5. Web resources Management 6. Other (specify)..... 	<p>(4) Marital status:</p> <ol style="list-style-type: none"> 1. Married 2. Single 3. Divorced 4. Separated 5. Widowed 6. N/A 7. Don't Know <p>Other (specify)</p> <p>(5) Nationality</p> <ol style="list-style-type: none"> 1. Kenyan 2. Other (specify).....

Designation/Position

Email address..... (Optional)

Telephone Number..... (Optional)

2. Is there an electronic resources co-ordinator or equivalent position in the library?
(A) Yes [] (B) No []
3. Who are the target users of the University of Nairobi Library services?
(A) Staff /Students/ researchers at UoN only []
(B) Staff /Students/ researchers at UoN and external users []
4. What is the approximate sitting capacity of your library?.....
5. What is the approximate combined number of both physical and electronic titles at your library?
(A) Less than 1,000 titles []
(B) 1,000-3,000 titles []
(C) 3,001-5,000 titles []
(D) 5,001-10,000 titles []
(E) Above 10,000 titles []
6. How are information resources archived at your Library?
(A) Print format [] (B) Digital format [] (C) Both print and Digital formats
7. (i) Does your library have a digital repository?
(A) Yes [] (B) No []

(ii) If yes, state the software platform hosting the digital repository.....
8. Does your university library have a web presence?
(A) Yes-we have a website dedicated specifically to the library []
(B) Yes-we have a webpage on the Main University website []
(C) No []
9. (i) Is there an ICT department /unit in your library?
(A) Yes [] (B) No []

(ii) If Yes, is the ICT department/unit adequately staffed with qualified personnel?
(A) Yes [] (B) No []
10. Do you have a computer laboratory specifically for electronic resources in your library?
(A)Yes [] (B) No []
11. (i) Does you library computer laboratory have its own server?
(A) Yes [] (B) No []

(ii) If Yes, does the server have the capacity to host all your e-resources?

(A) Yes [] (B) No []

12. (i) How many computers are available to users?

(A) Less than 5 (B) 5-20 Computers (C) 20-30 Computers (D) 30-50 Computers
(E) More than 50 Computers

(ii) From your answer above, how many computers are connected to the internet?

13. In your own opinion, how would you rate the Information Technology (IT) infrastructure at your library?

(A) Poor [] (B) Fair [] (C) Good [] (D) Excellent []

14. (i) Is the budgetary allocation for provision of e-resources adequate?

(A) Yes [] (B) No []

(ii) If yes, what is the approximate percentage **currently** allocated to e-resources against the total budget? _____

(iii) If No, what is the approximate percentage **that should** be allocated to e-resources against the total budget? _____

15. (i) Is your library equipped with resources to provide Information services for visually impaired/blind?

(A) Yes [] (B) No []

(ii) If Yes, which of the following ICT tools/applications/practises do you currently have in place to assist your disabled students/researchers/lecturers?

(A) ICT based specialized vocational training on e-resource use []

(B) Specialized Keyboards, such as Braille []

(C) Braille Printer []

(D) Conversion of local language to Braille []

(E) Screen Readers []

(F) Touch Screens []

(G) Eye Tracking []

(H) Talking word processors []

(I) Screen Magnifiers []

(iii) If No, what are the main challenges being faced by your library in the provision of information services for visually impaired/blind?

(A) Lack of specialized disabled friendly training on e-resource use []

(B) Limited flexibility in training options for persons with disability []

(C) Limited availability of specialized disabled friendly hardware and software resources, due to budget constraints []

(D) Lack of formal involvement of the University and support structure for ICT for the disabled []

(E) Attitude barriers towards people with disability []

(F) Lack of appropriate disabled friendly policies and their implementation []

(G) Limitation of finances []

SECTION 2: OBJECTIVE BASED QUESTIONS

Objective 1: Determine awareness of CAB Abstracts and CABI Compendia

16. Which of the following does your library have access to?
(A) Subscription /Fee based online resources [] (B) Free online resources []
(C) Both subscription and free online resources [] (D) None []
17. In your own opinion, do most users know the availability of electronic resources?
(A) Most users know []
(B) Some users know []
(C) Most users don't know []
(D) I don't know []
18. How many electronic resources are you aware of?
(A) More than 10 [] (B) 6-10 e-resources [] (C) 1-5 e-resources [] (D) None []
19. (i) Are you aware of CABI's online resources: the CAB Abstracts and CABI Compendia?
(A) I am aware of both [] (B) I am aware of one (specify).....
(C) Not aware of both []
- (ii) If you are aware, how did you learn about the CAB Abstracts and CABI Compendia electronic resources?
(A) Leaflets [] (B) Flyers [] (C) Library workshop/exhibition [] (D) Information on library website [] (E) Told by colleague [] (F) Email []
(G) Other (specify).....
20. (i) Have you marketed or promoted CABI's electronic resources among users?
(A) Yes [] (B) No []
- (ii) If yes, which strategy did you use?

S.No	Method	Answer	
		YES	NO
1.	Leaflets/newsletters flyers		
2.	Posters		
3.	Targeted emails		
4.	Information on library website		
5.	Conducting training sessions in the library		
6.	Social Media (Facebook, Twitter)		
7.	Workshops/exhibitions		
8.	Meetings		
9.	Orientation		

10.	Word of mouth		
11.	Other (specify).....		

21. (i) Does your library use any social Media platform to provide information services to users?
(A) Yes [] (B) No []

(ii) If Yes, state the social media platforms used
(A) Facebook [] (B) Twitter [] (C) You tube [] (D) LinkedIn []
(E) Other (please specify).....

(iii) Have you used the above mentioned social media platform to notify your staff and students that they can access CAB Abstracts and CABI Compendia?
(A) Yes [] (B) No []

(iv) If No, state the main reason for your library not using Social media platforms
(A) Poor/Slow internet connections []
(B) Lack of internet access []
(C) Organisation policy does not allow for social media use []
(D) Staff aren't familiar with social media []
(E) Other (please specify).....

22. Is the library information literacy unit/module being taught as a common course to University staff and students?
(A) Yes [] (B) No []

23. (i) Have library staff been trained in the use of CAB Abstracts and CABI Compendia?
(A) Yes [] (B) No []

(ii) If Yes, State the method of training
(A) CABI Webinar [] (B) On campus training by CABI staff []
(C) Self tutorial from CABI website [] (D) Other (please specify).....

(iii) Has your library afterwards conducted an in-house training on CAB Abstracts and CABI Compendia for students and staff?
(A) Yes [] (B) No []

24. Do you think CAB Abstracts and CABI Compendia are adequately promoted in your institution?
(A) Yes [] (B) No []

25. In your opinion what should be done to increase awareness of CAB Abstracts and CABI Compendia among users?
.....
.....

.....

Objective 2: Determine the usage of CAB Abstracts and CABI Compendia

26. (i) How is your library access set up for electronic resources?

- (A) Via institution IP range []
- (B) Via username and Password []
- (C) Offline external hard drive []
- (D) All of the above []
- (E) Other (please specify).....

(ii) How do your end users access electronic resources that the library is subscribed to?

- (A) On campus via IP address []
- (B) Remotely via a portal []
- (C) Both on campus via IP and remotely via a portal []

27. (i) Does your library belong to any consortia to purchase electronic resources?

- (A) Yes [] (B) No []

(ii) If Yes, name the consortia.....

28. Which **MAIN** criteria does your library use in selecting of e-resources to subscribe to?

S/No	Criteria	Answer	
		YES	NO
1	Ability to meet user information needs/demand		
2	E-resource usage statistics		
3	Subject relevance to University Curriculum		
4	Cost effectiveness		
5	Content scope coverage i.e. abstracts, journal articles, e-books		
6	Access to Full text		
7	Recency of information		
8	Ease of accessibility		
9	Vendor reliability		
10	Other (specify).....		

29. (i) Does your library use federated search engines to facilitate searches conducted on your e-resources?

- (A) Yes [] (B) No []

(ii) If Yes, which federated search engine(s) do you use?

.....

(iii) Are CAB Abstracts and CABI Compendia covered by searches conducted on the federated search engine?

(A) Yes [] (B) No []

30. How would you rate your current level of knowledge in using CAB Abstracts and CABI Compendia?

(A) Advanced [] (B) Moderate [] (C) Poor [] (E) Never Used []

31. For how long does the electronic resource section remain open for access by users?

(A) Below 6 hours [] (B) 6-8 hours [] (C) 8-10 hours [] (D) Above 10 hours []

32. What is the average number of users that visit the e-resources section per day?

33. How many library staff are assigned to the e-resources section?

34. (i) Is there provision for users to connect their personal computers/laptops to the internet in the library?

(A) Yes [] (B) No []

(ii) If yes what mode of connection is available?

(A) Ethernet cables

(B) Wireless Fidelity (Wi-Fi)

(C) Both Ethernet cables and Wi-Fi

(D) Other (specify) _____

35. In your own opinion which skills do end users **MOST** require help with?

(A) Searching skills [] (B) Citation and Referencing [] (C) Exporting search results []
(D) Full text Searches [] (E) Other (please specify)

36. Which one of the following online resources does your library have access to?

TICK Yes or No (YES=1 and NO=2)

S.No	Resource name	Yes	No
1.	TEEAL		
2.	HINARI		
3.	AJOL		
4.	EBSCOHOST		
5.	E-books		
6.	ARDI		
7.	Open DOAR		
8.	JSTOR		
9.	CAB Abstracts		
10.	Crop Protection Compendium		
11.	Animal Health and Production Compendium		
12.	Forestry Compendium		
13.	Aquaculture Compendium		
14.	OARE		
15.	Google/Google scholar		
16.	Other (specify).....		

17.	None		
-----	------	--	--

37. (i) Have you ever been trained on the access and use of e-resources?

(A) Yes [] (B) No []

(ii) If not trained on use of electronic resources, please give reason(s)

(A) Not aware [] (B) Semester schedule [] (C) Not interested []

(D) Other (specify).....

(iii) If Yes, What was the mode of training and how would you rate this training?

	Excellent	Satisfactory	Poor
Lectures			
Librarian			
Workshop			
Self-learning modules			
Demonstrations			
Other (specify).....			
.....			

(iv) Has your training improved your ability to access and use electronic resources?

(A) Yes- A lot [] (B) Yes-A little [] (C) No []

38. (i) Have you ever been trained on the use of CAB Abstracts and CABI Compendia?

(A) Yes [] (B) No []

(ii) If not trained on use of CAB Abstracts and CABI Compendia please give reason(s)

(B) Not aware [] (B) Semester schedule [] (C) Not interested [] (D) Other

(specify).....

(iii) If Yes, What was the mode of training and how would you rate this training?

	Excellent	Satisfactory	Poor
Lectures			
Librarian			
workshop			
Self-learning modules			
Demonstrations			
Other (specify)			
.....			

39. What areas would you like to be improved or emphasized in future CAB Abstracts and Compendia training(s)?

(A) Searching skills [] (B) Citation and referencing [] (C) Flexible training []

(D) Regular training [] (E) General organization []

40. Would you recommend CAB Abstracts and CABI Compendia to another library? (**tick one**)

- (A) Definitely Not [] (B) Probably Not [] (C) Not sure [] (D) Probably []
 (E) Definitely []

41. How would you rate CAB Abstracts and CABI Compendia on each of the following?
(tick one)

1 = Good 2 = Fair 3 = Poor 4 = Don't know

(i)

CAB Abstracts	Good	Fair	Poor	Don't Know
1. Accessibility				
2. Accuracy				
3. Ease of use				
4. Usefulness				
5. Completeness				

(ii)

CABI Compendia	Good	Fair	Poor	Don't Know
1. Accessibility				
2. Accuracy				
3. Ease of use				
4. Usefulness				
5. Completeness				

42. Do you regularly track or analyse e-resource usage statistics in your library?

- (A) Yes [] (B) No []

43. What would you like to be improved to help users make better use of CAB Abstracts and CABI Compendia?

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Objective 3: Determine the impact of CAB Abstracts and CABI Compendia at the University of Nairobi

44. In your own opinion how have CAB Abstracts and CABI Compendia impacted users?

(tick those that apply)

- (A) Improvement in information access and retrieval []
 (B) Increased research output []
 (C) Improved referencing skills []
 (D) Improved quality in research output []
 (E) Improved grades (GPA) []
 (F) Reduced the time taken searching for content online []
 (G) Increased scope and volume of relevant search results []
 (H) Useful in curriculum development []
 (I) Other specify.....

Objective 4: Identify factors influencing access and use of CAB Abstracts and CABI Compendia

45. Using the Likert scale below, rank the listed challenges to identify the **MAIN** problem (s) influencing the management of electronic resources at your library

Likert scale 1=High 2=Medium 3=Low

S.No	Challenges	Ranking		
		High	Medium	Low
1	Reporting usage statistics			
2	Negotiating consortia agreements			
3	Organising free trial			
4	Installing Products			
5	Cost of the resources			
6	Marketing of the resources among users			
7	Training users on how to use			
8	Lack of space in library servers/ hard disks			
9	Inadequate number of computers			
10	Slow internet connection			
11	Other (specify).....			

46. From your experience and in your own opinion what factors encourage users to utilise CAB Abstracts and CABI Compendia? (**tick those that apply**)

- (A) Ease of access []
- (B) Ease of use []
- (C) Friendly interface []
- (D) Reasonable results given []
- (E) Relevant content []
- (F) Other, specify.....

47. Indicate which factors influence users access and use of CAB Abstracts and CABI

Compendia by **TICKING Yes or No (YES=1 and NO=2)** in the table below

S.No	Challenges	Answer	
		YES	NO
1	Lack of computer/laptops		
2	Complexity of online resources (not user friendly)		
3	No internet access		
4	Lack of Username/ Password		
5	Slow internet connection		
6	Lack of awareness		
7	Lack of knowledge/skills in using		

	the online resources		
8	Frequent electricity outages		
9	It takes too much time to get information		
10	Unfamiliarity with the resources		
11	Other (specify)		

48. In your own opinion, how do you think CAB Abstracts and CABI Compendia have helped you in your role as a librarian?

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49. Would it be okay to contact you in the future as a follow up to this interview to learn from your experiences in interacting with CABI's online databases?
 (A) Yes [] (B) No []

Appendix 6: Interview Questions

Students

1. In your own opinion, what are the possible effects/impacts of using CAB Abstracts and CABI Compendia in your study?
2. How has CAB Abstracts and CABI Compendia supported you in your study/research?

Lecturers

1. In your own opinion, what are the impacts of using CAB Abstracts and CABI Compendia in teaching/lecturing?
2. In your own opinion what are the possible changes of skills/competencies in students who utilise CAB Abstracts and CABI Compendia?

Librarians

1. How has CAB Abstracts and CABI Compendia supported you in your work as a librarian?
2. In your own opinion what impacts/effects does using CAB Abstracts and CABI Compendia have on library users?