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Types and Use of Electronic Information Resources and Services (EIRS) Provided by the Kenyan Academic Libraries

John Mwaura Ireri

Lecturer Information Sciences, Chuka University, Kenya.

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ABSTRACT

With the proliferation of ICT services, libraries are moving towards use of electronic information resources and services (EIRS) such as Integrated Library Systems (ILS), internet, online databases, online catalogues and interlibrary information sharing. This study aimed at establishing the type of electronic information resources and services (EIRS) provided in the Kenyan academic libraries and focused on a selected number of academic libraries namely: University of Nairobi (UoN), Kenyatta University (KU), Jomo Kenyatta University of Agriculture and Technology (JKUAT) and Kenya Technical Teachers College (KTTC). The study used both quantitative and qualitative research approaches. The study used descriptive survey to collect information by interviewing and administering questionnaires to a sample of 264 individuals. The target population for this study was made up of the students, library staff, and teaching staff of five academic libraries Interview schedules were used on the chief librarians to get specific information. Questionnaires were used to collect information about library users' attitudes, opinions, habits or any social issues. The study used descriptive statistical techniques to analyze the collected data. Statistical Package for Social Sciences was used for analysis where frequencies, means and modes were drawn from the data. Findings showed that the EIRS offered were computers, online Bibliography, OPAC, online Journals, online interlibrary sharing, DVDs, CD-ROMs and video tapes. Further, findings showed that computers and online journals were the frequently used EIRS while talking tapes were never used by the respondents. The study recommends the need for the users to be adequately equipped with the right skills on the use of the EIRS so that the there is utilization of the EIRS provided in the libraries.

Introduction

Background of the study

With the proliferation of ICT services, libraries are moving towards use of electronic information resources and services (EIRS) such as Integrated Library Systems (ILS), internet, online databases, online catalogues and interlibrary information sharing (Jones, 2000). Electronic information services (EIS) are offered through a combination of facilities such as Internet, Local Area Networks (LAN), Library Information Systems (LIS), electronic bibliographies, electronic books, electronic journals and a range of playback devices for electronic media such as CDs, cassettes and DVDs. Webb (2003), argues that the rapid technological change and the widespread use of proprietary software combined with increase in the quantity and complexity of digital equipment continue to pose challenges in utilization of EIR. A study by Shibanda (2006), indicates that academic libraries in Kenya are faced with challenges of streamlining their in- house operations and may not easily adopt Integrated Library System (ILS) that are technically sound and end-user friendly and as a result some of the library processes are not automated especially the ones that can improve retrieval of EIR such as OPAC. Katonga (2008), argues that developments in ICT technology present a great potential for introduction of EIS in Kenyan academic libraries and observes that a few of them are making efforts to convert their collections into electronic format. However, the libraries continue to face challenges arising from constrained budgets and underdeveloped ICT infrastructure which has affected efficiency of EIRS. In order for the academic libraries in Kenya to offer electronic information services, there is need to improve their electronic information collections. This need is underscored by the information posted on the universities' websites, which shows that only a few electronic information services are offered in the libraries. Kenyatta University website for instance indicates that there are over 300,000 volumes of books, bound periodicals, current journals, magazines and dailies in the library, all of which are in print form. The library offers electronic information services such as access to electronic journals and audio visual materials. On the other hand, the University of Nairobi website shows that the library has over 500,000 volumes of print materials inclusive of books and periodicals and also provides few electronic information services such as electronic journals and audio visual materials. Despite the fact that these universities have introduced internet services; internet potential remains largely untapped due to lack of innovativeness. This is a common scene in the majority of Kenyan academic libraries. This study aimed at establishing the type of electronic information resources and services (EIRS) provided in the Kenyan academic libraries and focused on a selected number of academic libraries namely:

Tele:

E-mail address: samtos.ireri@gmail.com

University of Nairobi (Uo N), Kenyatta University (KU), Jomo Kenyatta University of Agriculture and Technology (JKUAT) and Kenya Technical Teachers College (KTTC).

Objective of the Study

To establish the types of electronic information resources and services (EIRS) provided by the Kenyan libraries

Research Questions

The research question was which types of electronic information resources and services (EIRS) provided by the Kenyan libraries?

Literature Review

Types of EIRS in Libraries

Digital Collections in Libraries

According to Thune (2001), digital collections in a library are used by the computer to store, organize, transmit and display information without any intervening conversion process. Some digital collections include digital audio, video, full text information, photograph, drawing, digitized sound, e-book, v-book, electronic tax, map, image and 3D representation (Spacy, 2003). The digital collections also include structured /unstructured text, scanned images, graphic audios and video recording (Borgman, 2003). According to Ashley (2005), digital collections are a collection of digitized materials which can be accessible by a computer on the network by using TCP/IP or other protocol. Allyn (2002) observes that digital resources are needed since they are easy to understand, enhance structuring and organizing digital information in a variety of ways that is easy to retrieve as well as allowing distance learning and procuring online publications. Included in the digital collections in libraries are digital collections for the challenged library users. According to IFLA (2005), many countries have not catered for the needs of disabled library users, whereas in some countries it is a natural thing for everybody including the disabled to use EIR in the libraries. McDowell (2002), observes that all library users irrespective of their disabilities should have appropriate media formats to meet their information needs. According to Rowley (2003), the library should acquire talking books and videos/DVD books with subtitles or sign language. Spacy (2003), records that for visually impaired persons, the information should be in audio tape, CD/DVD, or in DAISY format and on the library's accessible website. However, for deaf or hearing impaired persons, information should be in sign language videos, text telephones and/or email, information on the library's accessible website (Roberts, 2000). The author notes that for persons with reading difficulties (persons with dyslexia or weak readers) information is on audio/video tape, CD/DVD, or in Daisy format and on the library's accessible website. Information for persons with physical disabilities should be on audio/video tape or on CD/DVD or in DAISY format and on accessible website whereas for cognitively disabled persons information should be on audio/video tape, CD/DVD, or in DAISY format and on the library's accessible website (Noble, 1998). Different kinds of adaptive keyboards should be provided for persons with problems using their hands (Harter, 1997).

Internet Resources

According to Wikipedia (http://en.wikipedia.org/wiki /Internet**)**, the Internet is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide.

It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail. Most traditional communications media including telephone, music, film, and television are reshaped or redefined by the Internet, giving birth to new services such as Voice over Internet Protocol (VoIP) and IPTV. Newspaper, book and other print publishing are adapting to Web site technology, or are reshaped into blogging and web feeds. The Internet has enabled or accelerated new forms of human interactions through instant messaging, Internet forums, and social networking. Online shopping has boomed both for major retail outlets and small artisans and traders. Business-to-business and financial services on the Internet affect supply chains across entire industries. Educational material at all levels from pre-school to post-doctoral is available from websites. Examples range from CB eebies, through school and high-school revision guides, virtual universities, to access to top-end scholarly literature through the likes of Google Scholar. In distance education, help with homework and other assignments, self-guided learning, whiling away spare time, or just looking up more detail on an interesting fact, it has never been easier for people to access educational information at any level from anywhere. The Internet in general and the World Wide Web in particular are important enablers of both formal and informal education. The low cost and nearly instantaneous sharing of ideas, knowledge, and skills has made collaborative work dramatically easier, with the help of collaborative software. Not only can a group cheaply communicate and share ideas, but the wide reach of the Internet allows such groups to easily form in the first place. An example of this is the free software movement, which has produced, among other programs, Linux, Mozilla Firefox, and OpenOffice.org. Internet "chat", whether in the form of IRC chat rooms or channels, or via instant messaging systems, allow colleagues to stay in touch in a very convenient way when working at their computers during the day. Messages can be exchanged even more quickly and conveniently than via email

Integrated Library System (ILS)

An integrated library system is one where the files of all the library functions are interlinked so that deletions, additions and other changes in one file automatically activate appropriate changes in related fields (Rowley, 2003). Emeka (2015) adds that the adoption of an integrated library system (ILS) by most libraries in the world has come at the right time in the history of libraries where the users are computer literate and would expect to find computers also being used in libraries. ILS usually consists of a number of functional modules, such as ordering and acquisitions, circulation, cataloguing, serials control and the OPAC (Emeka, 2015). The author adds that in such a system, each item has a unique number or tag that identifies it; and each patron also has a unique user identification (user ID) and password. These steps allow the ILS to track any transactions associated with the user and or the library item. ILS comprises of cataloguing, OPAC, circulation, interlibrary-loan and add-on modules that are directly relevant to users.

Subscribed Bibliographic Databases

Wikipedia (http://en.wikipedia.org/wiki/Internet**)**, describes a subscribed bibliographic database as a database available in the Internet that is accessed at a cost. It is a database of bibliographic records, an organized digital collection of references to published literature, including

journal and newspaper articles, conference proceedings, reports, government and legal publications, patents, books, etc. In contrast to library catalogue entries, a large proportion of the bibliographic records in bibliographic databases describe analytics (articles, conference papers, etc.) rather than complete monographs, and they generally contain very rich subject descriptions in the form of keywords, subject classification terms, or abstracts. A bibliographic database may be general in scope or cover a specific academic discipline. A significant number of bibliographic databases are still proprietary, available by licensing agreement from vendors, or directly from the abstracting and indexing services that create them. Many bibliographic databases evolve into digital libraries, providing the full-text of the indexed contents. Others converge with non-bibliographic scholarly databases to create more complete disciplinary search engine systems, such as Chemical Abstracts or Entrez.

Playback Devices

Modern libraries are today employing a wide range of playback devices for all users including the less privileged. Some of these devices are such as talking books for the blind, Video Cassette Player (VCR), Multi-channel sound-recording and playback device, CD/DVD/RMVB playback, LCD (Liquid Crystal Display)/DLP (Digital Light Processing), movie projectors, slide projector and phonograph record player, or gramophone.

Users' Information Literacy Skills

According to Spacy (2003), many library users would require assistance in using ICT to access the wealth of information in their libraries and the librarian is seen as having a pivotal role in helping them get to grips with ICT. In order to utilize the growing range of electronic resources, students must acquire and practice the skills necessary to exploit them **(**Blandy and Libutti, 1995: 291). As Dutton (2006) suggests, the skills required to maximize the potential of electronic resources are a knowledge of the structure of the database and the instructions which must be input into the computer by the searcher, as well as an understanding of the ways in which the instructions are linked with one another. He notes that these skills are much greater than those required for searching printed sources. Brophy (2003**)** argues that libraries must reach a position where the acquisition of information skills is acknowledged as one of the key learning objectives for every student entering university, so that no student leaves without being fully equipped to cope with the information intensive world - the information society - as an end-user.

Research Methodology

The study used both quantitative and qualitative research approaches. Quantitative approach relied on the principle of verifiability which involved confirmation, proof, corroboration or substantiation. It consisted of numerical data such as number of computers in use and number of video tapes. Qualitative approach involved description. It sought to describe and analyze the culture and behaviour of the respondents. The study used descriptive survey to collect information by interviewing and administering questionnaires to a sample of individuals. Interview schedules were used on the chief librarians to get specific information. Questionnaires were used to collect information about library users' attitudes, opinions, habits or any social issues.

Target Population

The target population for this study was made up of the students, library staff, and teaching staff of five academic libraries as indicated by table 1 below.

The table 1 above indicates the total number of each population category per library. The population of this study was 39,657 persons from five academic libraries and included the students, library staff and teaching staff. It also shows the percentage of the total population of each library.

Sampling Techniques

Stratified technique was used to sample the five academic libraries while weighted ratios were used to get a representative sample in every library. The sample for this study was determined by the use of purposive sampling for the chief librarians. Simple random sampling was used to arrive at the library users who participated in the study. The target population was accessed in the library during normal working hours. Lottery approach was used.

Sample Size

Frankel (2000), defines a sample as a group from which information is obtained. He further explains sampling as a process of selecting a number of individuals from a population. According to Kombo and Tromp (2006), a representative population sample attempts to be as diverse as possible and one should use a large sample so that any generalization to the whole population can be done with confidence. The sample came from the target population of 39,657 which included chief librarians, senior librarians, other library staff, students and teaching staff. To arrive at the representative number of respondents for the selected libraries, the following stratification method was applied to the sample size. The percentage of the total population of each library (E) from Table 1 above was multiplied by 269 the sample size from the above formula to get the number of expected respondents in each library (F) as shown by table 2 below.

Table 2. Sample Size per Library.

Name of library	Number of expected respondents (F) (F=E*269)
UON	129
KU	78
JKUAT	6
USIU	32
KTTC	24
TOTAL	**269**

Stratification of the Respondents

To arrive at the numbers of students, library staff and teaching staff for the respective academic libraries, the proportion of the respective groups (students, library staff and lecturers) in the population per library was applied. This was by using table 2 above and thereby dividing the number of each category of users in a library (i.e. A)

Table 1. Population per Category, Totals and Percentage Population.

Libraries	Number of Students (A)	Number of Library Staff (B)	Number of Teaching Staff (C)	Total (D)	Percentage Population of the total (E)
UON	18000	42	1200	19242	48
KU	10000	50	1000	11050	29
KTTC	800	30	75	905	2
USIU	4689	24	127	4840	12
JKUAT	3500	20	100	3620	9
TOTAL	**36989**	**166**	**2502**	**39657**	**100**

Source: libraries' websites, 2008

by the total number of users (i.e. D) and then multiplying by the number of expected respondents from each library (i.e. F) in table 2 (for instance 129 for Uo N). Due to the involvement of library staff in the provision of ILS and Internet, the number of library staff was increased by 10 in each library and by the use of purposive sampling, the chief librarians were selected to be interviewed due to their positions and authority to make decisions that affect the library's activities and functions. The total number of respondents therefore used in this study was 319 as shown in table 3 below.

Research Instruments

Open ended and closed Questionnaires were used to collect data from students, teaching staff, senior and other library staff while an interview schedule was used to obtain information from the chief librarians.

Questionnaires for Library Staff and Users

Questionnaires consisted of both open ended and closed items. They had five sections: section A captured the users' demographic information; section B contained information on ICT literacy levels of users of EIRS; Section C the EIS policy; section D included information on appropriateness of EIRS; section E contained items seeking information on the problems users face in the use of the Internet; section F contained problems of accessing ILS.

Interview Schedule for the Chief Librarians

Like the questionnaires, the questions in this schedule were based on the research objectives and research questions of the study. The questions asked were the same for all the librarians.

Data Collection Techniques

Five week days were required to collect data from the students. Two days were used to gather data from the library users, the chief librarians, senior librarians and other library staff. Structured interviews were conducted for Chief librarians and the interview recorded details and where need be clarifications were sought. Questionnaires were distributed to the respective respondents.

Data Analysis

The study used descriptive statistical techniques to analyze the collected data. Statistical Package for Social Sciences was used for analysis where frequencies, means and modes were drawn from the data. These were used to describe the population in relation to the research questions. Qualitative data was organized into themes in the research questions. The information was then summarized and presented in the form of narratives and interpretive reports. The reporting of the data included presentation of the findings and interpretations of these findings to make meaning. This was done objectively and presented in an easy format, on tables, figures and explanations. Conclusions were drawn from the findings from the study and recommendations were based on these findings.

Results/Preliminary Results

Questionnaires Return Rate

According to Mulusa (1990), completion rate is the proportion of the sample that participated as intended in all the research procedures. Of the 264 questionnaires given to library users 240 (91%) were returned. There were 40 questionnaires given to junior library staff and 20 (50%) of them were returned. Of the 10 questionnaires given to senior library staff, 6 (60%) of them were returned and out of a total of 5 chief librarians, 4 (80%) were interviewed as indicated in figure 1 below.

According to Mulusa (1990), 50 percent return rate is adequate, 60 percent good and 70 percent very good. The return rate was hence considered very good to provide required information for the purpose of data analysis as it was above 75%.

Electronic Information Resources and Services (EIRS) in the Libraries

Library staff were considered the major sources of information about EIRS as they are the ones who organize and deliver the services to the users. According to the respondents, the EIRS offered were computers, online Bibliography, OPAC, online Journals, online interlibrary sharing, DVDs, CD-ROMs and video tapes as indicated in table 4 below. It was also found out that services such as guided internet browsing, online library registration, online library access and web OPAC are not provided as indicated in table 4 below.

Table 3. Distribution of the Expected Respondents.

Name of institution	Number of Students (G) G=A/D*F	Number of Library Staff (H) H=B/D*F+10	Number of Teaching Staff (I) I=C/D*F	Total
UoN	121	11	7	139
KU	70	11	7	88
JKUAT	4	11	1	16
USIU	30	11	1	42
KTTC	22	11	1	34
TOTAL	**247**	**55**	**17**	**319**

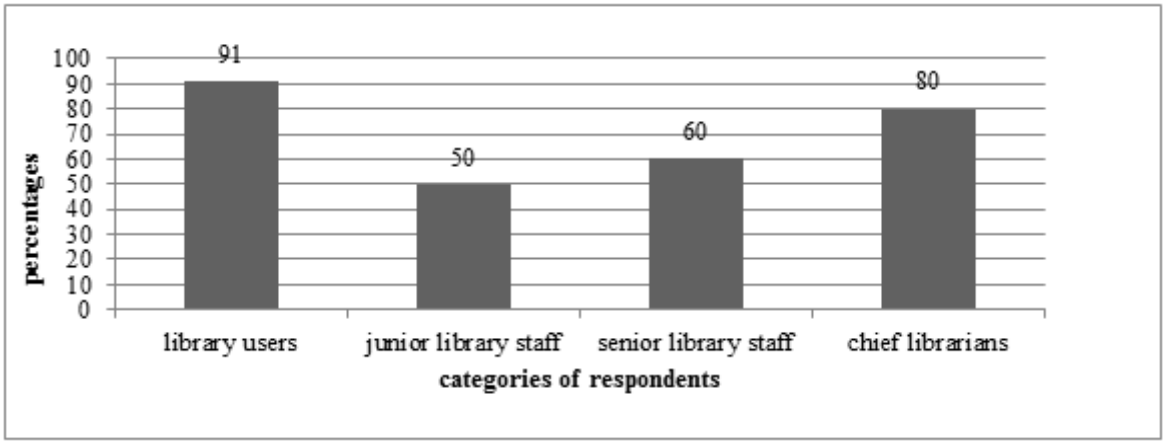

Figure 1. Questionnaires Return Rate.

Table 4. Type of EIRS Provided in the Institutions.

Types of EIRS	Existence of service (√=yes X=no)				
	JKUAT	KU	USIU	KTTC	UON
Computers	√	√	√	√	√
Online Bibliography	√	√	√	√	√
OPAC	X	√	√	√	√
Online Journal	√	√	√	√	√
Online Interlibrary sharing	X	X	X	X	X
DVDs	√	√	√	√	√
CD-ROMs	√	√	√	√	√
Video Tapes	√	√	√	√	√
Guided internet browsing	X	X	X	X	X
Online library registration	X	X	X	X	X
Online library access	X	X	X	X	X
Web OPAC	X	X	X	X	X

Users Awareness of Availability of EIRS in the Libraries

Availability of EIRS allows users more interaction with information that results into dramatic shifts in intellectual, organizational, and economic practices (Fox, 1995). Hence the study wished to find out whether the users were aware of availability of EIRS in the different institutional libraries. From figure 2 below, majority of users indicated that they were aware of the existence of computers in their libraries. About half of the respondents from KU, USIU, KTTC and UON said they were aware of existence of online bibliography but all respondents from JKUAT said they knew online bibliography existed. All respondents from JKUAT said OPAC was not installed in their library while almost half of the respondents from KU, USIU, KTTC and UON said they knew of existence of OPAC. About a half of respondents from the five institutions said they were aware of existence of online journals. None of the respondents from the five institutions indicated awareness of existence of inter-library sharing. Very few respondents indicated awareness of existence of DVDs, CD ROMs and video tapes.

Utilization of EIRS

To gauge the level of utilization of EIRS in the selected libraries, information was gathered about EIRS usage. All the respondents were expected to indicate how they utilized EIRS in terms of frequently, moderately, rarely and never. The study sought to find out from the users how they utilized the above resources that were availed by their libraries. The results are shown in figure 3 below.

From the above figure, majority of the users (59.2%) indicated that they used computers frequently and 23.8% said they used it moderately. While 41.3% indicated that they used online journals frequently, another 17.1% indicated moderate use. While 30.4% of the users used OPAC frequently only 14.6% indicated that they used it moderately. About 20.8% of the users said they used online interlibrary information sharing frequently while 61.3% used it moderately. While 13.8% of the users indicated use of online bibliography and video tapes frequently, 27.9% said they used video tapes moderately. These findings agree with Allyn (2002) who observes that digital resources are needed since they are easy to understand, enhance structuring and organizing digital information in a variety of ways that is easy to retrieve as well as allowing distance learning and procuring online publications.

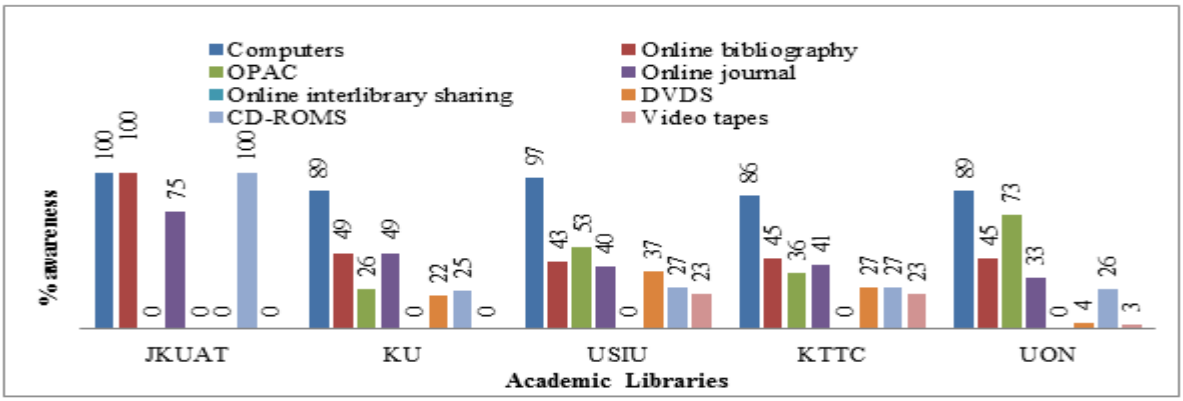

Figure 2. Users' Awareness of Availability of EIRS.

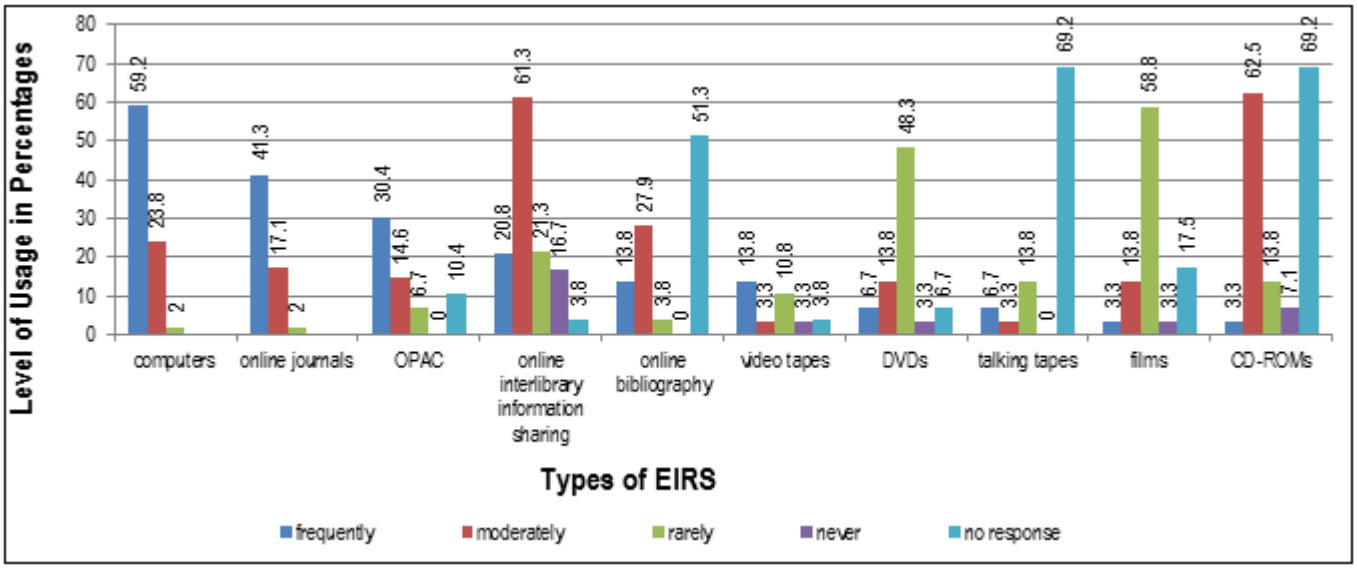

Figure 3. Use of EIRS.

Users' Training on Use of EIRS

According to Spacy (2003), many library users would require training in using EIRS to access the wealth of information in their libraries and the librarian is seen as having a pivotal role in helping them get to grips with EIRS. The study therefore sought to know if the users were trained on the use of electronic information resources and services effectively. From chart 4 below, majority of the respondents 66% of 240 had not been trained on the use of EIRS and only 34% were trained. Hence from these results there was need for training to be offered to the users on EIRS in all our academic libraries since majority (66%) of users have not been trained. It therefore follows that library staff training is a prerequisite if the users have to be trained so that they could benefit from EIRS. Dutton (2006) suggests, the skills required to maximize the potential of electronic resources are a knowledge of the structure of the database and the instructions which must be input into the computer by the searcher, as well as an understanding of the ways in which the instructions are linked with one another. He notes that these skills are much greater than those required for searching printed sources.

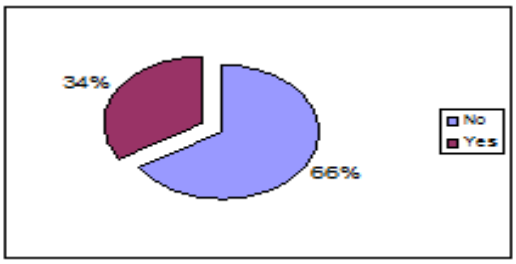

Figure 4. Percentage Level of User Training in EIRS.

Appropriateness of Playback Devices in the Libraries

Electronic play back devices include digital equipment such as computers, video prayers, cassettes and projectors which may give information in form of text, audio, ideo, image, and numeric multimedia components which can be accessed from user's work place and can support formal and informal learning procedures. The study sought to identify whether playback devices were appropriate. The results are as shown in chart 5 below.

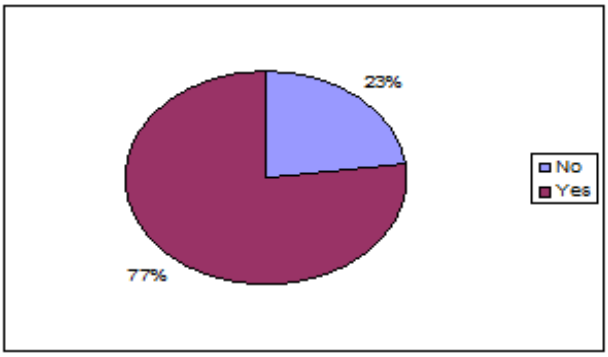

Figure 5. Appropriateness of Playback Devices by Users.

Majority of the users (77%) felt that the playback devices were appropriate in their respective libraries while a few users (23%) felt that they were not appropriate. The researcher observed that, the users who indicated that the playback devices were not appropriate had difficulties in utilizing them hence they had not discovered their usefulness.

Conclusions and Recommendations

Majority of users (77%) felt that playback devices were not appropriate in accessing stored information in storage media such as CDs and DVDs and hence the libraries should update their playback devices. All the libraries (100%) had installed ILS modules and although the users were aware of their existence they were not able to use them efficiently and hence the libraries should ensure the users are fully trained on their use. Although the libraries were installed with EIRS there is need for the users to be adequately equipped with the right skills on the use of the same. Thus intensive and thorough training programmes of the users should be arranged since according to Rosenberg (2006) proper, frequent and regular in-house training is necessary if the maximum benefit is to be gained from the available hardware and software; and if the operations of the automated systems are to be independent of any one librarian. This observation was made in reference to the situation at the Moi University library which relied on the systems librarian alone to sort out issues of system breakdown because all the other library staff did not have adequate IT skills.

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