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Preamble

African Journal of Information Professionals **(**AJIP) is an academic peer-reviewed biannual publication that seeks to publish original, innovative research and academic scholarship that contributes to the growth of knowledge in information science and related fields. Her key audiences are: Information professionals/scientists, researchers, media specialists, information students, government agencies/policymakers and citizens with a passion for information sciences.

This first edition is aligned with the newest research, interspersed with contemporary concerns and latest global transposition in information. It carries original and full-length articles that reflect the latest research and developments in both theoretical and practical aspects of an information society. It promotes research awareness and compatibility platform through a concise and methodical interface to cater for all categories of scholars in information, while encouraging innovativeness and quality research work.

The articles herein are highly relevant to the issues and challenges faced in real social life and encourage innovative research based approaches to solve those issues. They further provide a forum for exchange of knowledge among academicians and researchers for advancement of research in information science and related fields.

The journal is both in print and online versions.

Dr. Jotham M. Wasike
Chief Editor

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Academic Libraries as Epicentres for Knowledge Mapping and Management an Institutions of Higher Learning

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Abstract

This paper aimed at investigating the role of academic Libraries in knowledge mapping and management in Institutions of Higher Learning (IHLs). IHLs generate a wide range of information and act as centers of complex knowledge contexts. However, this knowledge may not be fully exploited due to lack of its capture and making it accessible by scholars. This may imply that academic libraries may not be at the center of knowledge management and yet are an extension of complex knowledge contexts in IHLs. Since a lot of knowledge is generated internally, it can be harnessed, stored and disseminated with the guidance of librarians. The objectives of this paper were: to assess knowledge mapping and management in IHLs; to determine the role of library in knowledge mapping and management in HEIs; to identify challenges faced in knowledge mapping and management and to make recommendations for improvement. The authors applied desktop research approach combined with practical experience as information professionals to interrogate the place of academic libraries in IHLs in relation to knowledge management. The study concludes that academic libraries have a role to play in providing leadership in knowledge mapping and management in HEIs. The findings of this study may be useful to IHLs as well as other educational institutions, both public and private that are keen on the implementation of knowledge management programmes.

Keywords: Institutions of Higher learning (HEI's), Information, Knowledge Mapping, Academic Libraries, Knowledge Management, Quality Management in Libraries.

Introduction

Knowledge is one of the most important strategic resources of organizations (Hurt & Ketchen, 2006). IHLs are centers of frequent knowledge creation and dissemination. A great deal of knowledge is generated with the intention of having it disseminated to inform decision making, support research and solve problems. Howell and Annansingh, (2013) & Ramachandran *et al*. (2013) indicate that IHLs are knowledge-intensive organizations. Rowley (2000) cited them as knowledge-creating institutions that are in knowledge business. Dhamdhere (2015) added that IHLs are referred to as Knowledge Houses where knowledge flows from lecturer to students; discussions in various committees, research groups among others. In this environment of knowledge creation and dissemination, libraries can play the role of coordinating knowledge via Knowledge Management (KM) of which knowledge mapping is a prerequisite. This is an approach that has not been adequately addressed especially in IHLs. The current study seeks to explore the role of libraries as epicentres of knowledge mapping and management in Institutions of Higher Learning (IHLs).

Methodology

The authors adopted a desktop research approach where they reviewed related literature from journal and conference articles. They also applied their experience as information professionals to interrogate the place of academic libraries in IHLs as relates to knowledge management and mapping.

Literature Review

Information, Knowledge and Knowledge Management

Information and knowledge are often confused and are used interchangeably. However, data is the basic form of information

or information in a raw form. Data is used to create information which in turn generates knowledge. Thus, knowledge transformation is a three-step process (Jain, 2007). Knowledge management is a process aimed at effective creation, storage, sharing and application of knowledge in an organization. Jain (2007) defines Knowledge management as a purposeful management process to create, capture, store, exploit, share and apply both implicit and explicit knowledge for the benefit of employees, organization and its customers. Therefore, Institutions that practice effective knowledge management are said to be quality and have a competitive edge over those that do not. Darroch (2005) and Dasgupta *et al*. *(*2009) add that knowledge management brings about innovation and creativity a competitive edge to those institutions that practice it. Besides gaining a competitive edge, universities' teaching, research and other knowledge transfer practices can be greatly enhanced by effective knowledge management. Ramjeawon and Rowley (2017) identify three main strands in knowledge management in IHLs. They include: knowledge creation, knowledge sharing, and knowledge transfer. Townley (2001) established four KM processes as the creation of a knowledge repository, improving knowledge access, enhancing the knowledge environment and managing knowledge as an asset. Librarians can provide leadership in knowledge management as they have the foundation in handling information management in their libraries and disseminating it to the entire HEI effectively. Most academic Libraries, especially in Kenya, are creating content by establishing institutional repositories which are an important step in the knowledge management process.

Knowledge Mapping

Identification of knowledge as an asset requires a process known as knowledge mapping. Knowledge mapping is important in identifying knowledge in the organization as most knowledge is hidden and need to be discovered. It entails clear visualization of organization's knowledge and creates an understanding of the big picture in the organization.

Wexler (2001) defines knowledge mapping as a communication medium that uses various forms such as graphical presentation of text, stories, modes, numbers or abstract symbols between those who develop and those who use maps. A common map is an organizational chart or a geographical map. Knowledge mapping is an effective strategic process or tool that enables effective knowledge management. It is a figurative expression of an already elaborated conceptual structure like any other symbolic system. It offers more dimension and richer semantics than a mere diagram. In addition, it offers more information on solving a problem such as time, location, relationships, time aspects and quality levels. It shows pathways and can relate different maps through hyperlinking texts. Knowledge maps have been identified as ways of improving knowledge transfer and utilization in an organization.

Wexler (2001) further stated that knowledge maps pave the way on the intellectual territory providing answers on directions, assessing situations or planning resources. USAID (2003) on the other hand, adds that knowledge mapping analyses a business process to identify decision milestones (where knowledge is needed), knowledge requirements (what knowledge is needed), routes for access and retrieval of knowledge through people and technology and gaps between required skills and current skills. This means that through knowledge mapping, one identifies all areas of information generation, exposes ways of its retrieval

and ultimately links this information to areas where it is most applicable or needed.

Knowledge maps are said to effectively integrate key components and technologies in projects and companies (Grey, 1999; Gomez et al., 2000; Wang, 2002 and Plumley, 2003). In addition, for employees who have access to intranet, knowledge maps enhance visibility of corporate knowledge assets by providing access to reference information; a good ground for networking between experts, and a platform for those seeking experts in certain knowledge contexts, thereby enhancing information seeking process and knowledge development. They make implicit knowledge explicit through metaphors and symbols. They can also be used for marketing a company or institution to external groups such as shareholders, potential employees, analysts, etc, through insightful visualization and information aggregation of the skills that a company or institution bears.

Knowledge mapping is a practice that can be embraced by IHLs as a prerequisite to knowledge management. This can be done by different departments mapping their different processes and inter-relate them to processes conducted by others. By doing this, it will be possible to bring out clear knowledge flows and expose areas where there are gaps in knowledge. It will then be easier to link areas of production of knowledge to those that require such knowledge for use within the institution. The knowledge generated in HEIs is in form of books, workshop reports, patents, fact-finding reports, case studies, journal articles, thesis and dissertations, technical reports, policies, newsletters, development of test methods and standards, etc most of which are organized in libraries. Whilst generation of this information is automatic and assured owing to the nature of business that defines IHLs, their intended use is not usually fully realized as would

be anticipated. Dhamdhere (2015) alluded to the fact that much of the generated information remains grey literature, because it is underutilized. He further states that if proper recording and capture is maintained in an organization, then knowledge would be visible. Similarly, there is evidence to show that even in cases where institutions practice knowledge management, strategies they adopt are passive and inconsistent (Donate and Canales, 2012). Improper organization of knowledge leads to duplication of efforts and non-utilization. Hence, an organization can have a lot of knowledge and evidence and not be exploited. In order to achieve effective operations and quality practices in many institutions today, either service oriented or business, private or government in nature, knowledge management has to be the center of focus.

Steps in Creating a Knowledge Map

Ebener et al. (2006) identifies five steps to a knowledge map as:

- Consider organizational dynamics.
- Location of knowledge resources and assets (databases, documents, professional knowledge and links to key information and knowledge).
- Organizational knowledge flow.
- Where is the knowledge created (entails identification of knowledge in the organization).
- Where is the knowledge needed.

According to Burkhard (2005) a knowledge map created should reflect the following: function of the map, knowledge type, recipients and visualization. Data collection methods to actualize creation of knowledge map include: documentary review and interviews with various personnel in the various key departments, in this case, IHLs. The key processes are data collection, data warehousing, data pre-processing and refinement, application

of appropriate algorithm, coming up with a knowledge map preferably virtual and finally data analysis. The knowledge map can either be virtual or physical. However, the utilization of computer software may be more beneficial in creating a virtual map than drawing a physical map.

Knowledge Mapping Benefits in an Organization

Wexler (2001) USAID (2003) Folkes (2004) Vesta (2005) and Egbu et al (2005) summarise the following benefits of knowledge mapping that can also be applied to IHLs's context:

- Re-use of ideas.
- Identify knowledge location and flow.
- Provide a link between experts and expertise in an area of interest.
- Fast access to information and knowledge either through virtual or physical maps.
- Knowledge assets inventory that provides intellectual and intangible asset and therefore easier to identify gaps in organizational knowledge.
- Developing Communities of Practice (CoPs) of experts with common interest.
- Improve decision making and problem-solving via quick and accurate information and knowledge.
- Facilitate access to new knowledge.
- Identify knowledge sharing opportunities and any potential barriers.
- Help new comers adopt easily to best practices.
- Create new interdependencies.
- Accelerates the learning curve in the organization.

Despite the myriad benefits that can be accrued from knowledge mapping, there are barriers that hinder knowledge mapping. Vestal (2005) identifies four key barriers to knowledge mapping as:

- Lack of understanding of knowledge flow in the organization
- Lack of right team in knowledge mapping (it is important to have an information professional(s) in the team).
- Knowledge is power syndrome that prevents knowledge from being shared.
- Failure to understand the business process in the organization.

It is important to surmount these barriers to successful knowledge mapping. Development of appropriate policies would provide the required impetus for the process.

Wexler (2001) opines that developers of knowledge maps can be from within or without the organization (consultants). However, since knowledge is a source of competitive edge in most organizations, insiders are most appropriate Map makers. Team membership has to be varied, preferably a team derived from various departments for instance in NHs. In this team, information professional(s) or librarian(s) representatives are paramount. Because of their background in information management and organization, they are valuable members in knowledge mapping and knowledge management in their institutions.

Role of Library in Knowledge Mapping and Knowledge Management

Academic libraries are an important part of IHL. Libraries, therefore ought to be part of organization's knowledge mapping as most knowledge operations are undertaken by information professionals. The core of libraries is to create, repackage and disseminate information; therefore information professionals are better placed to lead the process of an institutions knowledge management. They can bridge the gap between information creators and those who need the information or knowledge. Mavodza and Ngulube (2011) stated that knowledge management (KM) is viewed as having the potential to make libraries more

pertinent to their parent organizations and their users by being involved in production, acquisition, organization, storage, transfer, sharing and retention of knowledge. Hence, libraries are key players in knowledge mapping and management.

Jain (2007) observed that academics do not have time to disseminate information and knowledge they create or even share it with those who need it. The information professional/librarian comes into plays for intermediary role of linking information/ knowledge to those who need it. Hayes (2004) indicated that librarians as part of a team of faculty, students, technologists and learning and teaching specialists can create new service models in a knowledge management environment. He further states that librarians can organize information resources to satisfy their user needs. This new role is an important step in an information/ librarian's status which is now transformed from being service oriented to value-oriented. Academic libraries should, therefore, provide leadership in KM in IHLs. In addition, Dhamdhere (2015) stated that libraries can also monitor knowledge management efforts in their institution.

Daland (2016) in a study on managing knowledge in academic libraries, aimed at giving an overview on how KM may be applied in academic libraries. He opined that much of the literature available on KM in libraries focused more on the management of information and knowledge towards library users. Information professionals may not be involved in KM of the entire organization which calls for their inclusion.

A critical review of literature found limited visible studies on KM in HEIs. This finding indicate low uptake of KM or limited understanding of KM to interrogate through research. Similarly, knowledge mapping studies in HEIs in Kenya could not be traced. Ogola (2012) in a study of KM practices in university libraries felt that libraries lacked well planned and documented

approach to managing knowledge of their parent organization and that application of KM in libraries was still in its infancy. Kimile (2012) investigated KM practices at Moi University. The findings concur with those of Ogola (2012) that there are various aspects of KM that were not well coordinated as they lacked a strategic approach.

This makes libraries inadequate in taking part in the parent organizations knowledge mapping and KM. It is time for libraries to adjust to their changing roles. A study by Maingi (2007) on KM readiness revealed that Nairobi University was ready to implement KM. However, no visible study has been done to determine the extent of University of Nairobi success in the implementations of KM or even knowledge mapping.

Challenges of Knowledge Management in HEIs

There is scanty visible literature on challenges of KM in HEIs. However, the following can be identified:

Dhamdhere (2015) indicated that despite the benefits that knowledge management practices have for IHLs, there is lack of its awareness and development by those in authorities or top leadership. He suggests the creation of a knowledge sharing culture amongst staff and students. He further states that there is lack of utilization of ICT and development of advanced skills in teaching professionals that help in contributing, communicating, capturing, recording and sharing knowledge. He also suggests development of suitable policies that guide information and knowledge capturing and sharing. In corroboration to these observations, a study done in Mauritius HEI's to establish knowledge management practices exposed barriers to knowledge management as lack of policies and appropriate reward mechanisms, resources, data, funding and time for research, coupled with frequent leadership changes, lack of a

knowledge-sharing culture, research repositories and weak industry-academia linkages (Ko et al., 2005; Adhikari, 2010; Veer Ramjeawon & Jenny Rowley, 2017).

KM is important in any organization, however, accessibility of knowledge poses a challenge, especially, tacit knowledge which is in the head of the owner. This calls for HEI to create opportunities for sharing tacit knowledge such as seminars, workshops, conferences, Communities of Practice (CoPs) etc in addition to online knowledge sharing tools. However, staff have to be motivated either intrinsically or extrinsically in order to share their knowledge. This provides an opportunity to capture tacit knowledge into explicit knowledge for sharing and reuse. Generally, the concept of KM is yet to be understood and conceptualized by most organizations in Kenya. Therefore, KM has to be understood and embraced to improve the overall performance of the organization and to give it a competitive edge.

Conclusion

Knowledge management and knowledge mapping are challenging tasks in any organization. KM is significant in ensuring identification, creation, sharing, and re-use of knowledge for an organization. It is important to understand KM concept in order to develop a strategic approach to its implementation. Notwithstanding, there are traces KM in HEIs in Kenya although they are not well coordinated. It is crucial to have a strategic approach to KM in order to accrue maximum benefits and gain a competitive edge in knowledge economy. Libraries, therefore, ought to provide leadership and become epicentres of KM in HEIs.

Recommendations

The current scenario of knowledge mapping and management in IHLs in Kenya can be enhanced by the following recommendations:

- Efforts should be made to ensure that top management in HEIs clearly understands the concept of KM. This will inform development and implementation of a KM strategies for systematic organizational development.
- HEIs should create and foster a knowledge sharing culture in institutions to ensure knowledge flows throughout the organization.
- Communities of Practice (CoPs) should be nurtured and cultivated to ensure that knowledge is converted from individual to group and entire organization as it facilitates the creation of new knowledge, innovativeness, and creativity.
- Develop a reward system, both intrinsic and extrinsic, to motivate staff to share their knowledge for the entire organization's advantage.
- Efforts should be made to train librarians and other departments of their shared roles in ensuring that knowledge mapping and knowledge management in the institution is effective.

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Massive Open Online Courses (Moocs): Retooling Practice for Academic Librarians in 21St Century.

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Abstract

Staff retooling practice is synonymous with continuous professional development. Academic librarians endear themselves to changes in information landscape through retooling by striving to maintain and enhance competencies and new skills to continue offering quality information services. Technology and globalization have played a major role in access to higher education. Education is expensive and time-consuming and the returns are not guaranteed. The cost of education is a challenge to information professionals who would like to pursue further education. MOOCs are recent trends in education which offers free higher education courses open for enrollment for any online user. Due to competitiveness in the world today, continuous learning holds key to overcoming challenges in the changing information landscape. Retooling ensures academic librarians are abreast with changing technology and effectively managing patrons in the 21st century. The data collection methodology was desktop research through critical review of existing data on MOOCs. The paper delved into discussing MOOCs evolvement over time; MOOC structure; different categories of MOOCs, reasons for MOOC enrollment, MOOCs as retooling practice; retooling practices for information professionals; opportunities for information professionals and free MOOCs trainings available for information professionals.

Keywords: Accessibility, Massive Open Online Course, Retooling, Integration, Salability.

Introduction

The Internet has revolutionized and democratized education, by making accumulated knowledge of mankind available to everybody. Many educational institutions over the last decade have begun offering the course via web in various formats. Technology has enriched learning environment with use of digital media and its integration into formal learning contexts causing a shift towards personalized learning. A new breed of online course has emerged: Massive Open Online Courses (MOOCs), (Hoy, 2014). The European Association of Distance Teaching Universities (EADTU) defines MOOCs as "online courses designed for large numbers of participants, accessible anywhere by Internet, open to everyone without entry qualifications and offer a full/course experience online for free". A commonly agreed definition of MOOCs is online courses designed for large numbers of participants, accessible by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free.

Massive Open Online Courses (MOOCs) is a term or word related to scalability of open and online education. According to Jansen & Schuwer, (2015) MOOCs are courses designed for multiple participants, that can be accessed by many people as long as they have an internet connection. They are open to everyone without entry qualifications and offer a full/complete course experience online for free. They further argue that it is designed for a large number of participants. "Open" denotes that the course can be accessed by anyone anywhere as long as they have an internet connection. Online, therefore, underscores the fact that the course is completely offered on the web. Course implies that it's a unit of study.

Two distinguishing features of a MOOC are that there is no course fee imposed on learners (though a fee is often charged when a MOOC is offered with certificates) and its scability. MOOCs can be offered as courses of study not programs to learners (Muñoz et al., 2016).

MOOCs Evolution

The term 'MOOC' was originally expressed by Dave Cormier (University of Prince Edward Island, Canada) in 2008. It was based on connectivist pedagogical principles of learning socially from others within distributed networks. They were loose in structure and built around interaction. Participatory web 2.0 culture and an increasing use of, and competency with, digital tools had provided an environment for open model to thrive (Siemens & Downes, 2013).

MOOCs evolved from the open educational resources (OER) movement as a way to connect open access digital materials to networks of learners and a continuation in the development of distance education (Honeychurch & Draper, 2013).

Chen (2013) observed that MOOCs can be traced back to distance learning when, though underprivileged such as living in the remote area, people can still have a chance to be educated. From radio, television broadcast to the present-day Internet featuring RSS feeds, blog posts, web application for online courses such as Moodle, getting educated in a flexible way at the learners own pace. i.e, it is internet technology in cooperation with the spirit of open learning.

There are at least four main MOOC portals, or platforms: Coursera, edX, and Futurelearn (Chen, 2013). Coursera is a for-profit company, founded by Stanford University professors, while

edX is non-profit, founded by Harvard University and MIT, and Futurelearn is by Open University in the United Kingdom and Udacity a private educational organization platform founded by Sebastian Thrun, David Stevens, and Mike Sokolsky.

Honeychurch & Draper, (2013) underscored three facts about MOOCs. These were that majority of MOOC participants already have degrees, despite there being no proven business model for a MOOC, many universities are developing courses and it is the "elite" universities who are signing up to deliver MOOCs.

In 2008 the University of Manitoba offered a course titled Connectivism and Connective Knowledge, in which Professors Stephen Downes and George Siemens explored the process of student learning through shared open resources and networked experiences using a variety of social media tools. Two thousand, three hundred students joined the course for free, making the connectivist learning network sought by instructors possible. It was during this course that such large, open online courses where students engaged in connectivist learning became known as Massive Open Online Courses, or MOOCs (Mune, 2015).

MOOC structure

Most MOOCs are similar to traditional higher education courses in structure, with courses lasting from between 4-10 weeks. Learners sign up for a course which begins on a given date and lessons are made available each week, with learners working approximately 2-6 hours a week in their own time, watching "podcasts" (typically videos broken into small chunks of about 10 minutes), reading recommended materials and taking a quiz at the end of the week. MOOC forums are the main methods students interact with content, each other, and course teams.

Forums are divided into threads including general discussion, subject-specific discussion, course feedback and technical feedback. Assessment can be based on automatically-graded multiple choice questions and learners who complete a course may be awarded a certificate.

Different MOOCs Categorizations

There are three broad learning theories according to Siemens (2014): **Behaviourism**, **cognitivism,** and **constructivism** most often utilized in the creation of instructional environments. Siemens (2014) also highlighted some significant trends in learning. These include:

(i) Move into a variety of different and possibly unrelated fields;
(ii) Increasing significance of informal learning;
(iii) Recognition of learning as a continuous process;
(iv) Increasing attention to knowledge management (creating a link between individual and organisational learning); and
(v) Understanding of where to find knowledge becoming as important as know-how and know-what.

Early MOOCs type also referred to as cMOOCs are based on the principles of connectivist educational pedagogy which focuses on power of networking and connecting with other individuals and sharing varied opinions from all around the world. Learners use digital platforms such as blogs, wikis, and social media platforms to make connections with content and learning communities to create and construct knowledge.

Chamberlin & Parish (2011) underscored this idea by stating that usually all the work (readings, discussions, repurposing of materials and more) in a course is shared with everyone else. The more engaged the learner is in a course, the more he will learn. cMOOCs offer networked content, where participants

are encouraged to organize themselves and make progress in a collective constructivist manner (Barcena, Martin-Monje, & Read, 2015). Learners are able to build their own networks via blogs, wikis, google groups, twitter, facebook and other social networking tools outside the learning platform without any restrictions from the teachers (Yousef, Chatti, Danoyan, Thus, & Schroeder, 2015). Participants in cMOOCs take dual roles as both facilitators as well as learners, as they share views and opinions with each other, hence learning is engaged through experiences and discussions.

A slightly different format of MOOC termed as xMOOC, is based on a more traditional classroom structure where pre-recorded video lectures with quizzes, tests, or other form of assessments are incorporated. xMOOC is centred on the facilitator instead of learners' community. Pre-recorded video lectures and scalable form of assessments are provided to learners who can interact with a single platform rather than creating and/or sharing distributed content on the Web outside the platform. Many xMOOCs substitute video lectures for the traditional lecture format and provide automated exercises and quizzes along with opportunities to interact with fellow students and course instructor using discussion boards or chat functions (Porter & Beale, 2015). xMOOCs are largely offered by MOOC providers such as Coursera and Udacity. These MOOCs are intended for large-scale course delivery (Porter & Beale, 2015). Other well-known providers of xMOOCs are Open edX, Open2Study, Diversity and Swayam. In Malaysia, a popular MOOC platform provider is OpenLearning.

There are also hybrid MOOCs known as project-based MOOCs or MOOCs (Holotescu & Grosseck, 2016) which the European Union has launched. Canada offers MOOCs whereby local open

online courses to attract a large number of students to courses structured around locally relevant subjects (Porter & Beale, 2015).

Reasons for MOOC Enrollment

The majority of learners in MOOCs at present are highly educated people wanting to learn new things. People sign up for MOOCs for a wide variety of reasons. Honeychurch & Draper, (2013) observed the following reasons for enrollment:

- Lifelong learning.
- Addicted to learning.
- Brush up on subject knowledge.
- Want to find out if a subject is right before enrolling in formal education.
- Find out if there are any useful hints for one's own teaching.
- Find out what MOOCs are like.
- Getting a certificate.
- Career enhancement/CPD.
- No local resources.

MOOCs for Retooling and Training

The world is becoming very competitive every single day, what was excellent previously may be ordinary currently. To stay abreast one must keep on investing in learning, unlearning and re-learning. Staff retooling practices involve continuous lifelong education and training in new skills to accommodate modern and latest technologies in library operations. The use of technology requires a significant investment in time, money, and training of both staff and patrons. As a career enhancement or continuous personal development, MOOCs offers information professionals; an avenue for retooling. Gbaje & Ukachi (2011)

stated that evolution of information technology requires staff skills and competencies to be continually upgraded and maintained through training and retooling to make the best out of technology. The academic libraries have not been left behind in embracing the use of technology to better their services. Training is the cornerstone of any effort to retool academic librarians to meet the opportunities and challenges of the digital working environment. Organizations need the training to survive in the ever-changing world of information. Libraries require to change to serve the changing needs of users; that means changing staff skill sets and changing services in effectively meeting how clients use information resources (Leon, 2011).

Librarians with unique skills, talents, abilities, and knowledge in relation to organization and description of information services are needed in the new information environment. It is the responsibility of both library administrators and technical services staff to work together to evolve and redesign workflows, standards, procedures, and ensure their survival and success in changing environment (Eden, 2010). Increasingly, electronic collections, open access, digital archives management, and data curation are taking the place of past library activities, as more simple or standardized tasks are automated.

Training is the cornerstone of any effort to retool library staff to meet opportunities and challenges of a digital work environment. Gbaje and Ukachi, (2011) posited that training can take many forms, and each library should use the mix of training strategies that best meet their needs. The training methods include: In-house training program, outside training opportunities; self-paced training; workshops and seminars and library schools.

Ugwuanyi and Ejikeme, (2011) argues that for African University

Libraries to flourish in digital and changing information environment, they must embrace staff training to initiate and manage digital resources. They further suggest that training should be addressed both through education and continuing education of staff. MOOCs also open floods of opportunities to informational professionals, who have financial challenges to continue with formal education.

Retooling Practices for Academic Librarians

In a study conducted in Kenya on selected private universities on retooling practices Gitau, (2016) found out that 61(94%) respondents stated that seminars were the most popular staff retooling practice, followed by conferences 48(78.4 %), workshop and undertaking a course 47(77.0 %) and 45(73.8 %) respectively, while youtube tutorials had 33(54.1%). Those that received a response of 50% and below were webinar 19(31.1 %), mentorship 28(45.9 %), coaching 21(34.4%) and the least known was Massive Open Online Courses (MOOCs) with 13(21.3%) responses. The findings inferred that academic librarians are not exploring other means of retooling which could have more benefits than traditional forms. The study also established that MOOCs were little known, indicating that information professionals have not explored it for optimization.

Librarians offer expertise in organizing and managing information, clarifying and supporting people's information needs, and enhancing people's information literacy skills. There are innumerable endeavors today in education, health, business, government, and other domains that draw heavily on information resources. One such endeavor in higher education is the recently burgeoning MOOCs (Mahraj, 2012). Many information professionals are challenged by the high cost of enrolling in formal education to acquire more knowledge and

skills and even to progress professionally. With minimal cost involved in MOOCs, information professionals have an upper hand to continue studying.

MOOCs have the potential to create unprecedented levels of access to quality higher education on a global scale, building richly diverse learning communities. Furthermore, MOOCs provide opportunities to disrupt traditional pedagogies, leveraging technology to foster creativity and collaboration while enabling research and development around best practices in online teaching and learning. There are numerous ways in which librarians can use their information expertise to enhance MOOCs and forge new roles in this evolving educational arena (Mahraj, 2012).

During MOOCs, librarians can interact directly with participants in a facilitating or coaching capacity using their skills in reference, instruction, and emerging technologies to way find, aggregate, filter, model, amplify, and stay present. In these capacities, librarians can collaborate with course instructors or facilitators as a team to support participants as they assess their own information needs, identify useful resources, and develop skills in finding, evaluating, accessing, managing, synthesizing, and using information in an online learning environment. For example, librarians can take on roles in way finding and filter to support sense-making and critical thinking by commenting on participants' blog posts that describe struggles to assess the validity of sources. Similarly, librarians can aggregate a set of posts to highlight patterns in participants' struggles with and methods for source evaluation and synthesis. They can also teach appropriate behavior around intellectual property by modeling the use of attribution in scholarly and creative work. While providing support as coaches or navigators, librarians are able

to amplify discussions around topics such as critical appraisal, personal knowledge management and intellectual property.

Opportunities for Academic Librarians using MOOCs for Retooling

Massive Open Online Courses (MOOCs) have offered countless online learners the opportunity to learn new skills and expand their knowledge. Recently an increasing number of employers have turned to MOOCs to train their staff online and improve their bottom line. Information professionals will accrue the following benefits from using MOOCs according to (Pappas, 2015).

(a) Accessing training 24/7 basis

Rather than having to wait for a scheduled training session on-site, information professionals can access their training anywhere, and when it fits into their work schedule. Training professionals can develop new eLearning content or share MOOCs that is already online with their employees, even if they are across the globe. Best of all, it can be offered to an unlimited number of librarians, without any additional cost, as there aren't any printed learning materials or instructor costs involved. Information professionals can simply log and access MOOCs at a time when it won't conflict with their work responsibilities or personal life, which means that they will more likely get the full benefit from the online training material.

(b) Boosts employee productivity

When information professionals build new skills, develop existing skill sets, and gather new knowledge about products and services, it boosts their on-the-job productivity. Librarians also gain the information and professional development they need. Ultimately, MOOCs for retooling give organizations the chance

to streamline work processes and ensure that every employee is a valuable member of the team.

(c) Improves employee retention rates.

Informational professionals are equipped with skills that help them carry out daily work duties. i.e, they are more likely to remain longer with the organization. MOOCs enhance professional growth by expanding and understanding work processes. This means increased confidence and self-esteem**,** which provides librarians with power to handle challenges they might encounter while on-the-job and give them a sense of personal satisfaction with their performance.

(d) Ensures that employees are up-to-date with skills and professional knowledge

Continual training offers information professionals the ability to further develop their skills and expand their professional knowledge. As information landscape changes, company policies, and product specifications typically change over time. informational professionals, therefore gain access to new online training courses and modules on a regular basis. They can further log on to MOOCs and access a wealth of information, even if, they have not been prompted to do so. They also have an opportunity to fine-tune skills or learn about new topics within their niche in order to stay up-to-date with industry trends or new ideas that might benefit them at work.

(e) Address real-world challenges to improve on-the-job performance

MOOCs can be customized. Organizations can alter or add content to MOOCs to address challenges or issues that employees may be facing on a daily basis. Information professionals can also participate in branching scenarios, watch

video presentations, and read case studies that help them learn how to navigate situations that they typically encounter, while at work. Information professionals can overcome also challenges of program installation and learn without any risks involved.

Free MOOCs Training Suggested for Information Professionals

MOOCs offer a wide range of benefits but due to the broad range of courses available today, finding the right ones for skill set development can often be a time consuming and frustrating task. Some of the top MOOCs for information professionals that are considerable (Chen, Barnett, & Stephens, 2013) include:

(a) Management for a competitve edge offered by International College of Management, Sydney

The course focuses on key traits of an effective manager and how to perform in different organizational settings, including those that may involve a variety of different corporate cultures. Information professionals manage several institutions; libraries, archives, museums, registries and broadcast houses. The MOOC also delves into management strategies and tools that managers can use to fine-tune their management skills, build blocks of leadership, enhance team environment, and communicate effectively.

(b) Communication in the 21st Century workplace offered by University of California, Irvine

This course is suited for information professionals, as it teaches them how to effectively use both verbal and nonverbal communication at the workplace. Communication in the 21st century workplace gives employees the interpersonal skills and awareness they need to communicate with colleagues of every

gender, age, and culture. Some of the key areas of concentration include behavioral patterns, verbal and nonverbal cues, tact, anger management, constructive feedback, conflict resolution, leadership, and use of technological tools to communicate.This is becaue patrons of the 21st century have changed and dealing with them requires effective communication.

(c) Customer service training (Connexions)

The key to success for service industry is great customer service. Information professionals deal with customers of all kinds and therefore customer training is key. In this course, information professionals learn the fundamentals of customer care, how to improve customer service skills, and which customer service techniques are most effective. Customer service training also deals with basic processes of customer care, such as handling complaints, querries, and communicating with customers. Once information professionals have finished their training, they will be well equiped to take a customer-friendly approach to customer complaints and queries, and how the techniques they have learned will benefit them and their institutions, as a whole.

(d) Decision Skills: Power tools to build life (Decision Education Foundation)

Regardless of the institutions in which they work, their professional goals, or basic job responsibilities, every information professional must make decisions regularly. This course gives them the knowledge and tools they need to make better decisions in their lives, both personally and professionally. It gives them confidence to make choices that lead to more positive outcomes, and equips them with tools required to handle conflicts and everyday challenges, as well as “decision traps”, conflict resolution and team dynamics.

(e) Introduction to time management (Global Text Project)

Every informational professional need to know how to manage his/her time effectively, no matter what position he/she holds, given that it leads to greater productivity. This MOOC course gives information professionals the skills and tools they need to develop an effective work routine and provides advice and suggestions on how they can prioritize during a typical work day. Introduction to time management is a good choice for those who may have difficulty making the most of their time at work, or need help with their organizational skills.

(f) Diploma in workplace safety & health (Advanced Learning)

The course provides information professionals with the information they need to ensure their safety and that of their colleagues, while working. Some of the topics covered in the course include: behavior-based safety (which is custom tailored for supervisors and managers), workstation ergonomics, maintaining a drug-free workplace, risk analysis, hazard identification, safety training, best practice for implementing corporate safety programs, and back safety (for employees who may have to lift heavy objects throughout the course of their work day).

Conclusion

MOOCs offer several benefits to informational professionals as a retooling practice. As information landscape is changing so are needs of 21st century patrons. As a retooling practice, MOOCs enhances informational professionals to acquire skills to effectively serve in the dynamic information world. The following are the benefits of MOOC to information professionals; accessing the learning 24/7 basis, boosting productivity at work, improving work retention, ensuring up-to-date skills and

knowledge, and addressing real challenges on job performance. Free courses, information professionals can register are: management for a competitive edge, communication in the 21st century workplace, customer service training, decision skills tools power to make your life, introduction to time management and diploma in work place safety and health.

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User Behavior in Academic Libraries in the 21St Century: A Kenyan Perspective

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Abstract

A library user is an indispensable component of any academic library. Although libraries provide quiet and well-equipped places for users to seek access and use information, there seems to exist a global trend decline in the number of patrons using physical libraries. In contrast, there is an unequivocal increase in the use of remotely accessed research databases. Ranganathan (1931) first principle of "books are for use", in this digital era, could be interpreted to mean that all information resources are for use regardless of whether they are in print or electronic format. This principle is further supported by Antrim, (2003) who states that given the changing patterns of use, librarians will have no option, but discard old traditions, adapt new circumstances, and become more proactive to overcome the unprecedented negative effects of disintermediation to varied information users. However, the absence of users in the library building could imply fewer library users receive expert human-mediated interaction and lost opportunities for instruction in an educational environment. This paper examines the changing user behavior in academic libraries in Kenya, with a view to providing recommendations on the mechanisms that can be adapted to adequately address them. The research seeks to establish the causes for change in user behavior; mechanisms that academic libraries have put in place to effectively manage changing information seeking behaviors of users; and challenges that are experienced in adjusting services to user behaviors. Data was collected through a comprehensive review and analysis of relevant existing literature. The study, if used, is expected to assist librarians in academic libraries to come up with ways of embracing technology in managing changing user behaviors, while maintaining relevance in providing informtion assistance.

Keywords: User Behaviour, Academic Libraries, Information.

Introduction

A library user is the main reason why libraries exist, because the information resources available are intended for their use. New information technology, especially the internet, has spawned the information revolution with the communication and transfer of information as text, images, audio or video being transmitted rapidly and inexpensively around the world. Many university libraries around the world, especially in developed countries, have taken advantage of these developments and responded appropriately to exploit the opportunities offered by the new information technology (Mutula, 2000).

In "Delivering digital reference", Kawakami reports that many libraries experience the greatest use of digital reference services between 10:00 a.m. - 4:00 p.m., with the heaviest traffic occurring around 12:00p.m -1:00 p.m (Kawakami, 2002).

As observed by researchers, library users are undoubtedly changing every other time, due to rapid change in technology and their increasing knowhow. Regardless of the changes, librarians should play a pivotal role as facilitators to information access. This means that they should always be alert and on their toes to recognize changes in user behavior and come up with ways of ensuring they play their part in facilitating access to information.

User Behavior in Context

A large-scale evaluation study was implemented at the libraries of the University of Education, Winneba (UEW), Ghana. The goal of the study was to examine the reference service from user perspective and to understand library users' use/non-use of the service as well as their perception of different aspects of the service. The user perspective is crucial in assessing how effective and successful the reference service is, because, the

service mission is to help fulfill library users' information needs, and therefore, it is imperative to understand how users are using and perceiving the service (Buer, 2015). Three evaluands may be posited within the time span of a user's use of a reference service:

(1) User's motivation for using the service;
(2) User's perception of the service; and
(3) How the user uses the information provided by the service (Pomerantz and Luo, 2006).

Chronological Development of User Behavior

As the universe of information is expanding and changing at an unprecedented pace, in the library and beyond, librarians have been developing services in support of teaching, arguing that instructors would benefit from their own expertise in helping students become better at using and creating information. Yet surveys suggest that history faculty may not value this role as much as librarians do. We would argue that the communication gap between them, leads both historians and librarians to underestimate the contributions that each can make to the enterprise of shaping teaching and learning practices in the digital age.

Current systems in libraries fall short when the user experience that they provide is compared with that of popular services on the web. However, libraries are better equipped to satisfy user needs when it comes to other criteria, such as quality and relevance of their collections, rich metadata they offer for accurate searching, services they can tailor for their users, and control over the overall workflow, terminology, and look and feel of their application. By leveraging their unique qualities and providing a better user experience, libraries are likely to offer discovery and delivery services that will best suit the users' expectations and needs (Sadeh, 2008).

With the advent of the web and the multiplication of electronic resources in the 1980s, librarians were also divided between fears of the library's demise and enthusiasm about the future electronic library. Some warned that, if people could access the information they needed on their own online through search engines, librarian's role as an intermediary would no longer be valued, yet such early fears gave way in the 1990s to a commitment in redefining the library in the digital age. Librarians now deal with an ever-growing variety of electronic formats and content, which are essential to keeping libraries up-to-date (Daniel, 2012). At the same time, they do their best to meet users' rising expectation of an easy, seamless, immediate access to library resources. Above all, reacting to the decline of their role as intermediaries between patrons and their collections, librarians have increasingly emphasized personal services such as instruction and research consultations. They have realized that person-to-person services could not be replicated, much less replaced by machine interfaces.

Each patron may have a preference for style of interaction with librarians and collections, however, most patrons use a combination of in-person and electronic means to optimize their access to library resources and services. Regardless of whether a patron walks in through the library's front door or surfs in through the library's web portal, every user has information needs as well as expectations of receiving help, while meeting those needs (Bejune and Kinkus, 2006).

In the OCLC report quoted in, Nzivo (2012) findings applicable to Kenya National Library Services (KNLS) on services and information resources are that 89 per cent of participants begin their information search from electronic resources whilst this research reveals 48.2 per cent of KNLS adult user respondents

start the information search from library books (De Rosa et al., 2005).

At South Eastern Kenya University (SEKU) library, inquiries on how to access electronic resources increased after continuous information literacy training and interaction with users through social media, particularly, facebook. Having noted that most of the actual and potential users are found on social media, SEKU library established a library facebook page. Information targeted at reaching users has since been posted on the page and the response is impressive. It is also suffice to note that most users confirmed to have known about information literacy classes through the University library's facebook page. This is a clear sign that users would like to interact on platforms where they like most. This is a clear shift from the traditional interaction through the physical reference services to meeting library users right where they are. By so doing, the library still maintains its relevance, hence being at par with the changing user behavior.

Information Seeking a Process

Although reasons for people going to the library may be changing from going to pick a book to engaging with classmates and professors in discussions, the view of the University library as a specifically dedicated space for learning and education, still holds. This shows how physical libraries will remain relevant in the digital age (Graham, Graham, & Childs, 2016).

Library users in Greece prefer using physical services in comparison to electronic ones. This might imply that the services are not well informed about electronic services or that the services are not well integrated into the curricula. Users also seem to prefer features that have an immediate effect on their daily interaction. In their view, an ideal library is a fathoming

environment that facilitates reading and cooperation with friendly and willing personnel and affordable fees and fine rates (Giannopoulou and Tsakonas, 2015).

Information Seeking Process Model

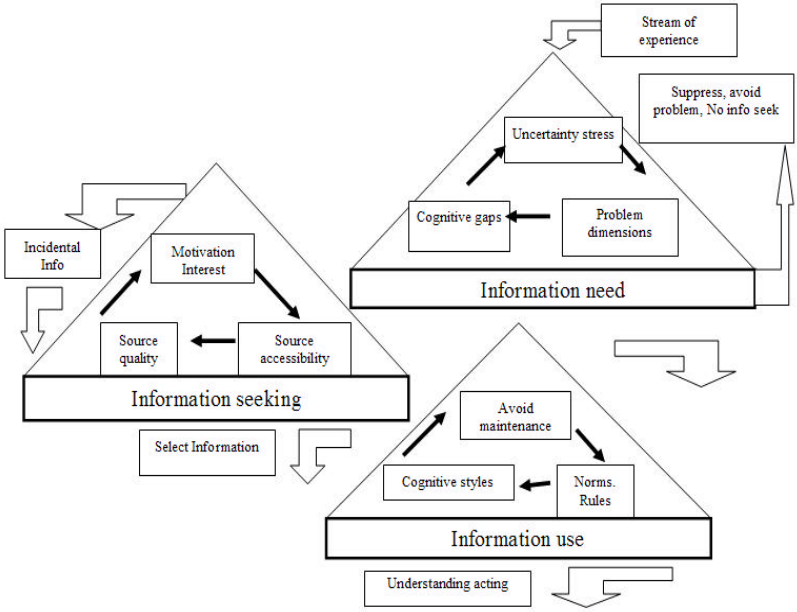

Figure 1. Choo's ISP Model 2016

Although Choo's ISP Model quoted in (Loeber & Cristea, 2003) is based on the search for information on the World Wide Web (WWW), researchers view the model as applicable for searching information in a physical library. This is because, the goal of the information seeker is to get access to information desired so as to solve their head cracking information needs. The name visitor as explained in the model was therefore taken by the researcher to refer to information user/seeker.

Step one starts with a sensory or mental input that triggers the visitor's attention. If the visitor decides not to ignore it and is

not able to solve it by performing an internal search, then it will transform into an information need plus a functional, symbolic or hedonistic need of social or non-social nature. When the visitor feels such need(s), she experiences an inner state of tension caused by a (perceived) distance from an ideal or desired physical or mental state. The visitor attempts to regain a sense of equilibrium by conceptualizing some goal supported by task(s) in order to make her information needs clear, feasible and fulfill them.

During the second step, the visitor will seek information on the WWW. This typically consists of looking for texts, pictures, videos, sounds, etc. for which the visitor browses or searches on the website.

Step three starts when the visitor has completed the browsing and/or search task(s). In the ideal case, the visitor has found what she was looking for. Once accessed, information can be used to satisfy perceived need. For example, the visitor reads an article on health issues to stay well informed (information + functional needs), buys a bigger car to show off when meeting peers (information + symbolic needs) or tries a recipe for that delicious looking cake (information + hedonistic needs).

Changes in User Behavior

Users clearly prefer familiar and easy-to-learn discovery interfaces. The typical searcher relies on the internet to find many types of content – not just scholarly information – and to accomplish many everyday tasks; hence, such users expect scholarly interfaces to provide an experience similar to the interfaces with which they are most familiar (Sadeh, 2008).

In an OCLC survey, more than 65 percent of the students polled reported that they learn about new information resources from

a friend; 50 percent learn from a teacher, 36 percent from the library's website, and 33 percent from a librarian (OCLC, 2006).

The process of scholarly discovery and delivery is not yet sufficiently integrated with other user spaces to enable users to access such services when they need them – for example, when they are working through a course management system, looking at their web-based workspaces such as Facebook or accounts, and browsing through the collection of an internet bookstore. Users expect an engaging and gratifying process. The various services offered on the web provide an interaction that is user-centric, friendly, and reassuring and users rarely encounter a situation in which no item is presented to them. Most library systems do not yet offer their users a similar experience (Sadeh, 2008).

As noted by the researchers, at South Eastern Kenya University, library patrons prefer to access electronic information resources whether within the library or even when it is closed. This was noted during information literacy classes where both lecturers and students sought to know whether the electronic resources subscribed to are available when the library is closed. Some of the patrons sought to know whether the resources could be accessed from their smart phones. This is a clear indication of the shift by users from using print resources to electronic resources beyond library opening hours. In response to this need, the University provides off-campus access to electronic resources and responses to queries through social media platforms such as face book and twitter.

Adopting to User needs by Information Professionals

In the context of the knowledge economy in the twenty-first century, the library's function as a place for discourse, peer

collaboration, social learning, and particularly inspiration through and learning from people that are different in many aspects, is more important than ever before (Foth, 2013).

Literacy in the 21st century requires a different set of knowledge and skills compared to literacy in the previous century. In today's knowledge economy, core skills include creativity, interdisciplinary thinking, problem-solving, and the ability to collaborate with others – skills that cannot be learned easily from books, but through learning-by-doing and social interaction. Libraries, as facilitators of education and learning, have been challenged to reshape their approaches to meeting these changing needs (Bilandzic and Foth, 2013).

In the age of abundance, filtering out irrelevant and unwanted resources requires not only technical search skills, but critical thinking skills. In addition, these new technologies change at a faster rate than ever before, thus making the ability to learn how to learn even more important to sound research. It is therefore critical that students simultaneously build their search and critical thinking skills so that they can be introduced progressively to the range of sources and activities that make up the research process (Daniel, 2012).

The development of shared services and shared space is a key trend. Librariess need to position themselves within their institutions as a vital service, to make sure that these shared services are implemented sensitively and appropriately so that the library remains the most important part of these shared services (Graham, Graham, & Childs, 2016).

At Kenyatta University Library, Digital School students access information materials through tablets, which are also used for

interaction between lecturers and students. This is a new trend that librarians can effectively use to disseminate information regardless of mode, distance and time. Librarians should, therefore, brace themselves with skills necessary to interact in the digital environment and provide relevant and timely information.

Changing User Behavior Adoption Challenges faced by Information Professionals

Regardless of location or mode of communication, librarians need the opportunity to guide and instruct information seekers, especially those who are just entering higher education and may be unaware of the library resources available to them, Gorman quoted in Antrim (2003).

The most popular social media in Kenya's libraries is Facebook which is followed by Twitter, RSS, Slide Share, YouTube, Flicker, and Blog in that order. This trend seems to follow the general adoption of these tools for information use. While some libraries have social media accounts, some are dormant. Similarly, in some cases, especially in public libraries, social media is not used for library purposes, Mutula quoted in (Wasike, 2013).

Libraries may be limited in their ability to provide seamless access to e-books due to licensing constraints, but there are some simple measures libraries can take to make the user experience more accommodating. One such measure would be to allow circulation of materials held in off-site storage. Libraries should also not restrict delivery of off-site storage to main library but also deliver user's branch of choice (Rabina and Peet, 2014).

In agreement with Gorman quoted in Antrim (2003) researchers are of opinion that emphasis should be made in training academic library users in detail as they join institutions of higher learning. This is because, if they are not introduced to available information

sources early, they may be lost not knowing where and how to get the information available in the library for research.

According to Agee and Antrim (2003) some students may phone the reference desk or query with an instant message or e-mail, but what of uncountable students who do not? Instead of seeking help during their information search, many young undergraduates just give up and get contented with easily attainable information. Librarians, therefore, have a task of coming up with ways of disseminating various information sources to information seekers who may not necessarily walk up to the inquiry desk despite, their information needs not having been met satisfactorily.

Research surrounding library e-book and audio book use has primarily been concerned with issues of discoverability and recently begun to seriously examine questions of usability. Additionally, a majority of studies have been concerned with adaptation of e-books in academic settings, as publisher redtape have delayed their widespread use in public libraries (Rabina and Peet, 2014).

Strathmore University gives an opportunity for users to suggest books for library use through user accounts. This is a service that has been traditionally done through circulating request sheets to library users and departments in the university. Catholic University of Eastern Africa (CUEA), on the other hand has provided a portal through which library users can make direct overdue payments, hence making it easy for patrons, as payment can be done 24/7. Furthermore, both services are made available through the library website which acts as a marketing tool and a means of informing library users about library resources and services.

Technology Trends

As the twenty-first century unfolds, technology is undoubtedly taking its toll. This means that embracing it is the only way to cope and respond to resulting changes in user behavior. Certain trends have already begun to take shape and are likely to continue, because technological advancements are inevitable.

Graham, Graham, & Childs (2016) have pointed out the following emerging trends:

- Increased use of mobile and other technology.
- Reduction in digital divide due to digitization of resources.
- Student population likely to be more demanding.
- Continued symbolic importance of libraries.
- Decline in physical resources.
- Variety of importance of alternative (non-library) space.

As observed at South Eastern Kenya University, library patrons use their smart phones to search for information resources in the virtual library. The use of Wi-Fi has also made social media interaction with library users, where they either make comments on posts or library's website page. This makes engaging with users easy and regular updates where they are mostly found. The use of social media cuts across all ages both young and old generation. This means that more changes would be expected as library patrons become more computer literate and internet savvy.

As people around the world become more empowered and comfortable in gaining access to information, library and information associations have been forced to think ahead to ensure that their members are anticipating the needs of their organizations, as well as the organization's users' needs Lachance, quoted in Hussain (2015).

Conclusion

Library patrons seek for a combination of physical and electronic information sources, while doing their research. However, Library users need continuous education on how to identify and utilize relevant and up to date information from the overflow of information available in print and electronic format. In the digital age, the only way to maximize electronic resource use and interact well in the electronic environment is to acquire the appropriate skills. This can become a reality through continuous information literacy training carried out by competent information professionals.

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Access and Use of Scientific Information by Users at Africa International University, Kenya

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Abstract

Africa International University (AIU) library subscribes to both print and electronic resources with the aim of providing library users with a variety of information resources to access and use in teaching, learning and research. The information and knowledge society of today is characterized by the developments and opportunities that ICTs present. Information users receive training in accessing and using of resources through information literacy program. However, there is a decline in the number of patrons accessing and using scientific information resources. The aim of this paper was to investigate access and use of scientific information by users at AIU and suggest strategies for improvement. The objectives of the study were to: identify scientific information resources available for users; examine channels used in accessing scientific information resources; investigate challenges experienced by users in accessing scientific information; and suggest appropriate strategies to improve access and use of scientific information. The study was informed by two theoretical frameworks: information search process and information behavior models by Kuhlthau (2004) and Niedzwiedzka (2003) respectfully. The population of the study comprised lecturers, students, and staff. The researcher adopted qualitative research approach. The study used a stratified random sampling technique to get a sample size of 90 users, who constituted 20% of the target population. Data were collected using face-to-face interviews and an analysis was done using descriptive statistics and content analysis. Tables and percentages were used make presentation and analysis of findings. The study established that most of the users were aware of the existence of scientific information at AIU, but they lacked adequate skills to access and use. The research findings are key to library administrators in making decisions regarding access and use of information and policy formulation.

Keywords: Information Access, Information Use, Scientific Data.

Background of the Study

A university by its nature is concerned with information, production, conveyance and creation of knowledge. Whereas access to information underpins all other activities of education, most universities in East Africa still report poor or minimal access to online resources to support the research (Ayoo, 2011). Access and use of scientific information is critical to individual development and, ultimately, development of a country. The scientific community brings science to life; it sustains the assumptions, attitudes, and techniques of science. The scientific community is a social institution of people, organizations, as well as set norms, behaviors, and attitudes that all operate together. It is a loose collection of professionals who share training, ethical principles, techniques, and career paths.

The core of scientific community comprises students who conduct studies on a full time or regular basis, usually with the help of assistants, many of whom are graduate students (Newman, 2011). He further argues that norms of scientific community differ from those of other social institutions (e.g. business, government, and law) and tend to set professional studies apart. Users are open and willing to listen to new ideas, no matter how odd they may appear at first. They want other social users to read and react to their research.

In order to improve access and use of scientific information in the less economically developed countries, 2006 Inter Academy Panel (IAP) Workshop in Dakar recommended that IAP promote a better understanding of benefits and costs of different models of open availability of scientific data and information online, with particular attention to the role of such models in developing and transitional countries.

Moreover, IAP members also should examine their own policies and practices with respect to providing open availability to information resources online, as well as consider the promotion of such policies and practices with respect to other research and educational institutions in their countries and regions. To support the IAP argument, Borgman (2007) acknowledges that access and use of scientific information is connectivity to a computer network and available content, such that the technology is usable. The user should have the requisite skills and knowledge, and the content itself should be in a usable and useful form. He further acknowledged that there are many challenges to providing effective access and use of scientific data and information in the developing world, over and above the usual difficulties with basic information and communication technology (ICT) infrastructure. Although these challenges are difficult, they can be overcome through a sustained focus and joint action. In particular, there are numerous examples of proven and successful approaches that can usefully be adopted to solve most, if not all, recognized problems. For instance, different developed and developing countries have established a variety of novel and effective mechanisms to reduce barriers and promote production, access and use of digital scientific information.

Uhlir & Peter (2007) acknowledge that digitally networked open institutional repositories for scholarly literature for articles from refereed journals, as well as grey literature and other research output, are fast being recognized as a fundamental component of scientific, educational systems and broader knowledge society in many countries. Overall, different forms of open access to online information promote interdisciplinary and international research, particularly in integrating users in less economically developed countries into global research system, accelerating

scientific progress and innovation by making diverse information resources much more easily available. According to Mutula (2012) libraries are at the heart of university operations, and a citadel of research, since they play an important role in scholarship. Besides, academic libraries that provide effective access to information communication technologies are well positioned to play perceived role of providing information access and knowledge that empowers society to address social, economic and political problems facing the world in general.

Statement of the Problem

There is no lack of scientific information in Kenya, but the skills needed to search, select, evaluate and use can vary due to inadequate scientific information access and use skills. How this challenge is addressed depends on our ability to embrace new discoveries, awareness of existence of scientific information skills, and effective use of access channels which are essential for meaningful access and use of scientific information. The Government of Kenya recognizes the importance of research and its dissemination in higher education policy objectives (Government of Kenya, 2003a, 2003b, 2005). In AIU, numbers of users have grown tremendous from different discipline areas, but, low levels of awareness of the existence of scientific information and ways of optimizing accessibility have impeded progress in information access and use.

Nyamboga (2012) pointed out that SCECSAL 2012 conference's main objective was to bring together information professionals to deliberate on challenges facing African continent so far as access to scientific information is concerned. He also noted that a closer look at the challenges facing African continent reveals a clear link between problems and general lack of access and use of quality, current and relevant scientific information. It is

no secret that as long as populations in Africa have no access to scientific information, it will be very difficult to eradicate the highlighted problems. The ability to use scientific information available in the library is largely dependent on the availability of scientific information equipment with a good network that can support remote access. Schonfeld (2003) acknowledges that most special libraries spend a greater percentage of the library's budgetary allocation on scientific information. Users like doctors and engineers spend between one-quarter and one-third of their working time every week gathering and analyzing information. But they have continued to encounter problems in accessing scientific information they need.

However, it has been observed that scientific information in academic libraries is under-utilized. This study attempted to find out the reasons why students who are expected to use current scientific information materials, do not use them as expected. To do so, there was need to establish factors contributing to this problem, using the case of Africa International University (AIU) Library, Kenya, Nairobi. The subject of scientific scholarly publishing was presented against a changing global context in terms of communication technology and new dimensions of knowledge dissemination, like the open access systems, but it was established that there were problems of underutilization of such information in academic libraries. Hence, this study aimed at investigating access and use of scientific information by users at AIU and suggests strategies for improvement.

The study was guided by the following objectives:

1. Identify scientific information resources available to users at AIU.
2. Examine channels used in accessing scientific information resources.

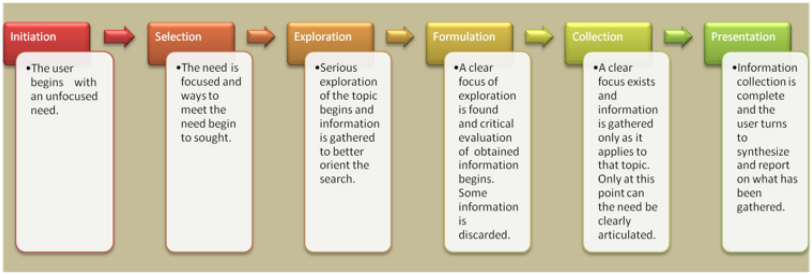
3. Establish methods used to promote and create awareness of scientific information.
4. Investigate the challenges experienced by users in accessing information and suggest appropriate strategies to improve access and use of scientific information.

Theoretical Framework

The study or writer of the report not only questions, but also ponders and develops thoughts or theories on what the possible answers could be. These thoughts and theories are then grouped together into themes that frame or structure the subject. This is what is known as a theoretical framework. It is a process of identifying a core set of connectors within a topic and showing how they fit together or are related in some way to the subject (Mugenda and Mugenda, 1999).

Kuhlthau (1993) acknowledged that it is difficult to differentiate search models from retrieval models, especially interactive information retrieval models, as well as information seeking models that involve search components and process. One of the results of the analysis that led to the diagram was the recognition that information use had received little attention and, within information science, that statement is still relatively true today.

Figure 1: Kuhlthau's Information Search Process Model (Kuhlthau, 2004)

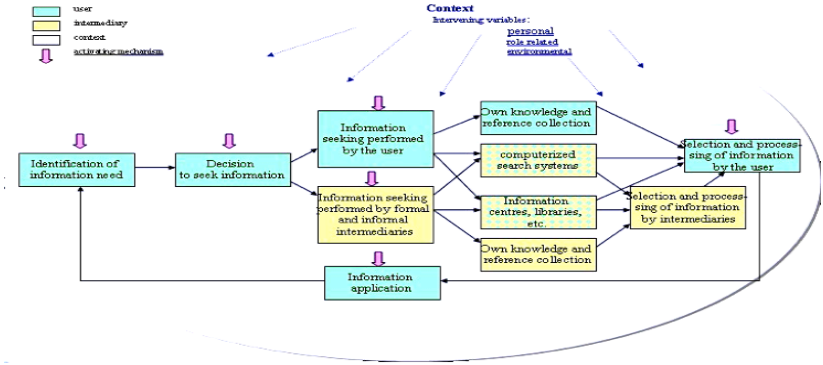


Kuhlthau's Information Search Process (ISP) Model consists

of six stages which reveal the individual information seeker's activities, thoughts, and feelings in the course of using scientific information. The stages are:

- Initiation - awareness of lack of knowledge.
- Selection – identification of a topic to research on.
- Exploration – when inconsistent or incompatible information is encountered.
- Formulation – forming a focused perspective on the problem.
- Collection – gathering information on the identified problem.
- Preservation/assessment – when a search is completed with a new understanding of the problem, enabling the user to explain his/her learning to others.

Figure 2: A new model of information behavior (Niedzwiedzka, 2003)



The proposed new model encompasses the main concepts of Wilson's model, such as person-in-context, three categories of intervening variables (individual, social and environmental), activating mechanisms, cyclic character of information behaviors, and adoption of a multi-disciplinary approach to explaining them.

However, the model introduces several changes. These include:

- Identification of 'context' with the intervening variables;
- Immersion of chain of information behavior in the 'context', to indicate that the context variables influence behavior at all stages of the process (identification of needs, looking for information, processing and using it);
- Emphasizing the fact that activating mechanisms also can occur at all stages of information acquisition process; and
- Introduction of two basic strategies of looking for information: personally and/or using various intermediaries.

Research Methodology

The study used descriptive survey design. Survey design enabled the researcher to collect in-depth information on views, opinions, practices, on access and use of scientific information awareness among university lecturers, students and staff. The design generally entailed the use of standardized questionnaire questions to investigate selected study samples, analyze and discover occurrences. The population of the study were the users of AIU library that consisted of 450 lectures, students and staff. The sample size for the study constituted 90 respondents who were sampled from 450 students, and staff with a confidence level of 95% lecturers and margin error of 7%. The study adopted probability sampling method.

The population units were first divided into groups called strata. Random sampling was also adopted to select the respondents. The study then used a questionnaire to collect data from the respondents. After the required amount of data was received from the field, it was reviewed for any inconsistencies, organized and then analyzed using Statistical Package for Social Scientist (SPSS). A quantitative approach was used to collect and analyze data. Data was interpreted and presented in form of tables.

Table 1 Study Population and Sample Size (n=90)

Groups of users	Population	Percentage	Sample size
Undergraduate students	150	33.3	35
Teaching staff	70	15.5	9
Non-teaching staff	80	17.7	11
Post graduate students	150	33.3	35
Total	**450**	**100**	**90**

Source: Field data.

(a) **Availability of scientific information materials**

Table 2: Awareness of the scientific information materials (n=90).

Awareness of the scientific information	Frequency	Percentage
No quite sure	5	5.6
Yes	85	94.4
Total	**90**	**100**

Source: Field data.

According to table 2 above, 85(94.4%) respondents indicated they were familiar or aware of scientific information materials, while 5(5.6%) respondents were not sure. This implied that respondents were in a position to give the correct answers to the inquiry. It also indicates 85(94.4%) respondents had an in-depth understanding of scientific information materials. This implied that AIU library had created enough awareness of scientific information materials.

(b) Online databases

Table 3: Awareness of online databases (n=90)

Awareness of Online databases	Frequency	Percentage
Yes	70	77.8
Not sure	12	13.3
No	8	8.9
Total	**90**	**100**

Source: Field data.

The study sought to know whether users were aware of online databases that the library subscribes to in supplementing print information resources. The results are shown in Table 3 above. From the responses, it was clear that a big percentage 20(22.2%) respondents of those who indicated *not sure* and *no idea* need to be helped by creating awareness of the online databases. Awareness would lead to increased access and use of scientific information at AIU. The study also appreciated the effort the information professionals had made in creating awareness, and this was evident by 70(77.8%) respondents who were aware of the online databases available. However, it was noted that aggressive marketing is required to enlighten the entire population on the importance of electronic resources.

(c) Promotion of library services

The researcher sought to know the users' level of awareness of the library and its services. The findings of this research, was hoped, would be used by the library management to re-engineer her services to create more awareness. The results were as follows: 30(33.3%) respondents indicated that their awareness of the library and its services were above average, while 25(27.8%) respondents rated the services as average and 20(22.2%) respondents stated the awareness and services as low.

This number made the researcher to conclude that aggressive marketing of library services need to be done. The findings indicated a need for urgent and aggressive promotion of the library services to all lecturers, students, and staff.

(d) Enhancing orientation program for the new students

The study sought to find out whether the users were oriented on efficient access and use of electronic information resources once they are registered as library users. The response was as follows: 60(66.7%) of the respondents stated that they were not given enough orientation when they were new, while other 30(33.3%) were oriented. It was hoped that this study will become an eye-opener to the librarian, to have an effective orientation program. The finding implied that university library orientation needed a revision on time that is allocated, since it was not enough. It was also noted that users wanted the orientation to be carried out throughout the semester.

(e) Accessibility of online databases

Table 4: Accessibility of e-resources (n=90)

Do you have access to e-resources?	Frequency	Percentage
No	70	77.8
Yes	20	22.2
Total	**90**	**100**

Source: Field data.

In response to the accessibility of the e-resources, respondents (77.8%) indicated that they were not able to access online databases, while 20(22.2%) were able to connect and access scientific information online. The results showed the need to enhance accessibility and use of online resources. The study recommends for more training on the channels of accessing

electronic resources within and out off university through remote access.

(f) Challenges faced by users in accessing information

The study sought to know the challenges users face at AIU when accessing and using scientific information resources. The study was based on the assumption that users may be experiencing problems in accessing and using scientific information materials. This problem stems from the fact that users rely on librarians to conduct even simple searches. The respondents gave the following explanations as challenges and possible solutions:

1. Inadequate relevant e-journals

Lack of relevant and adequate e-journals was a major challenge. The respondents stated the need to have additional core e-journals in each subject area to boost their access and use. The institution need to go beyond INASP online journals and make subscriptions to other online journal databases that have not been subscribed by KLISC consortium.

2. Multimedia laboratory

Shortage of computers was reported as a challenge to access and use of e-resources. Most of the users interviewed informed the researcher that they be provided with a library e-resource center. The library ought to establish a multimedia laboratory to enable users' access and use of e-resources effectively .

3. Computer speed

The slowness of computers in downloading articles was cited by most users. Most respondents were of the opinion that there is need for new, modern computers which could help deal with the technical problems they were facing.

4. Provide remote access

Most users were of the opinion that having remote access to e-resources from outside the institution would encourage them to access and use these e-resources. They reported that the only time they could access and use e-resources is after work, but, to their disadvantage, they cannot access these resources from their homes. Also, lecturers who teach evening classes acknowledged that remote access and use of e-resources would be the only way they could access and use e-resources effectively. They were of the opinion that remote access would enable them access e-resources using their portable Personal Digital Assistants (PDAs) or mobile cell phones.

5. User training

The users interviewed also raised concern over lack of user training. Users lacked skills in accessing scientific e-resources and carrying out online searches. They observed that the institution had not provided for information literacy training for its members of staff in the staff induction program. Librarians also stated that training should be organized in accordance with users' areas of specialization. They also expressed that some users lacked information technology skills to effectively access and use e-resources.

6. Lack of shared Internet Protocol addresses and access license.

IP address to access and use the needed e-resources was cited as a challenge. With the use of IP address, users can only access e-journals when they are within the institution compound; not remotely. Users indicated that they had personal computers at home as well as at the workplace, yet they can only access e-journals from the institutions website.

Recommendations

Based on the findings of this study, the following recommendations were put forward to improve access and use of scientific information materials.

1. Adequate scientific information resources

Library should increase print and e-resources in all subject areas. In every subject area, the librarian should ensure many titles are identified and links created for easier access. The Librarian-user service should come up with a separate e-journal databases of peer-reviewed e-resources selected by lecturers in each subject area. Lecturers should also encourage student to access and use these e-resources as part of the class reading lists.

2. Enhance accessing of scientific information resources

To enhance access and use of scientific information materials at AIU, a unified or integrated access system or channels should be developed to provide access via one password as opposed to individual passwords for each publisher's server. Librarians should come up with easy ways of access to systems, where users can access e-resources of different publishers via a central user interface instead of the current situation where a user has to log into each publisher's server differently. The most important thing for the user is to access the needed information within the shortest time possible. The searching options should enable a key word search in the entire spectrum of electronic resources available which at the moment is not possible in any access systems that were available from the library.

3. Improved marketing strategy

There is need for the library to carry out massive publicity to all users on availability and use of scientific e-resources. E-resources publicity programs should be organized in a way that results are

measurable. The findings of the study indicated that e-resources' databases have not really been fully exploited by users due to lack of awareness. The librarians should therefore, aggressively market e-journal databases. Although the study established that some marketing efforts of e-resources were being done, it is also important that the library evaluate these marketing strategies. That way, the library can spot where adjustments and, improvements can be made to enhance use. Using Web 3.0 which include Blogs, Face book, and Wiki are interactive and they make the visits to library site interesting. Finally, the impact of promotional activities needs to be measured regularly by conducting usage statistics, surveys and conducting regular assessment of user needs.

4. Enhance the institution computer speed

More high-speed computer terminals should be installed in all staff computer and higher bandwidth sought to provide faster access. The bandwidth needs to be increased since it contributes to slowing down access and use of graphics and animation incorporated in the publishers' resources. AIU should, therefore, increase its bandwidth to at least 30 Mbps from the current 20Mbps and keep raising it as the population grows.

5. Provide adequate equipment and facilities

Adequate equipment and facilities should be put in place for effective access and use of e-resources. AIU should increase networked PCs to a ratio of 1:1. If space for more computers is a problem, the institution should organize a scheme to purchase a fleet of laptop computers whereby users would be able to pay for their laptops by installments. Moreover, wireless facilities should be upgraded to accommodate the increased demand by users who use their own laptops to access and use scientific information resources.

Wireless connection with various hotspots would, to a large extent, facilitate access and use of e-resources anywhere in the compound and at 24/7 provided the user has a laptop. This will also take care of power surges and Internet connectivity interruption problems will be resolved. There is need for adequate and secure library multimedia lab for online database searches. This lab should be well equipped with computers and upgraded regularly. If possible, AIU should make it as easy as possible for on-site users to use this multimedia lab to enhance access and use of scientific e-resources.

Conclusion

The study established that the level of awareness of scientific information resources by lecturers, students and staff was considerably high. The study also established that majority of undergraduate students were not aware of scientific information materials that the university library subscribe to. The scientific information materials awareness should be done very aggressive through campaigns, posters, leaflets handouts and seminars. Librarians and lecturers should also help increase the level of awareness among students by organizing students' orientation programme in order to raise students' awareness and motivate compliance.

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Accessibility and Use of E-Resources by Faculty at Daystar University, Kenya

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Abstract

The library plays a very important role in any institution mainly because it is a source of information to students, faculty and other members of staff. The 21st century has witnessed a significant paradigm shift from reliance on paper-based to net-based electronic knowledge for educational and research purposes. With each passing day, it has become a norm that there is an increase in provision of electronic resources as well as e-learning platforms. These e-resources need to be made accessible to lecturers and students to ensure they are used effectively. This study evaluated accessibility and use of e-resources by faculty at Daystar University. The objectives of the study were: to establish accessibility and usage patterns of e-resources by faculty staff and to evaluate the relevance of the library electronic resources. The study employed a case study research design. Simple random sampling technique was used to select respondents. Questionnaires were used to collect data from respondents and they had a return rate of 83%. Data were analyzed, presented and interpreted using both quantitative and qualitative methods. The study was intended to help faculty appreciate availability of e-resources and their value in teaching and research processes as well as help the library management understand challenges faced in accessing the resources and how to mitigate them to increase effectiveness and efficiency. The study findings provides a platform for government agencies, policymakers, researchers and information science students advance knowledge in e-resources.

Keywords: Accessibility, Databases, E-resources, Faculty, Internet.

Introduction

The 21st Century learning process is characterized by significant changes in delivery of quality education that can no longer be contained just in a mere classroom. In this era of digital revolution, computers and related electronic resources continue to play a central role in education at all levels and significantly in higher education. Muthu (2014) observed that past decade alone has witnessed a significant paradigm shift from reliance on paper-based to net-based electronic knowledge for education. With each passing day, e-resources and e-learning platforms increasingly become important in all aspects, and all levels of education. The variety of e-resources used on these platforms by educational establishments in higher education is vast and versatile. Therefore, for effective learning to take place, both learners and tutors must have access to necessary learning materials and resources. They have to interact with tangible and intangible resources and institutions need to ensure some level of performance is achieved. In the academic environment, one of the most important source of information resources for learners and tutors is the library.

Muritala, (n.d.) noted that university academics are a unique population who rely on recent and timely information. Electronic resources are used more often than print resources as they have been rapidly adopted in academic spheres though behavior varies according to the discipline. He further observed that researches done globally on use of electronic resources by faculty staff, most use is for research and teaching. However, he noted that this is challenged by poor information literacy skills, lack of IT infrastructure, erratic power supply and internet access problems, especially in developing countries.

Background of the Study

The Daystar University Library seeks to promote the vision and mission of the University by providing timely access to quality and relevant information resources in a variety of media to meet research, teaching and learning needs of the University. The library is fully automated and networked, thus providing equal information access to all holdings. To achieve this objective, the library has subscribed to PERI e-resources provided through KLISC. The annual subscription fee is quite a substantial amount considering the lean budgetary allocation in many libraries, and Daystar is not an exception. This shows how much the library values electronic resources which compliment materials in print. The library also conducts information literacy classes for faculty to ensure that they can use the electronic resources effectively. It also provides CDs and DVDs to enhance teaching and research. However, Sharma (2009) observed that practical use of electronic resources is not worth in comparison to investment made in acquiring the resources mainly, because, awareness of the existence of such resources is relatively low. Access to electronic resources improves academics research productivity since the faculty keeps abreast in their fields, inspire new ideas and eventually enhance quality of their work. This has led to increased publication with respect to both quality and quantity since, studies have shown a positive association between publication rates and use of e-information. In addition, quality of teaching and learning improves significantly. Libraries provide resources that are more comprehensive and scholarly than most websites provide freely.

It is also important to note that there is a lot of information available through internet today which, is easily accessible from search engines such as Google, which is a competition to library

electronic resources. Rempel and Cossarini (2013) observed that current studies indicated many students and faculty started their research on web, since it is considered to be convenient, easy to use and more familiar than other library systems. The faculty staff at Daystar may not be an exception to this observation. This study aimed at evaluating use of e-resources. Findings will assist the library management in determining how to improve accessibility in support of teaching and research.

Objectives of the Study

(i) To establish the accessibility and usage patterns of electronic resources by faculty staff.
(ii) To evaluate the relevance of electronic resources to faculty.

Review of Related Literature

Accessibility and Use

Access to information is key to research productivity of academic staff in universities, since universities are centers for the generation and propagation of knowledge through research for nation-building. According to Meera and Ummer (2010) in terms of indicators of publication output which include journal articles, conference proceedings, books and book chapters among others, journal articles are primary sources of communication of research findings, among researchers universally. The change in nature of information environment in universities, which has migrated from print to electronic has made information easily accessible, because information can be accessed on computers, CD-ROMs, internet or other digital networks. The advancing digital age is characterized by applications, access and use of ICTs for teaching, learning, and research and recent studies report increasing levels of access and use of ICTs and resources. This is in agreement with the global trend as noted by Khan and

Dominic (2012:3) towards increasing access and use of ICTs and electronic resources in universities around the world. The authors observed that use of ICTs *"is increasing day by day as it is time-saving, more informative and less expensive."* Muthu (2014) observed that electronic resources have a significant role to play in teaching process, hence the faculty should be aware of them. He also indicated that e-resources had been widely and rapidly accepted in academic spheres, where universities access and use them. According to his research, faculty members indicated satisfaction in using e-resources, because they lead to better research and enhance scholarly communication. He, therefore, recommended that faculty should improve their ICT skills and improve their e-knowledge. For this reason, faculty is challenged to be effective, adept and innovative.

In providing access to e-resources, Radford (2001) noted that publishers of electronic journals should have a criterion for identifying those who access them. They can opt to give usernames and passwords to institution to be issued to users or use centralized systems such as Athens. Others still allow connections from the range of IP addresses allocated to institution trusting that the institution will only allow authorized user access. In another arrangement, which is most convenient for academic libraries, a user has unlimited access to journals and there are no passwords required. This is limiting, because the resources are inaccessible outside the premises, unless the publisher has a secondary authentication mechanism.

On the contrary Armstrong (n.d.) argues that providing access to electronic resources is problematic because of the way providers allow access. This can be through ID login and password, IP authentication or licensing policies. She notes that IDs and

passwords have to be issued to individual patrons which may not be feasible, especially in large university settings. The patrons may also have to deal with many passwords for a variety of titles and systems, thus compromising the timeliness of access as users wait to get IDs and passwords. Although Internet Protocol (IP) authentication is preferred by many universities, it hinders remote access to e-resources. Some licensing policies can also be overly restrictive failing to reflect real-world setting and needs.

According to Wolverton and Burke (2009) today's library integrated systems may not be user-friendly, because searching e-content can be frustrating for some users resulting in multiple screens of information that users cannot understand. This problem can be alleviated by use of federated search tools. These tools have enhancements in searching which include advances in relevancy, visualization and results clustering. The use of federated search tools can help improve access and use of electronic resources, especially considering that the faculty must do a lot of research to enhance their teaching and research. Boss and Nelson (2005) enumerated some tools such as MetaLib, ENCompass, AGent, WebFeat, and Vufind. While federated searching provides an effective way to organize information for users, a lot needs to be explored on how they can be used maximally to help retrieve information, which is deeply buried in the web.

Relevance of Electronic Resources

The relevance of information accessed by users is contextual and the information user needs to appreciate first the relevance of the information to him depending on whether it covers the topic of interest suitable to him. Rager (2003) gave the criteria for evaluating relevance of electronic resources as authority, accuracy, currency, objectivity, and coverage. He proposes that

the process of determining the relevance of the information begins with clarity regarding purpose of the search, because websites are evaluated differently. On the other hand, Kim and Oh (2009) argue that relevance of information to a user can be topical dealing with the relationship between information and a topic. It can also be user based which brings out the relationship between the information and the user's situation. He enumerated 10 criteria for evaluating relevance, which include accuracy, currency, specificity, geographic proximity, reliability, accessibility, verifiability, clarity, dynamism and presentational quality. However, for purpose of this study, the criteria given by Peruginelli (2007) was preferred because it integrates what the other authors have considered. These criteria include authority, validity, content, accuracy, and uniqueness.

The authority of a resource refers to the people responsible for content as well as sources of information used to produce the current content. This helps to establish the credibility and validity of information. Credible documents give enough information about the author to help readers know his identity, qualification, credentials and his degree of knowledge of topics he is writing. The sources of information should be clearly cited, easily identifiable and dated. Fritch (2002) alludes that many patrons cannot differentiate between authoritative and non authoritative information, since they trust sources they are familiar with. The librarians and other information professionals need to keep their information evaluation skills up to date in a world where information is created rapidly, transferred, presented and stored in electronic form. Determining true authorship and ownership can reveal covert affiliations, possible biases, hidden motivation for posting information and level of credence to assign to given information.

The validity of a resource depends on how well researched, substantiated and trustworthy the content is. Tedd and White, (2005) commenting on the same noted that lack of a peer-reviewed process on the internet made it difficult to identify the academic validity of much of its content. In their study, they noted that most academics were unwilling to use electronic resources unless they had their original versions to compare with, because they were unsure of the integrity of the editorial process.

The information contained in a document depends on factors such as nature of the document, intended audience, and purpose. The content should help meet the objectives of the work. Good quality sources are accurate, factual, comprehensive and objective, meaning they should not be biased. Ball (2003) posits that content of electronic resources should be evaluated for content against same guidelines and criteria that apply to the print. The resources should support the main research aims and goals of the organization, complement or add depth to the existing collection, be quality e.g. peer-reviewed, support the requirements of key audience and generate an acceptable level of use. The format of the resource should be considered so that there is consistency with their print equivalent, the currency, availability of back issues and archiving.

The other criterion in evaluating the relevance of the resources is accuracy which refers to how correct the information is. Lack of information filters on the internet such as peer reviewers, publishers and editors mean more mistakes will be made unlike when information is presented in print versions. Anderson, Tedd, and White, (2005) observed that accuracy of electronic resources should not be underestimated, especially in this era when it is possible to create digital archives with a huge number

of pages all searchable by natural language. They noted that faculty preferred documents with less than 0.5 per cent errors. The digital archives facilitate natural language searches of databases containing thousands of words in a matter of seconds making them more attractive to faculty. Unlike printed sources, many electronic resources are not accurately reviewed or edited and may even report content information inaccurately. The content creators should, therefore, devise a better way to ensure accuracy in the information they have on line.

On the internet, a lot of resources contain relatively little primary information but consist mainly of links to other external sources available from other servers and therefore it is important to evaluate uniqueness as a criterion. However, a resource that provides information that is nowhere else online is in most cases of more value. In evaluating the uniqueness of the electronic resources, it's important to consider the number of links and the type of links from the site to other similar or related sites (Anderson, Tedd, and White, 2005).

Manda (2005) observed that most users did not access the electronic resources because most of the resources are too general to meet the specialized needs of users. A large proportion of PERI resources are multidisciplinary in content and institutions have little say in that full-text journals are made available in a particular package. He also noted that no formal policy guidelines on the selection and acquisition of electronic resources are followed. In most cases, the selection is done by the library and faculty. Acquisition of electronic resources is a tricky affair since the consortium in Kenya (KLISC) negotiates on behalf of the members which leaves little room for negotiation for individual institutions.

Electronic resources may be available and even identified bibliographically as relevant to one's subject of interest, but a user may not use them because of inaccessibility, (Adeoye &

Popoola, 2011). The more accessible information resources are, the more likely they are used, since users tend to use information resources that require the least effort to access. The user may encounter challenges such as conceptual, linguistic, critical, bibliographic and physical inaccessibility. This is caused partly by power failure, machine breakdown and lack of spare parts and technicians which stalls performance of the machines and other facilities.

It is apparent that the library should develop the profile of its users to better understand their requirements and expectations in using electronic resources. This can help in developing specific strategies and policies to improve access and use of resources. The vendors of these resources need to generate statistics on usage of resources for their databases or provide passwords and usernames to individual libraries to generate usage statistics. This would help the concerned institution understand the accessibility and usage and come up with a workable solution.

Methodology

This research adopted a case study research design and simple random sampling technique was used to identify respondents. This research used questionnaires to collect primary data. The target population consisted of all full-time faculty staff at Daystar University. Daystar University has 80 teaching staff. The questionnaires were pretested to bring out their weaknesses, check their relevance to study objectives and to ensure they are understood by intended respondents. A total of 66 questionnaires were distributed and 54 were returned giving a response rate of 83% which was credible. The analysis and interpretation of the data gathered through questionnaires distributed to respondents are presented quantatively and qualitatively.

Findings and Discussions.

(a) Awareness of e-resources

The study found all the respondents aware of the electronic resources available. Awareness is important for high patronage, because it is an indication of proper library orientation extended to faculty as a method of imparting skills. Majority of the respondents also indicated that they had used the electronic resources.

Table 4.1 Awareness of E-resources.

Awareness of E-resources	**Frequency**	**Total**	**%**
Aware	54	54	100
Not aware	0	0	0
Use of electronic resources			
Have used	52	54	96
Have not used	2	54	4

Source: Authors

(b) Frequency of use

The frequency of use is the most important and basic aspect related to appraisal of relevance of electronic resources. This serves as an insight as to whether users accept e-resources, find them easy to use, reliable and useful or if they are used effectively and especially, considering that a huge budget is required for e-resources collection development. From the study, 34% of the respondents make use of resources daily, 41% weekly, 16% monthly and 9% used them rarely. For those who rarely used the electronic resource, they indicated that they got the information from other sources such as Google. The frequency of use depended on the nature of library's e-collections, organization, maintenance, and services. It was also revealed that availability of scholarly e-resources giving the latest up-to-date literature

in their relevant field was the main reason for frequent use. It seemed that being in the library environment influenced the faculty's awareness of resources available to them.

(c) Purpose of use

The purpose of using resources differed from one faculty to another. Thirty percent used the resources for research, 24% for preparing lecture notes, 21% for teaching, 15% for guiding students and 10% for preparing publications. Rehman and Ramzy (2004), observed that the purpose of using e-resources is multi dimensional, hence the respondents were allowed to select multiple responses regarding their purposes for using e-resources.

(d) ***Relevance of e-resources***

Sixty sevent percent of the respondents indicated that electronic resources available were highly relevant in their disciplines whereas, 33% stated they were moderately relevant. Again, it is interesting to observe that 96% of the respondents recommend these resources to their students and 4% did not. This matches the same percentage of those who use resources and those who do not. Those who stated that resources were moderately relevant, also indicated that they had not explored the resources fully and did not find any resources in their disciplines/subjects.

(e) ***Relevance of specific e-resources***

Majority of the respondents found e-journals, e-books and internet search engines to be most relevant for use. Some of the respondents thought the resources were either very relevant or relevant with 22% indicating that e-books were very relevant and 29% e-journals. It was noted that a good number (38%) of respondents indicated that CDs and DVDs were not very relevant to them while, 14% stated that institutional respository

(I.R) was least relevant to them. Majority of those who felt that the CDs and DVDs were least relevant to them indicated not being aware that these resources existed; unavailable, while others indicated that they could get similar information as it is available in other sources.

Table 4.2 Relevance of Specific E-resources

	Most relevant		Very relevant		Relevant		Least Relevant	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
E-journals	32	32	8	16	3	10	0	0
E-books	27	27	11	22	3	10	0	0
DVDs	1	1	5	10	9	30	16	38
CDs	1	1	7	14	6	20	16	38
I.R.	7	7	14	29	8	27	6	14
Internet search engines	31	31	4	8	1	3	4	10

Source: Field data

(f) Accessibility of e-resources

Majority of the respondents have been trained on the use of e-resources which reflects the high quality of orientation to the faculty. This ensured they had good skills to access and use of the resources made available to them. There should, however, be a measure put in place to reach the 20% who have not been trained.

Thirty one percent of the respondents indicated that the training was very good, 43% was good and 26% stated that it was poor. From the responses given, it is apparent that this area needs more attention. Muthu (2014), observed that electronic resources have a significant role to play in the teaching process. He, therefore, recommended that faculty should improve their ICT skills

and e-knowledge. For this reason, the faculty is challenged to be effective, adept and innovative. This involves the practice of what they have been trained on to enhance their skills and complement what the librarians train them.

(g) ***Alternative methods of access to electronic resources***

The study established that 65% of the respondents, who had not been trained learned from asking a librarian, whereas 35% learned through trial and error. It is clear from this analysis that apart from the training/seminars organized by the library, the most popular method of acquiring the necessary skills is guidance by a librarian followed by trial and error. This shows how much confidence the faculty has in the librarians and hence increased use of electronic resources. When asked, if they thought there was a need for more training, majority of the respondents thought there was a need for more training which can be done through seminars and workshops.

(h) Access locations to electronic resources

The respondents accessed the resources from different locations. Thirty seven percent accessed them from within the library, 23% from the library webpage, 18% off-campus, 16% in their offices and 6% from the cyber café. Other respondents indicated that they accessed the resources from staff lounge and their personal computers. With a bigger percentage accessing the e-resources from the library, this implies that the library has to come up with means of enhancing access by increasing the number of computers and internet speed. Deng (2010) noted that access to e-resources is of great interest to a library. A good understanding of where the e-resources are accessed from can help the library develop proper strategies and policies; establishment and development of technology infrastructure for storing and distributing e-resources in an effective manner.

Conclusion

The research established that the respondents were aware of the electronic resources made available to them and they used the electronic resources for research, preparing lecture notes, teaching and publishing. These resources were preferred, because they have vast information sources, are current, access to different databases, are easy and faster to use. This is in agreement with the observations made by Khan and Dominic (2012) on the increased accessibility and use of electronic resources. The majority of the respondents found electronic resources highly relevant in their subjects/disciplines and therefore recommended them to their students.

As Muthu (2014) observed, ICT skills are very important in accessing electronic resources. Majority of the respondents had been trained on the use of electronic resources, whereas some rated the training as good and a few rated it as poor. Some of those who had not been trained learned how to use the electronic resources by asking a librarian and others through trial and error. The respondents access the resources from within the library, library webpage, off-campus, from their offices and from the cyber café. Other respondents indicated that they accessed the resources from staff lounge and their personal computers.

The study concluded that majority of the faculty members were aware of the availability of the electronic resources and used them for teaching and research. They also found these resources to be relevant for their use and therefore recommended them to students. It was also noted that majority of the respondents did not use DVDs, CDs, and IR in their teaching and research mainly, because, they did not know the resources were available for use. The lecturers reported that they had been trained on the use of electronic resources, although, majority of them agreed that there was a need for additional training through workshops and

seminars which the library in conjunction with the departments can organize regularly.

Recommendations

1. To enhance accessibility, the researchers recommend the use of federated search tools. These tools have enhancements in searching which include advances in relevancy, visualization and results clustering. They also help improve access and use of electronic resources, considering that the faculty must do a lot of research to enhance their teaching and publishing. Some of the tools include MetaLib, ENCompass, AGent, WebFeat, and Vufind. While federated searching provides an effective way to organize information for users, a lot needs to be explored on how they can be used maximally to help retrieve the information which is deeply buried in the web. The use of remote access can also enhance accessibility since users do no need to be on Campus to access the electronic resources. This would only require user names and passwords for users.

2. To increase the relevance of the resources, the study recommends that the library management could work with the faculty to understand their needs. Although the consortium (KLISC) negotiates on behalf of the members, the library can come up with a way of having additional resources for the areas which are not fully catered for through subscribing to more databases or creating awareness on Open Access resources. The use of institutional repositories, subject gateways and subject directories can also be helpful.

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The Status of Library Staffing in Secondary Schools in Kericho County, Kenya

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Abstract

This paper evaluated the status of library staffing in secondary schools in Kericho County and was guided by Open System Theory. The purpose of this study was to evaluate the status of library staffing in secondary schools in Kericho County with specific attention to professional training of library staff. The study utilized descriptive survey design. The study population comprised of secondary schools that have established libraries and purposive sampling technique was used to select the schools. Data was collected using questionnaires and interview of respondents. The data was analyzed electronically using Statistical Package for Social Sciences (SPSS). The data was presented in form of frequency and percentage tables. Qualitative data was analyzed using descriptive discussion. The findings from this study are relevant to be used by policymakers to enhance staffing of libraries . Additionally, the research revealed the trends in staffing of libraries in secondary schools in Kenya. Again, the schools that have no libraries will also benefit from the study.

Keywords: Staff Development, Staff Requirement, Staff Training, On-the-Job Training, Off-the-Job Training, Open System Theory.

Background of the Study

The school library has been described as the whole stock of books and other resource materials in a school. It is a collection

of a wide variety of learning and teaching materials which are housed in a place and centrally organized by staff and indexed to serve readers (Waite, 1989). It comprises not only books or periodicals, but also non-print materials, films, slides, and tapes. These resources could be seen in two ways namely: material resources such as books, journals, CD RAM, microfilm, and microfiche, and human resources such as librarians and support staff. Thus, the school library is the resource center of any school (Vanguard, 2004; Library Land Index Project, 2006). As well as a service point and a self-development center. It is also the hub of individual studies in schools (Jones, 1990). As such, the old days of relying on textbooks are gone and therefore a good student should be able to locate and extract information from primary and secondary sources in the library (Gibbs, 1990). This may not be effective without the support of knowledgeable staff.

Effective and quality service delivery in the library depends on the quality of staff. The ease with which users access and retrieve materials is organically linked to the quality of staff if they are knowledgeable in the duties that they assigned. In school libraries, teacher-librarians are saddled with the responsibilities of providing quality service and systematic organization of school library resources. The importance of teacher-librarian in the school library cannot therefore be over-emphasized.

In Nigeria, Udoh (1986) observed that school libraries exhibit inadequacies in personnel and funding. The information was supported by Adesola (1991) who claimed that the under-funding resulted from the scarcity of foreign exchange. The under-funding was claimed by other researchers (Fagbeja, 1993; Fakoya, 2002) to have adverse effects on quality of libraries in the country. On the other hand, Alabi (2007) noted that, in

most Nigerian public secondary school libraries, professionally qualified library staff or Para-professionals are scarce. He surveyed seven school libraries in Lagos and found that they are still being staffed by unqualified personnel.

In Ghana, Alemna (1983), observed that most schools have untrained teacher librarians who work as full-time teachers in their various fields and part-time librarians. Awua-Boateng (1985), supported these views and attributed poor performance of students to lack of library resources in many schools.

Statement of the Problem

The school library is fundamental to mission, teaching and learning goals of the school. Providing a wide range of facilities and services, it facilitates the work of the classroom teacher and ensures each student has equitable access to resources, irrespective of home opportunities or constraints. It requires strategic support and systematic processes, to maximize its effectiveness in resourcing curriculum and support learning environment within the school. Research demonstrates that well-resourced, properly staffed school libraries have a positive impact on student achievement.

While the role of the school library remains constant, its design, digital platform, strategies, and tools change as pedagogy and technology changes. They, therefore, need to become dynamic learning centers with school librarians as primary agents for designing new ways of learning. Since, school libraries are about more than information literacy, they need professionally trained personnel to manage.

School librarians are vital agents in creating schools that enable students to learn through vast resources and multiple

communication channels. Librarians have the training and expertise onhow to locate, evaluate and use information. They are resource specialists with broad knowledge of extensive resources in the library, Internet and in community as well. Without this expertise, teachers can only minimally accomplish the information literacy requirement of 21st century learning standards. Collaborations with teachers in a team can create the necessary climate for students to inquire, participate, create and learn in an information environment.

Alabi (2007) noted that in most Nigerian public secondary school libraries, professionally qualified library staff or Para -professionals are scarce which shows that they are staffed by unqualified personnel. This mean that students are not able to get the services they require to accomplish the purpose of using library for enhancement of learning in the 21st century, where independence is paramount. Inadequate staffing would incapacitate the provision of necessary services in order to enhance the learning required in schools.

Appropriate professional and support staff are essential for the effective functioning of this potentially dynamic learning center and for the achievement of the school's teaching and learning goals. While, trying to achieve the goals of the school, librarians are confronted with challenges, that would affect their efficiency in their places of work.

Despite the research that has been done on the importance of a librarian in a learning environment, the researchers have not evaluated the staffing status of the libraries in secondary schools.

Considering the divergent findings made in previous studies and identification of the different factors affecting staffing status of secondary school libraries, this study examined the staffing status of libraries in secondary schools in Kericho County, focusing on

professional qualifications, adequacy and challenges confronting library staff in managing school libraries.

Theoretical Framework

This research utilized Open System Theory. Open Systems Theory (OST) is a modern systems-based changed management theory designed to create healthy, innovative and resilient organizations and communities in today's fast-changing and unpredictable environments. Open systems theory was developed after World War II in reaction to earlier theories of organizations, such as human relations perspective of Elton Mayo and the administrative theories of Henri Fayol, which treated the organization largely as a self-contained entity.

As organizations and communities conduct their business, they influence and change their external environments, while at the same time being influenced by external changes in local and global environments. This two-way influential change is known as active adaptive change. Organisations and communities are open systems; changing and influencing each other over time. Libraries like any other organizations can influence the external environment including school and can be influenced by external environment, and vice versa.

To ensure viability, an open system must have an open and active adaptive relationship with its external environment. In other words, a healthy viable open system has a direct correlation with respect to changing values and expectations over time with its external environment. The corollary, therefore, is that, if the values and expectations of a certain organization or community are out of sync with those that exist in the external environment then that particular organization or community will eventually become unhealthy and unviable.

This understanding has led to the development of open systems theory, which is a state-of-the-art systems-based change management body of knowledge designed for today's turbulent and unpredictable environment. It is being utilized by many successful organizations, including corporate giants such as Microsoft and Hewlett Packard.

People too are open systems. Through their actions, they influence and change their external environment, and at the same time are constantly being influenced by changes in the external environment. From an employee's perspective, the organization itself is their immediate external environment. The aggregated effect of this influential change between people, their organization and/or community and the external environment is known as socio-ecological (people-in-system-in-environment) change. In today's globalized and networked world socioecological change is relentless and increasing exponentially.

The only known body of knowledge that has been specifically developed to help organizations and communities produce an active adaptive relationship with external environments is open systems theory. Active adaptive organizations and communities know they can't operate as closed systems and ignore what's happening in the world around them. They are open systems that: quickly identify embryonic changes and opportunities in the external environment; actively influence the environment for a sustainable future and are designed to adapt and respond at lightning speed to make the most of their opportunities. In relation to this research, the organization is the school, communities are the users of the library and management is the external environment. These organs affect each other. Based upon his seminal work, *Organisations in Action* (1967) Thompson, in discussing organisational approaches to changing technology and an altered task environment, states that organisations

need to be more flexible and adaptive, by deploying necessary professionals into groups such as "task forces" or "project management" teams for operational purposes.

Thompson's (1967) argues that work stresses an "open systems" view of organizations. Organizations are systems, which can be defined as "a set of interacting units with relationships among them" (Miller, 1978). The following graphic representation of the OST framework illustrates how all organizations (public, private, non-profit), rely on the external environment to deliver critical inputs and to carry out the outputs:

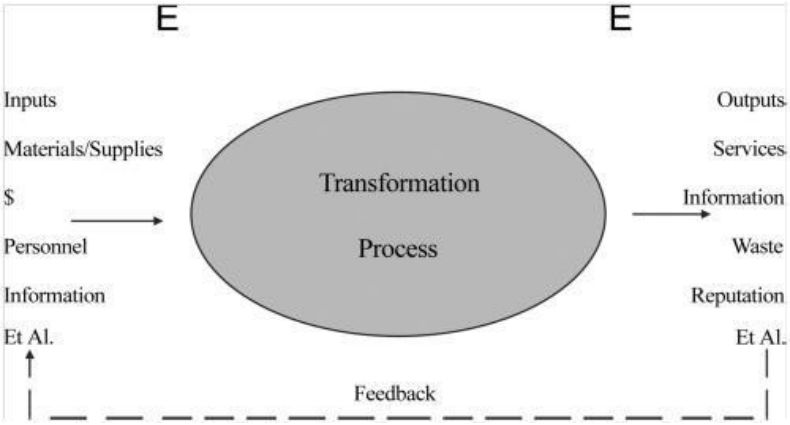

Fig. 1 Open systems view of organizations (*Encyclopedia of Public Administration*, 2008)

As one can see from figure1, the various inputs from the environment include supplies, money, personnel, and information. Transforming these inputs, by adding value, organizations then produce outputs, which include both planned and unplanned results. These outputs are services, information, waste, and reputation. OST, in contrast to mechanistic approaches to organization theory, provides a different perspective in

thinking about managing organizations. Libraries have their input from the environment that includes qualified personnel. These inputs provide the appropriate services in the library, which involve proper management of library resources and quality services to community. The outputs, in this case, include satisfied clientele, adequate service provision, and well-managed libraries. Chisholm (2008) highlights the following four points as important implications;

(1) Open systems thinking emphasizes the criticality of the external environment in providing required inputs, in determining acceptability of outputs, and in affecting the appropriate design of internal structures and processes.
(2) Understanding environmental demands and constraints on an organization are essential to understanding organizational functioning. However, the environment does not dictate organization design. Rather, equifinality indicates that there is more than one route to organizational effectiveness.
(3) OST emphasizes the dynamism inherent in organizations.
(4) Open systems thinking also focuses attention on maintaining the input-generating capacity of the external environment.

The concept of "equifinality" means that reaching the desired state for an organization can be accomplished in many different ways. Therefore, organizations within the same industry can be successful using different strategies and organizational designs. This model visualizes the approach to change, in which decisions are ostensibly made to solve a problem at hand, as not necessarily working in a linear fashion. In this framework, problems, solutions, participants, and choice opportunities can be viewed as "independent streams" all flowing into the same chasm. In relation to the library set up, and in the case of this discussion, training of personnel, the number of librarians per library and policies governing staffing of libraries are all flowing

towards the status of libraries and services offered within those libraries.

A viable library needs an inflow of staff with appropriately new ideas, skills and innovations, raw materials and energy to produce new products and/or services, and new information for reasonable planning, strategy formulation and coordination. Only the importation of these resources from the environment can allow it to perform its activities in a viable manner. The relevance of the theory to the study is based on the fact that external environment i.e. demands by users, management of school and policies governing staffing affects the kind of staff to be employed in libraries. Consequently, the services offered to users as the product depends in its entirety on the quality of staff. The theory guides the researcher in developing a conceptual framework relevant to the study.

Conceptual Framework

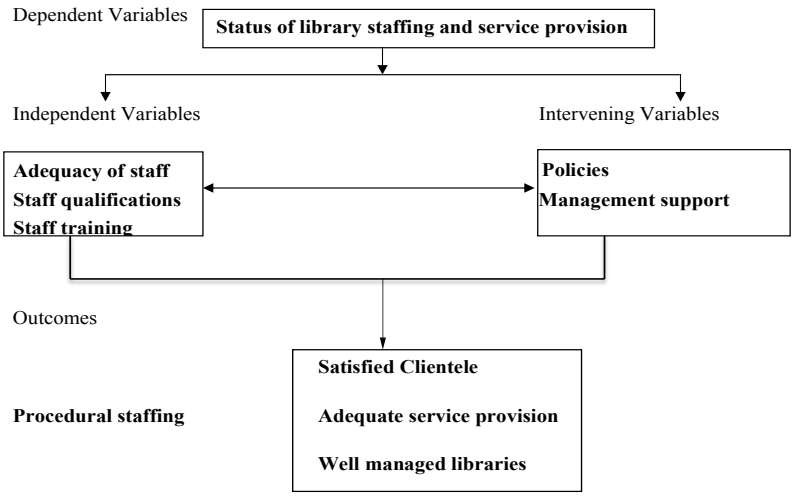

Fig. 2 Conceptual Framework (2014)

Source: Researcher (2014)

The status of staffing in school libraries is dependent on the adequate staff who are able to discharge the required responsibilities. The number of staff in the library is determined by the duties that are required to be performed. Staff qualification is vitally important because trained personnel can be able to discharge the duties appropriately. As much as it is important to have adequate and qualified staff in the library, training should be encouraged so that the staff can be conversant with the new developments in the profession. Proper staffing can happen, if there are exist policies that guide the process and support from the school management. The outcome will be satisfied clientele, since they will be served by professionals. The policies will further guide the process of staffing and therefore, there will be no anomalies in the employment of library staff and adequate service provision in school libraries will be realigned.

Methodology

The study was guided by descriptive survey design. A descriptive survey design was preferred because; it can be used to investigate problems in realistic settings. Kerlinger (1979) points out that descriptive studies are not only restricted to fact findings, but may often result in formulation of important principles of knowledge and solution to significant problems. They involve measurement, classification, analysis, comparison, and interpretation of data. The descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). When using this design, the researcher constructed questions that solicited desired information, identified individuals that were surveyed and means by which the survey was conducted and summarized the data in a way that provides the designed descriptive information. In this study, the design enabled the researcher to gather relevant data in school libraries as they are

in day to day practice.

The study was carried out in Kericho County in Rift Valley Region in Kenya. This is one of the 47 counties in Kenya that the researcher had identified to represent other counties. It was carried out in schools with established libraries which enabled the researcher to come out with appropriate findings in accordance with the stated objectives.

A sample from the total population of secondary schools was taken for measurement (Mugenda, 1999). The number of public secondary schools in Kericho County is one hundred and thirty (Kericho County, 2014). The sample consisted of fifteen school libraries out of the one hundred and thirty schools in the county.

The researcher sampled the population through the use of stratified random sampling since it involved dividing the schools into homogeneous subgroups. The researcher then used purposive sampling to select those schools with established libraries and have trained staff and purposely selected the principals, librarians and students' representative. These are the respondents that had credible information about the subject of study, because of their managerial positions.

The schools were stratified to have boys' boarding, girls' boarding, mixed day and boarding, mixed day and also girls day schools. The distribution of public secondary schools in Kericho County is shown in the following table:

Table 1. Distribution of public secondary schools by different categories in Kericho County.

School category	Total number	Sample size
Boys Boarding	16	5
Girls Boarding	20	7
Mixed Day and Boarding	20	5
Mixed Day	69	5
Mixed Boarding	4	1
Girls Day	1	
Total	**130**	**23**

(Kericho County Website, 2014)

Data Analysis

Staff development in libraries

Learning is essentially a continuing process of activities that are performed and skills that are used in a library situation. Every day the people face situations for which they must be educated, trained, and oriented in order to manage the complex work situation. It is not sufficient to have knowledge; skills should be acquired to enable library staff to use knowledge. It brings confidence in the ability to make judgments and control the environment in which people function. In modern times, library and information profession is under continuous change, in operational process and methods, technology, work environment, users' services, and concepts of library and information services.

The relationship between trained and competent staff and quality service is apparent to recipients of service in any organization. It is also a fact that supervisors failure to realize poor performance

and inefficient service within their own departments may result from lack of training. The in-service job training is essential for libraries to enhance and maintain service quality and to play crucial role in increasingly complex and competitive information society. The libraries are service organizations which are affected by the satisfaction that the users feel. The service level and the quality of support of the library should be to the optimum expectations of user community. The library staff requires adequate training so that they handle more diverse and demanding assignments.

Library management must foresee the changing requirements of the user community. Library staff should be able to assess the needs of library users, predict directions, and identify new services as well as those that are not in much demand. They should not wait for user dissatisfaction, expressed or unexpressed. In that case, the library will be seen as a passive and non-responsive organization. The library staff should be prepared to respond effectively to the changing context of library and information services, while maintaining respect for traditional values of the organization.

The ICT and new innovations in these areas have a real impact on library environment and service patterns. Generation, storage, retrieval and dissemination of data in the electronic environment, commercialization of databases and their up datedness, CD-ROM and on-line access, a global network of information services, library cooperation and resource sharing and library networking all these situations have changed library services. The traditional library services, both in concept and operational activities have become outdated and obsolete, particularly in information service areas. Services through electronic media have placed tremendous demand in library situation, and a

library personnel is hard-pressed to build electronic environment in the library. From time to time adaptation to changed systems has become essential. All these situations have a great impact on library personnel.

Under such impending situations, it is imperative that library personnel at all levels require an impressive array of knowledge, skills, and abilities to perform library activities to fulfill objectives. Library management and supervisors must organize the training, understanding the long-term impact that training has on the individuals and on the library itself. Training must not be periodical, but continuing according to specific requirement at various levels. Training should be job or activity oriented for the operational systems. For any kind of new service to be introduced training must be arranged. This enhances the skills, capability and job performance. The goals of the library will be achieved by motivation, dedication, quality, skills, and expertise of the library personnel, since training plays a crucial role in ensuring that the library staff is preferred to take the responsibilities.

Training

Training refers to the methods used to give new or present employees the skills they need to perform their jobs. This plays a key role in the performance management process. It means taking an integrated, goal-oriented approach to assigning, training, assessing, and rewarding employees' performance. Taking a performance management approach to training means that the training effort must make sense in terms of what the library wants each employee to contribute to achieving the library's strategic goals.

The training process has to be examined critically so as to meet the library's needs. These will include: needs analysis, where it identifies the specific job performance skills needed, assesses the prospective trainees' skills, and develops specific,

measurable knowledge and performance objectives based on any deficiencies.

Training needs may arise for many reasons. In some situations, specific skills may be required which are not readily available, training may be needed in anticipation of future personnel needs or are designed to promote career development among employees, and may be due to technological change that has made many jobs obsolete creating demand for retraining.

The library training needs analysis reveals where the current and future workforce can benefit from training efforts. In addition, analysis helps determine,which areas the library is stronger, and therefore helps prioritize training activities. In assessing or discovering training needs Gosh (2000) listed the following ways;

(a) Identify organizational and library problems.
(b) Analyze jobs and men.
(c) Collecting employee and managerial opinions.
(d) Morale and attitude surveys.
(e) Getting ready for the job.
(f) Preparation of the learner.
(g) Performance try-out.
(h) Follow-up and review.

(i) On-the-job training

Stearns (1987) explains that on-the-job training is conducted, while employees perform job-related tasks that are having a person learn a job by actually doing it. On-the-job is the most direct approach to training and development; it offers the employer the quickest return in terms of improved performance. The most familiar type of on-the-job training is the coaching or understudy method where an experienced person/worker or the

trainee's supervisor trains the employee. Here, the trainee works directly with a senior person whom he/she is to take his/her position. Another technique of on-the-job training is job rotation whereby an employee moves from department to department; to broaden their understanding of all parts of the library to test their abilities, at planned intervals. This occurs in the library when an employee moves from circulation to technical services and may be from acquisition to reference services and so on.

(ii) Off-the-job training

Librarians can be given training through off-the-job methods. It is often necessary to train employees away from the workplace. The most commonly used off-the-job training methods are problem solving conferences and case study methods. Conferences are organized such that librarians meet and a number of them are selected to act out some situation or problem which is commonly faced, while other members observe and make mental notes and evaluate the performance. The case study method gives the trainee, matter for reflection of practical interest; diagnoses the situation and real-life difficulties. In this case, the librarians of a particular school describe its development and some of its problems. After discussion, the trainees prepare a report which contains an analysis of the situation described and their recommendations. The utility of the case study method has been widely accepted as it deals with detailed descriptions of real-life situations.

Training objective

The basic objective of training is to impart education and give practice to the group of library staff on a specific job area in order to bring the desired standard of efficiency and skill. Training brings a change to betterment through an increase in knowledge, acquisition of necessary skill, development of confidence and good judgment. Training cannot be successful unless the trained

persons develops efficiency, demonstrate a new job performance and can behave in a different way better than before.

There are several dimensions in each job description which an employee must achieve through training. The job performance must be better after each training programme, which includes: motivation, knowledge, ability, skill, and expertise.
Generally, training programmes are focused narrowly on providing instructions regarding specific library activities to enhance performance standard. But, the training programmes will not be successful, if a broader context is not provided keeping in mind the goals of the organization, and if the needs of the individual employee are ignored. Each training programme must be effective and meaningful both for individual participants as well as for the organization.

Libraries are social setting consisting of parent organization, the library itself, library personnel, users of the library and all other persons and organizations associated with the library. It is important, therefore, for the trainers to take into consideration the concept of corporate culture during the training. Corporate culture awards the library its distinctive character. It becomes the identity of the library in the outer world.
Miriam Drake identifies corporate culture as representing a set of values and beliefs shared by people working in an organization. It represents employee's collective judgments about the future based on past corporate rewards and punishments, heroes, villains, myths, successes and failures. The individuals are very much concerned and become part and parcel of the corporate culture of the library and their identities are determined by the corporate culture they belong to.

Drake observes that understanding the corporate culture and acting in accordance with the culture often determines a person's success or failure on the job. A qualified and competent employee

may fail because he or she does not fit in, while a less competent person who understands the culture has a higher probability of success.

For the success of a school library, it is appropriate to have the right people in the right positions and also have adequate trained staff in those positions. For an organization to have the right and adequate staff, it has to go through the right process in staffing.

Training must be effective and meaningful for a particular purpose and specific job requirement. Mahapatra. (n.d), states that, in libraries, a large number of work problems are there in performance, communication, motivation, attitude, morale, sincerity and taking responsibilities. A number of barriers prevent acceptable performance and contribute to poor work relationships, because the persons are not properly trained psychologically and professionally for the responsibilities they have to discharge.

School library staffing requirement

In recent years, educational studies have clearly established the efficacy of professional school librarians and well-funded school libraries. A series of statewide impact studies reveal tight links between students' performance on assessments and school libraries with well-educated librarians, well-funded collections, and active instructional programs in information literacy (Baughman, 2000). These findings should not be surprising, given school librarians' advanced preparation for partnering with classroom teachers to provide instruction, monitor progress, and make adjustments to instruction where necessary.

With expertise in identifying, collecting, and organizing content and best sources of knowledge, including photographs, films music, and presentations by experts in many languages, school librarians provide effective learning experiences, while

partnering with reading and other core-content-area teachers, and instructing students to use actual sources in real situations of information need (Loertscher and Woolls, 2003). Using strategies that reflect constructivist learning theories, school librarians develop information-literacy skills in their students.

Beginning with students' natural curiosity and addressing each student's interests and background experiences, ability levels, motivation, and learning styles, school librarians and their classroom colleagues teach students to relate ideas to previous knowledge and experience, look for patterns and underlying principles, check evidence and relate it to conclusions, and cautiously and critically examine authors' logic and argument. Students learn to publish and share their knowledge using Internet, computers, and other electronic communication devices.

School libraries' essential role in students' development of information-literacy skills has also been studied and documented in the research of Barbara et al. (2010). Through a series of studies, these researchers found that "science classrooms and school libraries can be assessed along common dimensions". This led to the assertion that "with a variety of opportunities and responsibilities for meeting the learning needs of students, school librarians can develop and nurture an optimal learning environment that makes a positive and measurable contribution to the educational process" (2010:18).

School librarians' ultimate goal is to partner with classroom teachers to prepare all students to share knowledge and to participate ethically and productively as members of a democratic society. School librarians' collaboration with classroom teachers is articulated in the school librarians' Standards for the 21st -Century Learner (AASL, 2007) which align with the Common Core State Standards (2010) and communicate the Common

Core Vision of Educational Excellence (Dow, 2010). The necessity of school librarians is articulated in outcomes-based language in the Crosswalk of the Common Core Standards and the Standards for the 21st Century Learner (AASL, 2011) which outlines "crosswalks", where specialized knowledge and skills of school librarians and classroom teachers come together, making these educators important co-contributors to student learning and achievement in the areas of english language arts, reading standards in history, reading standards literacy in science/technology, and writing standards.

According to School Library Association (SLA) standards for secondary schools, school libraries should ideally be staffed by a trained, experienced and qualified library professional. The School Library Association recommends a minimum staffing level of a full-time librarian, assistant librarian and an administrative assistant for schools of over 1,000 pupils. The School Library Association recommends a minimum staffing level of a full time/ librarian and assistant librarian for schools of up to 500 pupils. These staffing levels are to allow the librarian to be away from the library to liaise with teaching staff, visit classrooms to assist with information literacy, attend external meetings and complete strategic administrative tasks. The School Library Association (SLA) provides a generic job description, available online to SLA members.

Mittal (1984) express that modern concept of librarianship demands that each library is kept open for as much time as possible. Necessary arrangements are made to keep it open for at least all working hours on all days of the year so that the information resources of a library are used to the maximum extent by the maximum number of readers. All library staff are entitled to an adequate lunch break of at least 20 minutes, if they are expected to work more than six hours at a stretch. The SLA

recommends a minimum lunch break of 30 minutes. The library should be open for at least one hour before and one hour after the school day. These hours and any extended school day activities within the library should be supervised by a member of staff with a ratio of one member of staff to 30 pupils.

The school librarian is the professionally qualified staff member responsible for planning and managing the school library, supported by as adequate staffing as possible, working together with all members of the school community, and liaising with public library and others.

The role of school librarians varies according to the budget, curriculum and teaching methodology of the schools, within the national legal and financial framework. Within specific contexts, there are general areas of knowledge that are vital, if school librarians are to develop and operate effective school library services: resource, library, and information management and teaching.

In an increasingly networked environment, school librarians must be competent in planning and teaching different information-handling skills to both teachers and students. Therefore, they must continue their professional training and development.

SLA also states that a school librarian should be considered the head of an academic department, attending heads of department and curriculum meetings, have full control of their departments budget, responsible for management of his/her staff, organization of his/her area, and preparing risk assessments.

The school librarian should be entitled to an induction at the start of his/her employment and regular appraisals during his/her employment in line with other school staff. The school librarian

should also be entitled to relevant continuing professional development.

Once the librarian has been given relevant training and has the appropriate qualification, it is necessary to have the right roles and responsibilities that merge together with his/her level of training.

Level of education of library staff.

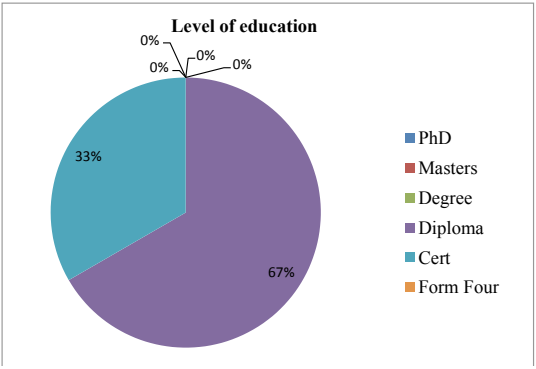

Figure 3. Level of education of library staff.
Source: Field data

As shown in figure 3, more than half of the library staff in secondary schools in Kericho County have trained to the level of diploma. Only 33% have a certificate and none has trained beyond undergraduate. The study established that most of the librarians were employed when they had already gone through the training and those that had certificates, they were going through on-the-job training and those going through of-the-job training were sponsoring themselves.

After interviewing the principals from different schools, they felt that the level of training of the librarians was enough to run the kind of libraries in the schools, because they thought that there is not much technical work that would need higher

training than what they have. It was thought that the skills they possess are enough to enable them perform the job by taking the responsibilities and provide results required by both the management and users.

Conclusion

Based on the findings that the library staff in secondary schools in Kericho County have trained to the level of diploma, it was concluded that libraries are manned by para-professionals. These findings, therefore, indicate that there are no professionals who can employ the needed skills to face and manage the technological challenges in the current society of users with varying user needs.

Recommendation

(1) There is an importance in training of personnel in school libraries so as to be relevant in the current society and cope with the changes in the concepts of library and information services. The respondents, especially from the interview process seem to deviate from this fact, because they felt that the level of education from the librarians, especially those with a diploma are relevant.

(2) It is also recommended that in-service training is essential in libraries to enhance and maintain the quality of services in the increasingly complex and competitive society.

(3) Based on the findings, it is imperative to recommend that the process of staffing should be followed so that the right persons can be selected to manage school libraries.

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Investigation of Copyright Infringement by Students in Higher Institutions of Learning with Reference to Africa Nazarene University

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Abstract
Copyright law is important because it boosts creativity and accelerates economic growth. Despite this, it is not clear whether information users are aware of the law. It is argued, in Kenya, the copyright law is not as effective as expected, since no proper mechanisms have been put in place to curb infringement. Despite the use of technology protective measures, use of licenses to access and use, better administration, and enforcement of laws that have been put in place in Kenya over the years, copyright infringement has still persisted. In view of this, the research paper sought to investigate ways in which students infringe copyright in learning institutions with a view of recommendations to improve their awareness. The objectives of the research paper were to: establish the level of knowledge students have on issues of copyright; find out how students infringe copyright; establish factors that prompt students to infringe copyrighted information resources, and establish their perception in towards copyright. The researcher used quantitative research design. Data was collected using the questionnaire and analyzed using Statistical Package for Social Scientists (SPSS). The research findings are key to library administrators in making decision regarding how copyright issues are handled in the library and therefore help in enforcing internal policies.

Keywords: Copyright, Infringement, Information Sources, Intellectual Property.

Background of the Study

The basic reason for protection of intellectual property rights is the necessity to encourage and support innovation and to promote the creation of knowledge. Intellectual property has effects on knowledge creation, development and innovation of intellectual products and services which improve human.

According to Klooster (2009) origins of copyright are linked to the European invention of printing in 15th century. History shows however, that some form of protection existed in relation to creative output even before. In ancient Greece and Rome, plagiarism was widely condemned. Kenya has been at the forefront in ratifying most of the copyright treaties such as the Berne Convention of 1866 for the protection of literary and artistic works. Libraries are important components in institutions of learning, because they facilitate carrying out research, teaching and learning. Knowledge is power, and by ensuring access to systems of knowledge and information relevant to the pursuit of enquiry and study, libraries play an important role in quest for academic excellence.

Wekesa and Sihanya (2009) opined that infringement refers to the dealing with copyrighted materials in a manner inconsistent with the copy owner's interests. They added that it occurs where the defendant does any of the activities protected or restricted by copyright without right holder's license. Barret (2008) argued that any person engaging in unauthorized reproduction, adaptation, public distribution, public performance, public display, or importation of copyrighted works are directly liable to the person who owns the exclusive economic right that has been infringed. Internet and computers have encouraged retrieval of information and usage without acknowledging the source and this is infringing copyright. According to Ma et al. (2007) the Internet can be viewed as a constructivist learning environment where students engage in meaningful learning that is relevant

to their own personal interests, which can in turn form a social community that encourages plagiarism. Students work is now easier through the use of internet where they can easily retrieve vast amount of information. Students fail to cite from sources and make works of others as their own, (Scanlon and Neumann, 2002).

Pedley (2000) argued that librarians have an important role to play in the implementation of copyright legislation. By the very nature of their work, they are placed between on one hand and the authors, publishers and other copyright owners who quite rightly are keen to obtain a fair economic return on their intellectual property, while on the other hand, they deal directly with the readers of copyright works. Copyright is one of the many components that fall under intellectual property rights that give the sole right to the author or creator, to copy, produce, distribute their copies, perform in public places, translate, adapt or arrange a work in any medium form whatsoever.

Objectives of the Study

The study was guided by the following objectives:

1. To establish the level of knowledge students have on law.
2. To determine factors that prompt students to infringe copyright.
3. To find out ways in which students infringe copyright law.

Review of the Related Literature

Copyright

Intellectual property rights encompass the protection of an invention, literary work, and all other intellectually produced items from unauthorized production, use and sale by anybody else apart from the creator and its managers. Copyright is protectable and enforceable where work is original, and expressed in a tangible or fixed medium. Sihanya and Wekesa (2009) state

that under the Kenyan Copyright Act, 2001 copyright exists in literary works, musical and artistic work if adequate effort has been expended on making the work, to give it an original character and that work has been engraved down, recorded in a tangible medium or reduced to material form.

There are two types of copyright:
(a) Economic: These rights allow the rights owner to derive financial reward from the use of his works by others. The rights given to copyright owner to prevent others from making copies of his works without his permission is the most basic right protected by copyright law. The right to control the act of production whether reproduction of books by a publisher or the production by a record producer of compact discs containing recorded performances of musical works remains the legal basis for many forms of exploitation of protected works. Sihanya and Wekesa (2009) argued that economic rights are associated with the right to a copy which is also an entrepreneur's right to secure economic and financial benefits from investing in a work.

(b) Moral rights: Otike (2010) observed that moral rights are the rights the owner has as a creator of the work; moral rights are separate from the economic rights of the copyright owner; they are inalienable in that they cannot be during the author's life time and can only be passed to another person on the death of the owner. The creator of the work who holds the moral right is not necessarily the owner of copyright in the work.

Exception and Limitations
Fair dealing principle is a privilege for someone other than the copyright owner to use a copyrighted work without seeking permission from the copyright owner or sometimes paying a fee. The Kenya Copyright Act 2001 provides for certain exceptions and limitations to the exercise of the exclusive rights granted to the authors and owners of related rights. These fall under

the concept of fair use. Section 26 of the Act privileges the use of the works for educational purposes, incidental inclusion of works in a broadcast or film, non-for-profit use of works in public, broadcast of works intended to be used for systematic instructional activities, use of works by the government, public libraries and non-commercial documentation centers as well as use of works for judicial purposes, provided the author and the source are indicated.

Pedley (2000) cites Section 29(1) of the English Copyright, Designs and Patents Act (CDPA) 1988 that, deals with fair dealing for the purposes of research or private study. Fair dealing with a literary work, other than a database, or a dramatic, musical or artistic work for the purposes of research or private study does not infringe any copyright in the work or, in the case of a published edition, in the typographical arrangement. Article 29(3) states 'copying by a person other than the researcher or student himself is not fair dealing if… (b) ….the person doing the copying knows or has reason to believe that it will result in copies of substantially the same material being provided to more than one person at substantially the same time and for substantially the same purpose.

Awareness of Copyright

Awareness means users' knowledge of copyright legislation and punishments. Awareness is the first step towards deeper understanding of copyright. Most people tend to gauge expertise by level of knowledge and skill that a particular individual possesses in a given field. In order to measure the level of understanding copyright, few studies that have tried to undertake this task have tended to use surveys. Williamson (1992) studied awareness of copyright by faculty and teaching assistants in a university in the U.S. Lau's (2003) study that addressed public awareness regarding the current copyright laws represents one of the central explanations that affect

software piracy rates. Although software industries currently employ licensing agreements as a means of information during the installation process, a majority of users pay no attention to licensing agreements, thus making the tool ineffective. Hence, a strong negative correlation exists between a user's knowledge of current copyright legislation and software piracy rate.

Why Infringe Copyright

Park (2003) provides a list of reasons for plagiarism by individual students. They include: lack of understanding; efficiency gain; time management; personal values or attitudes; defiance; attitudes towards teachers; denial; temptation and opportunity; and lack of deterrence.

According to Kock (1999) plagiarism is associated with various factors which include peer's behavior which is the most influential factor in academics. Students have friends whom they can share ideas; where students tend to work under pressure. They do their assignments last minute; informal and formal pressure to publish. Many organizations put pressure to their staff to publish articles. This comes at a time when organizations emphasize on research. Writing articles require a lot of time and commitments from people involved. Those who do not publish article(s) may end up not being promoted to a better grade and this therefore encourages plagiarism; limited knowledge about what level of idea-borrowing is acceptable, how it should be conducted, and consequences of plagiarism. People have limited skills on writing, especially when borrowing ideas from other authors.

How Copyright is Infringe

Li and Casanave (2012) explored the students' understanding of plagiarism, their strategies for composing, similarity between their texts and source texts and the lecturer's assessment of their work. It indicated that both students appeared to understand the

university's plagiarism policy yet their texts were characterized by patch writing and inappropriate citation. Risques, O'Dwyer & Ledwith (2011) conducted a study on technology-enhanced learning and plagiarism in entrepreneurship education and found that more than one online plagiarism prevention tutorial is required to change self-reported views relating to engagement in plagiarism, perception of peer participation in plagiarism and student's ethical views.

(a) Photocopying

LaHood and Sullivan (1975) identified convenience of the user as the overwhelming factor that could be responsible for making scholars photocopy existing library materials. They stated that whether a photocopy is requested to avoid the task of transcribing a text in hand or avoid travel time and expenses or is acquired in addition to a library collection, the factor of convenience is present. In spite of the usefulness of photocopying, authors and publishers have argued that photocopying possess a threat to development and free flow of information. This is because of the high rate of photocopying activities going on in different parts of the world. For instance, the African Publishing Review (1993) reported that an estimate of 300 billion copy pages per year or an equivalent of 1.5 billion books of 200 pages each of unauthorized photocopying of copyrighted materials worldwide is being carried out.

(b) Piracy

Piracy is also another means of infringement of copyright law. Piracy as opined by Bankole (1988) is the theft of copyright which concurs for reasons of want, scarcity and inaccessibility to books. Consequently, Thomas (1991) as cited by Okwilagwe (2001), concurs that piracy is unauthorized or illegal reproduction of the work of an author for sale without payment of royalty or other compensation to the owner of intellectual property so exploited.

Detection Services

Plagiarism has spread in the current past due to plenty of information on the internet. It has been a bond of contention to lecturers, particularly, when they assess students' assignments. A number of software's have been developed to assist in detecting plagiarism. Some of the softwares that are being used in detecting plagiarisms are: Turnitin, iThenticate.com, Edu Tie, PlagiServe, Toast and Moss (Warn, 2006).

Two examples are explained below:

(a) Turnitin

The best-known plagiarism detection product, Turntin is a result of the creator's own experience with plagiarism. Developed while John Barrie was a graduate student at Berkeley, Turnitin uses algorithms to assess the plagiarized tendencies of a paper. During term-paper season the service claims to check about 6,000 papers daily, comparing them against two billion web sites, another 250,000 students papers on file, and a growing database of books and encyclopedias.

(b) PlagiServe

PlagiServe, an untested detection service, differs from other products in that it allows free, unlimited submissions. Based in the Ukraine, PlagiServe does not charge for use, however, registration is required. PlagiServe, like Turnitin, accepts uploaded papers for comparison against an internal database (Its web site claims over 150,000 papers and essays) and the Internet.

Research Methodology

Kothari (2004) was of the opinion that research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to research purpose. He asserts that research design is the conceptual structure within which research is conducted and includes blueprint for

collection, measurement and analysis of data.The study employed a case study design.The sample size of the study constituted 200 respondents who were sampled from 3600 undergraduate student population with a confidence level of 95% and margin error of 7%.

To do this, the strating & random sampling techniques were used. The study collected data using closed and open ended questionnaires. After the required amount of data was received from the field, it was reviewed for any inconsistencies, organized and then analyzed using Statistical Package for Social Scientist (SPSS). A quantitative approach was used to analyze data. Data was interpreted and presented in form of tables.

Data presentation, Analysis, and Interpretation

The target population comprised of 3600 undergraduate students studying at Africa Nazarene University. The sample size was 200 students. A total of 200 questionnaires were distributed out of which 174 were successfully filled and returned. The response rate was 87%, which was an adequate representation of the target population. It should be noted that a response rate of 50% is adequate for analysis and reporting; 60% response rate is good while 70% is excellent (Mugenda and Mugenda, 2008). The findings in this research were presented in the form of tables.

(a) Level of knowledge of copyright among students.

Table 4.1: Copyright Knowledge (n-174)

How knowledgeable?	Frequency	Percent
Not knowledgeable	12	6.9
Very knowledgeable	15	8.6
Moderately Knowledgeable	57	32.8
Knowledgeable	90	51.7
Total	**174**	**100**

Source: Field data, 2016

The study tried to establish how knowledgeable respondents were on copyright law. It was found that most of the respondents were knowledgeable with 52% stating they are knowledgeable, 33% moderately knowledgeable, 9% very knowledgeable, and a 7 % reporting not knowledgeable. This, therefore, shows that majority of the respondents understood copyright law.

(b) How Copyright is infringed

Table 4.2: How copyright is infringed (n=132)

Ways of copyright infringement	Frequency	Percent
Piracy	24	13.8
Through photocopying	90	51.7
Through plagiarism	132	75.9

Source: Field data, 2016

The study sought to establish various ways through which students infringed copyright law. A total of 76% respondents thought students infringed copyright through plagiarism, 56% reported that photocopy was also a major way of copyright infringement while 14% felt that piracy contributed to copyright infringement. This was supported by Law. (2006) who reported that piracy, plagiarism of text, infringement of copyright when using photocopying machines, duplication of web pages are major ways of copyright infringement. Amsberry (2010) reinforced the fact that from a variety of studies which showed that users seemed to participate in acts of plagiarism due to fundamental differences in intellectual property rights.

(c) Why Infringe Copyright.

Table 4.3: Copyright infringement (n=93)

Reasons for copyright infringement	Frequency	Percent
Limited time to read in the library	6	3.4
Low motivation for initiative and creativity	9	5.2
Easy access to photocopiers	15	8.6
Scarcity of published materials	60	34.5
Ignorance of copyright law	72	41.4
Very high cost of books	93	53.4

Source: Field data, 2016

The study sought to establish what makes students infringe copyright. Multiple responses were given as indicated in table 4.3 above. A total of 53.4% reported that the cost of books was very high and therefore making it difficult for them to buy their own copies, 41.4 % were of the view that ignorance of copyright law increased infringement, 34.5% cited scarcity of published materials, while 8.6% reported that photocopying machines were easily available and therefore photocopying was not a problem. 5.2% of the respondents stated that there was low motivation for initiative and creativity and therefore used anything that was available to help them meet their information needs, while 3.4% reported lack of time to read materials available in library. In support of these findings, Ogunrombi and Bello (1999), argued that photocopy, as a kind of reprographic activity is quite common in higher institutions of learning for reasons such as book scarcity and the cheapness of photocopying services.

Conclusion

The study established that the level of awareness of copyright infringement by undergraduate students was considerably high and majority of students infringed copyright law. Copyright

awareness should be done through campaigns, posters, leaflets handouts and seminars. Librarians and lecturers should help increase the level of copyright awareness among students by organizing students' orientation programme in order to raise students' awareness and motivate compliance. The scarcity of materials prompted students to photocopy and copyright law was found to be very necessary.

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