

# Effects of Information Literacy skills on the Utilization of Library Resources in Academic Libraries

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## ARTICLE INFO

### Article history:

Received: 20 April 2016;

Received in revised form:

4 May 2016;

Accepted: 9 May 2016;

### Keywords

Information Literacy ,  
Academic Library ,  
Patron ,  
Computer Literacy ,  
User Education ,  
Bibliographic  
Instruction,  
Online Public Access ,  
Catalogue.

## ABSTRACT

The ability to access, evaluate and use information is a prerequisite for lifelong learning, and a basic requirement for the information society. Information literacy (IL) program in academic libraries involves the process of imparting library users with the information skills that can help them identify their information needs, locate, retrieve, evaluate and effectively use that information for problem solving. This study investigated the effects information literacy programs in academic libraries. The specific objectives of the study were to: find out the levels of information literacy skills among students; identify the role of libraries in the integration of information literacy programs; establish the methods used in the provision of an information literacy programs; and to find out the students' perceptions on information literacy programs. The study adopted the seven ways or faces of information literacy model by Bruce (1997). This study employed the descriptive and explanatory research designs. The study employed both non probability and probability sampling techniques. The study sample was stratified according to the level of education of the respondents and convenience sampling was used in administering the questionnaires. The study sample comprised 335 users and 2 librarians who were selected using purposive sampling. Data was analyzed descriptively using SPSS 23 and presented in form of tables and figures. The findings of the study showed that the majority of the respondents understood the meaning of information literacy, they used the OPAC system and E-resources to locate, access, retrieve and effectively use the information acquired. The methods employed in the teaching information literacy skills included carrying out annual orientation programs for new students, organizing library workshops and demonstrations. However, it is evident that majority of library users lacked information searching and retrieval skills and this is due to the fact that they did not undergo a well-organized information literacy program, and that university students rely heavily on the internet for their academic work or research. The study concluded that although there have been efforts to ensure information literacy among university students, there is need to build on these efforts through collaborative efforts between librarians and faculty members particularly through joint curriculum design and implementation. There are some forms of information literacy training in the institution, however the training offered is not adequate to promote lifelong learning due to lack of standardized information literacy programs and lack of information literacy policies. The findings of the study will be significant to the policy makers by helping them to make sound policies that will enhance the development of information literacy skills among university students. Various methods should be used for teaching and assessing the information literacy skills of the students, which includes: one-on-one instruction, interactive classes, online tutorials, as well as building assignments around research situations. Lecturers should also be encouraged to use e-library resources and computers as well as the Internet and online searching skills as part of the students' assignments.

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## 1.Introduction

In today's world, information is power. According to Lizette (2007), a student who is information literate can deal with anxiety and overload of information, change of format and searching, retrieval and navigating techniques. Students may not however only be trained on how to search, find, access and evaluate information on a particular need, but become critical thinkers in ascertaining how they use the information sought (Ratanya, 2012). The primary goal of any

library service is to ensure that the clients can obtain information for purposes for which they require it. Therefore, this raises the need to teach information literacy to customers with the aim of helping them identify and select relevant information using appropriate search strategies and being able to evaluate, organize and present that information into a meaningful presentation (Ratanya, 2012).

Information literacy is significant because it enables one to assess the authenticity, validity, and reliability of any

Tele:

E-mail address:

information, especially on the internet. Under normal circumstances, people usually use diverse sources of information namely, print as well as the web sources. Information on print resources is typically validated through different quality assurance processes by the authors, publishers and tutors. The same credibility is not applied to the web information (Association of College and Research Libraries, 2002).

Most of the libraries offer information literacy services where library users are given instructions on how to locate information materials using various information retrieval tools. Andretta (2005) affirms that the introduction of the concept of information literacy marks a fundamental shift in the pedagogy. Therefore, this underpins information literacy from being tutor oriented to student-centered, independent learning approach. For the students, regardless of their discipline, information literacy skills enable them to master content and give them the confidence to proceed with an investigation, be self-reliant and have a sense of being in control of their learning.

In Europe, libraries have been offering user information literacy for a long time. However, there has been a general shift from provision of information literacy to the delivery of information literacy programs. Andretta (2005) asserts that in the early 1970s information literacy in the USA was described as the provision of individual guidance in the use of materials and resources and in the interpretation of learning tools as well as formal instruction to groups. She further points out that this description changed in the early 1990s to a program to provide students bibliographic instruction through a variety of techniques enabling them to become information literate.

Developing countries suffer from a general low utilization of the most significant resources such as time, information and knowledge due to lack of information literacy skills (Pejova, 2002). Lack of this expertise and inefficient use of knowledge and information causes waste of other resources, and this affects productivity in all spheres of life and work- education, research, business, and administration, which results in poor societies. Tise (2004) points out; the global information explosion has made the acquisition of information literacy skills mandatory if the nations of Africa are to develop and prosper.

Kavulya (2003) observed that African universities are now experiencing rapid growth in computer technology and the use of computerized databases in accessing information in their libraries. Kavulya affirms that in South Africa most academic libraries provide computerized information literacy programs. Kenyan universities like other African universities is witnessing a rapid growth in computer networking and the use of computerized databases in accessing information in their libraries. Kavulya (2003) however points out that very limited information literacy program initiatives exist which includes library orientation, information literacy courses, individual instruction or reference service, and use of library manuals and guides.

Most first year students in Kenyan universities have been found to lack the sophisticated skills that are needed to exploit the library's research potential. This may have been attributed to the fact that they are still fresh in the university, and they feel intimidated by the complexity and size of a large library; they are reluctant to ask for assistance in the use of the library, and they lack awareness of the services and resources available in the university library. It is, therefore, evident that

an information literacy program is necessary for academic libraries (Kavulya, 2003).

Information literate students' access, retrieve, evaluate and put into use information from different sources. They communicate effectively and efficiently and reflect on the process as well as the product. It is in this regard, therefore, that a deliberate program for teaching information literacy should be incorporated in universities' curricula. It has been observed that most university students do not possess the much-needed information literacy skills to help them conduct their research and searching for information, which impedes its efficient use.

Students depend heavily on their lecture notes and library assistants to seek information despite having been taught information literacy skills during their first year in the university (Kavulya, 2003). One is thus led to ask the question: what and where is the problem? Why are students not performing as expected regarding the application of information literacy skills? It is the intention of this study to reveal among other findings how valuable the information literacy program is and how it affects the efficient use of library resources among students of the Jomo Kenyatta University of Agriculture and Technology.

## **2. Literature Review**

### **2.1 Theoretical Model**

A theoretical model is a theory designed to explain an entire situation or behavior, with the idea that it would eventually be able to predict that behavior. The processes of studying user behavior in searching, retrieving, evaluating and using information have been developed into several information searching models. Some of the most referred models were those proposed by Irving's Information Skills (1985); Stripling/Pitts's Research Process (1988); Kuhlthau's Information Search Process (1989); Bruce (1997); The Seven Faces of Information Literacy and Eisenberg and Berkowitz the Big 6 (1990). These models have contributed to the theoretical foundation of information literacy. The models are being utilized to facilitate the planning and teaching of information literacy at all levels of education all over the world. Through these models information literacy has gained widespread acceptance (Grassian and Kaplowitz, 2010).

### **2.2 The Seven Ways or Faces of Information Literacy**

This research adopted ideas from Bruce (1997). The Seven Faces of Information Literacy as its conceptual framework. These ideas are further elaborated as follows: Bruce examined information literacy using phenomenographic methods to determine how individuals experience information. The relational model frames information literacy into seven different ways of experiencing information - use through active and reflective engagement with the relevant information practices. The users' conceptions of information literacy produce seven categories of description: In order to access information, it is necessary for information technology to be available and usable; possess knowledge of information sources; the action was taken or decision made is the process after an experience; the ability to acquire and retrieve information; capacity to evaluate and analyze information; acquisition of new knowledge through personal experience and making rational and informed decisions as a result of possessing an update:

#### **(a) Information Technology Conception**

Information technology conception associates information literacy with the use of information technology to gather and communicate information.

This shows a relation between users "conceptions of information literacy and respondents" understanding of information literacy in this study.

#### (b) Information Sources Conception

Information sources conception is where information literacy is perceived as the knowledge of sources and the ability to access these directly or indirectly via an intermediary. Information literacy is related to effective control and manipulation of information through the use of mechanical devices, memory, or information technology.

#### (c) Information Processing Conception

Information processing conception describes information literacy as "executing a process". This involves the use of an appropriate strategy to find and use information. The nature of the process varies according to the participant of this process.

#### (d) Information Control Conception.

At this point information literacy is associated with the effective control and manipulation of information through the use of mechanical devices, memory, or information technology.

#### (e) Knowledge Construction Conception

Knowledge Construction conception involves "building a personal knowledge base in a new area of interest" (Bruce, 1997). Bruce (1997) stresses that this differs from the storage of information because it involves the application of critical analysis of the information read. This relates to this study on information literacy skills which defines an information literate person as one who "finds information to form a standpoint" as one who "critically analyses information—trying to reveal values" and as one who "works with knowledge to gain new insights" and that one of the most important information literacy elements is "applying information to create and communicate knowledge".

#### (f) Knowledge Extension Conception

Knowledge extension conception envisages the application of knowledge and personal perspectives that lead to new insights.

#### (g) Wisdom Conception

Wisdom conception is related to a wise and ethical use of information considered in a wider historical or cultural context. Also, the information here undergoes "a process of reflection which is part of the experience of effective information use" (Bruce, 1997). Information literacy helps in "understanding and acknowledging cultural, ethical, economic, legal, and social issues surrounding the use of information.

### 2.3 Conceptual Framework

A conceptual framework is a model of how one theorized or made logical sense of the relationship among the several

factors relevant to the problems being studied. This research sort to determine the relationships between independent variables and dependent variable. The dependent variable is the most important of personal traits of effects of information literacy (IL) on the use of information resources. The independent variables include the level of information literacy among students, method sued in teaching information literacy skills, roles of the librarians in the integration of information literacy skills and students' perception on information literacy programs. The intervening variables in the study were up-to-date university library, students' attitudes towards information literacy, training for staff and students, collaboration from the teaching fraternity, publishing user service manual and management policies and support towards information literacy. The outcome variable of the study were maximum utilization of information resources, improved access to information resources and improved information literacy skills. The above variables formed the basis of the questions for the data collection. A brief description of these variables follows in Figure 2.1.

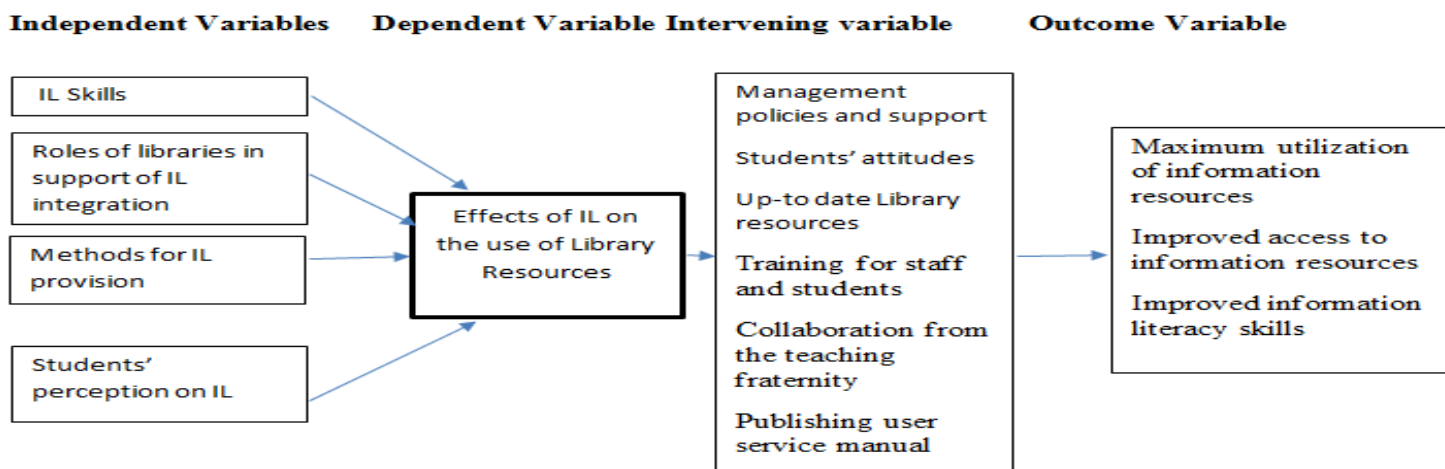
#### 2.3.1 Information Literacy Skills among Students

According to the Council of Australian University Librarians (2001), an information literate person has learnt how to recognize the need for information, and can access, retrieve and manipulate information. A literate person creates new knowledge; understands the cultural and legal implications of using information, and recognizes that lifelong learning requires an information literate person. There are two methods of looking at information skills in institutions of higher learning.

Lock (2003) opines that there are two ways of assessing information skills among tertiary institutions. The first way relates to study skills which students will need to put to use during their study. The skills may include the ability to use a library and its resources for advancing one's studies, performing in-depth literature searches needed for a particular area of study and being able to satisfy their tutors and assessors. The second way is preparing students for skills needed after upon leaving the education system. Some of the skills are awareness and understanding in information production, practical ideas on how to acquire, manage, disseminate and use the acquired information. This also entails critical appraisal of the content and validity of the information.

#### 2.3.2 Roles of Libraries in the Integration of Information Literacy

Standing Conference of National and University Libraries (1999) has pointed out the importance of academic libraries in allocating accurately required information resources and in facilitating the use of information resources.



2.1. Conceptual Framework.

Libraries are strategically positioned to implement information literacy programs by acquiring, describing and making available the available information. Libraries have also traditionally provided a place for quiet contemplation and scholarly pursuits as well as instruction in research methods. The information literacy models necessitates the positive change in the instructional mission of the library.

Rather than just providing traditional library orientations and tours, often taught out-of-context of an assignment, the libraries have expanded their instructional role. This should also emphasize on information-seeking behavior within the context of an information need. Today's information literacy is focused on teaching students research strategies that require active engagement, fosters problem solving, and emphasizes critical evaluation of acquired information. The emphasis is on modeling students to become independent researchers and thereby encouraging lifelong learning. Librarians are the major partners in enhancing information literacy in institutions of learning. According to ACRL (2000), librarians coordinate the assessment of information and the selection of resources for teaching and learning. They facilitate the accessibility to information, and in teaching students as well as educators in their search for information.

### **2.3.3 Methods Used for the Provision of Information Literacy Programs**

The commonly used methods for the provision of information literacy programs in most academic libraries although they vary from one library to another depending in circumstances. For instance, instructions given via lecture method are always best for large groups of users, and use of Audio Visual equipment comes in handy. One of the concepts and tasks associated with librarians for many years is the information literacy or bibliographic instruction (Grassian and Kaplowitz, 2010). Bibliographic instruction can be used for smaller target groups where for instance the users are practically taken through steps on how to access information from the library. With the increment in different sources of information and the complexity of retrieval of information in the early 1980s and 1990s, librarians have requested for instruction on how to do this (Grassian and Kaplowitz, 2011).

### **2.3.4 Students' Perception on Information Literacy Program**

The information explosion of the 20th century subsequently gave birth to the concept of information literacy and information literacy has gradually become a strategic issue for tertiary institutions, and the emphasis is placed on teaching and learning strategies that deliver the skills needed by students to succeed in an increasingly competitive environment. The quality, authenticity, validity and reliability of some of the materials in electronic format via the internet cannot be guaranteed.

These uncertainties are one factor in particular that makes the need for information literacy pressing. As a result, information literacy services and instruction are essential components of every 21st Century library and information program (Grassian and Kaplowitz, 2010). Whether offering direct instruction to users, providing skills-based help functions on websites, delivering one-on-one (physical or virtual) assistance. The purpose of any library is to meet the information needs of its user.

### **2.4 Empirical Literature Review**

Empirical studies related to information literacy have been carried out in various educational contexts to understand the challenges, as well as other planning-related issues, get

knowledge of the problems and challenges crucial to planning and enhancement of information literacy programs. Researchers have used a variety of methods and definitions of information literacy to investigate university students' perceptions of information literacy. Seamans (2002), Costantino (2003) and Kurbanoglu (2003) employed the ACRL information literacy competencies as a framework for their studies.

#### **2.4.1 Essential Information Literacy Skills among University Students**

A study undertaken by Mittermeyer and Quirion (2003) on the information literacy level of first-year undergraduate students in Quebec, discovered that deficiency in information literacy skills has an adverse impact on academic achievements, as well as personal and professional development. In the same study, some important factors that influence the quality of academic work were identified as: difficulty in retrieving relevant information and inefficient use of time arising out of students' experimenting with different search engines without success.

The findings of a study carried out by the Educause Center for Analysis and Research (ECAR) showed that 80.7% of students rated themselves as very skilled in searching for information from the Internet efficiently and effectively. However, many students rated themselves slightly lower in their ability to assess the credibility of internet sources and understood ethical and legal issues related to information (ECAR 2010). A study by ECAR (2011) established that while 88% of students rely on their institution's library website, only 27% believed their skills did not meet their information literacy needs to help them searching information from the library site comfortably. A Credo Student survey also reported that 'students feel reasonably capable of doing the research necessary for assignments' (McKiel 2013).

According to King'ori (2014), library users in the institutions of higher learning need skills to deal with the challenges of the information age. They need to find relevant information and be able to evaluate the source and use information effectively. One of the primary functions of a librarian in an institution of higher learning is to guide the major stakeholders -students and lecturers to become critical consumers of information.

Librarians at the Sultanah Zanariah Library of UTM studied the levels of library skills of their new admissions for the 2004/2005 and 2005/2006 intake (Kamariah et al., 2006). Their findings indicated that new students: needed systematic and proper guidance on the usage of the library. They required regular training on information searching skills and methods, they needed to nurture their studying habits and increase exposure on the usage of software in their day to day learning. These findings were mostly centered on students who are coming into the university educational system from the mainstream secondary educational system.

According to King'ori (2014), a review of the literature demonstrates that information literacy (IL) is embraced throughout the world and also recognizes the fact that education in IL skills is essential for the production of a flexible workforce of lifelong learners who are a prerequisite for economic development in the information-based economy. Lack of information literacy skills by students in our universities inhibits effective utilization of the information resources. For example, it has also been observed by examiners at the University of Nairobi that students' examination scripts, projects and term papers lacked diversity

of thought and content. This is an indication that students heavily depend on lecturers' notes and that they were not able to use the variety of the resources in the library (Mathangani & Irura 2005).

#### **2.4.2 Librarians and the Development of Information Literacy skills**

Several research studies have been done relating to information literacy in tertiary institutions. The findings of these studies indicated that librarians play major roles in instilling information literacy education. Some of their activities include orientation of students, teaching students searching methods one-on-one at the reference section, integration in various courses, seminar, teaching it as a curricular course and teaching through websites (Korobil, Malliari and Christodoulou 2008). The findings of research studies by Nimon (2001) and Singh (2005) reveal that university libraries have a role in supporting educators. University librarians should take part in the teaching and developing educators' understanding of information literacy. Academic libraries have information resources ready for the study of information literacy, modern technology for information retrieval and personnel having expertise in information who can arrange information literacy education (Li, 2006). Enger et al., (2002) also stated that librarians should take their roles in preparing information resources that help to identify problems for students studying in the course that emphasizes problem-based learning. Besides, ACRL has set the methods for implementation of IL programs. Most libraries have experienced and competent personnel supported by teaching resources, finances and continuous development of librarians (ACRL, 2008). ACRL (2008), Hernandez and Urena (2003) show the libraries promote students' information literacy by supporting lecturers in developing the library's strategic plan.

In a study by Therdsak, Kulthida and Yupin (2012) on the roles of university libraries in supporting the integration of information literacy in undergraduate instruction yielded results that they should prepare to teach, develop learning tools as well as communication technology tools. The findings on this role correlate to ACRL's concept, which states that university libraries should have experienced and specialized personnel in teaching, and should be supported regarding finances and teaching resources (ACRL 2008). Rockman (2004) stated that academic libraries have three primary functions: (a) to review courses under electronics conditions (b) to incorporate modern technology and (c) to support and incorporate information literacy in the course. Librarians should work with the educators to integrate information literacy through activities such as evaluating students' information literacy skills, using on-line teaching for selected contents, recommending the integration of electronic resources in the courses, using e-learning platforms (Blackboard and WebCT) in the course, preparing efficient teaching tools, and introducing plagiarism prevention software.

#### **2.4.3 Teaching of Information Literacy**

Various methods have been used to provide information literacy programs in academic libraries: these include a use of tutorials or manuals, E-learning programs, information literacy programs integrated into the curriculum, seminars or conferences, lectures, library tours, information literacy, reference services, story-telling among others. Chagari (2005) suggests that choosing the appropriate teaching methods for imparting information literacy skills is an important factor for the success of information literacy programs. This shows that

the libraries can choose the best method which suits its users in order to achieve effectiveness. He further argues out that besides the traditional methods of conducting user education programs in the form of guided tours and orientation to the library resources, information literacy programs may be offered using the following methods:

- i) Instruction -This involves conducting classes and tutorials using lecture and audio-visual methods in a particular area of interest to the target group.
- ii) Reference - The library may select focus areas based on the target group requirements.
- iii) Collaboration and Partnership – Libraries need to combine the expertise of the library staff and external experts. These methods are commonly used in most academic libraries although they vary from one library to another depending in circumstances.

Parirokh and Abbasi (2009) studied the effectiveness of teaching information literacy skills to college students. They found that all students needed to acquire information literacy skills. In addition, there were significant differences between their information literacy skills before and after provision of training courses by librarians. This research showed librarians' active role in users' in developing information literacy skills. Observations and personal experiences by the researchers indicated that participants had preferences in some units than others, and they were actively involved in the units taught by the librarians. Based on the results obtained, the study concluded that the users' viewpoints on librarians' role in developing their IL skills were positive; and there was a significant difference in users' viewpoints on librarians' role in developing their IL skills according to their gender.

#### **2.4.4 Impacts of Information Literacy Programs and Assessment**

Information Literacy has slowly become a strategic issue for tertiary institutions, where the emphasis is placed on teaching and learning strategies that deliver the skills needed by students to succeed in an increasingly competitive environment". As stated earlier, "the quality, authenticity, validity and reliability of some of the materials in electronic format via the internet cannot be guaranteed, and these uncertainties are one factor in particular that makes the need for literacy information pressing" (Idiodi, 2005).

Kurbanoglu (2003) administered a self-efficacy scale to examine Turkish undergraduates' confidence in their performance in nine major areas of information literacy. Results showed that overall, the students usually felt confident. First and second-year students felt more self-efficacious than third and fourth-year students in the following areas: defining information needs, locating and accessing information sources, initiating search strategies, interpreting, synthesizing and using information as well as assessing and comprehending information. Third and fourth-year students were reported to be more confident than first and second-year students in the following competency areas: communicating information in a format appropriate to its audience and purpose, evaluating the outcomes and processes of information-seeking, improving self-generated knowledge, and recognizing principles of equitable access to information. Over half of the women students reported that they were deficient in information literacy skills. Macauley (2001) also found that "being younger, enrolled on-campus and more specifically, in Science, increased the chances of receiving information literacy skills training and decreased the perceptions of having information literacy deficiencies". Some



of the science students 45% believed that librarians lacked the subject expertise to assist them with finding literature relevant to their specific research topic, and, therefore, should not play a significant role in post-graduate studies. In general, however, students agreed that involving librarians more directly in the dissertation research process is an effective way to help them develop information literacy skills. Students also considered that active, constructivist methods of teaching and learning information literacy enhance understanding and learning compared to lecturing, although lectures are experienced as easier.

In the recent research of Julien and Boon (2004), in which the instructional outcomes in Canadian academic libraries were studied, the statements related to the seven faces of information literacy were found in the student interviews. Zarina and Pui (2006) presented their findings of a pilot study which they conducted on 84 students. These students attended an information literacy skills course and at the end of the course, 90% of the students indicated that the information literacy course was significant to them because it taught them how to evaluate sources of information, search and use the Internet and incorporate the use of paraphrasing and synthesizing in their coursework.

Adeogun (2006) expresses similar views by stating that "the purpose of information literacy education is to help students to develop critical thinking and analytical skills which they will need for transforming information into knowledge." It is further confirmed that students who follow information literacy programs "have fewer difficulties in writing papers; are better able to identify reliable sources and assess available resources and services provided by the library; and learn how to understand and draft bibliographical references and avoid plagiarism" (Dadzie, 2009). Information literacy is no doubt paramount in education. Therefore, a convenient approach must be used to teach it to make it more effective.

### 3. Research Methodology

The research designs used in this study were descriptive and explanatory research. A descriptive research design aims to answer who, what, where, which, when or how of the research problem. Descriptive research is usually aimed at collecting data that describes characteristics of persons, situations or events. Descriptive research is either qualitative or quantitative in nature. It may involve the collection of quantitative data such as satisfaction ratings, production figures, sales figures, or demographic information, but it may also include the collection of qualitative information (Uma and Roger, 2013). The explanatory research design was employed in this study to explain the reasons for the phenomenon that the descriptive research method described. This method attempts to answer the question why. The researcher's sample size was 335 patrons (Cooper and Schindler, 2011)

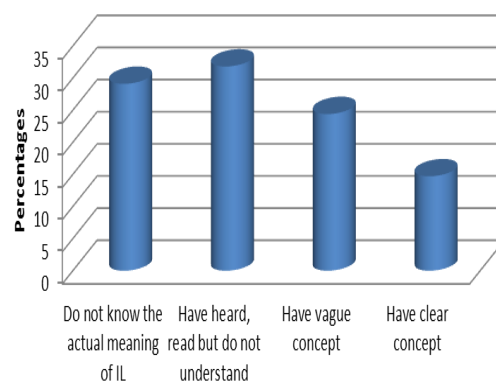
### 4. Findings

#### 4.1 Levels of Information Literacy Skills among Students at JKUAT, Mombasa Campus

##### 4.1.1 Respondents' Understanding of Information Literacy Concept

The study sought to establish the respondents' understanding of information literacy. The findings of the survey indicated that majority of the respondents 31.8% (91) had heard or read but did not understand information literacy, 29.1% (85) did not understand the actual meaning of information literacy. On the other hand, only 24.4 (71) had a

vague concept about information literacy while only 14.7% (43) had a clear concept of information literacy. Figure 4.2 illustrates the findings of the study.



**Figure 4.2. Students' Understanding of Information Literacy Concept.**

The students were further asked to indicate their understanding of information literacy. Majority of the respondents 41.4% (121) did not understand the meaning of information literacy and 17.1% (50) knew information literacy as the ability to establish the depth of the information required, locate it, retrieve it, evaluate it and effectively use the needed information. Sixteen point eight percent of the respondents (49) stated that information literacy involved the understanding and possessing of a set of skills one needs to carry out the functions of efficient information access, retrieval, evaluation, and application is an essential component of any general education program, 8.6% (25) recognized that information literacy is needed for lifelong learning and 16.1% (47) stated the above three definitions as their understanding of information literacy. Table 4.2 summarises the findings of the study.

**Table 4.2. Attributes of Information Literacy Skills.**

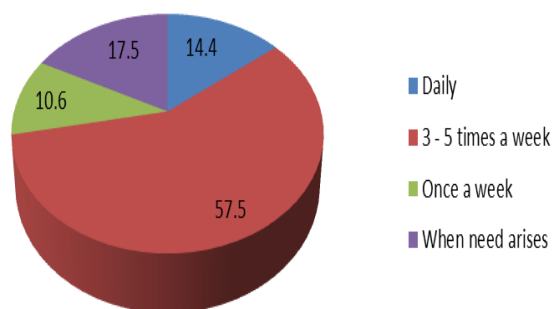
Attribute	Frequency	Percentages
The ability to recognize the extent and nature of information need, then to locate, evaluate and effectively use the needed information	50	17.1
Recognizing that information literacy is needed for lifelong learning	25	8.6
The understanding and set of skills necessary to carry out the functions of effective information access, evaluation, and application is an essential component of any general education program	49	16.8
All the above	47	16.1
I do not know	121	41.4
<b>Total</b>	<b>292</b>	<b>100</b>

The respondents' understanding of information literacy is in line with the definition of other scholars. According to American Library Association Presidential Committee on Information Literacy (1989), information literacy is based on the concepts of bibliographic instruction. Information literacy is the ability to establish the depth of the information required, locate it, retrieve it, evaluate it and effectively use the needed information. Thus, it is the basis for life-long learning. Julien (2002) observed that information literacy is the capacity that one needs to use information source efficiently. An information literate person is said to possess particular online searching skills, which include the ability to construct a logical search strategy, to select appropriate search

terminology and evaluate information appropriately. King'ori (2014) further asserts that a review of the literature demonstrates that information literacy (IL) is embraced throughout the world. King'ori also recognizes the fact that information literacy education is necessary for the production of a flexible workforce of lifelong learners who are among the prerequisite for economic development.

#### 4.1.2 Frequency of Library Visits

The study sought to establish the frequency at which the respondents visited the university library. The study indicated that the majority of the respondents 57.5% (168) visited the Campus library three to five times in a week, 17.5% (51) visited the library when need arose, 14.4% (42) visited the library daily while 10.6% (31) visited the library on a weekly basis. None of the respondents stated that they do not visit the library. The high frequencies of library visits by the respondents of three to five times in a week, (57.5%) revealed that the library is the place that is valued highly by the university students. Figure 4.3 presents the findings of the study.



**Figure 4.3. Frequency of Visits to the Campus library**

#### 4.1.3 Access to the Internet Services

The study sought to establish the means through which the respondents were able to access internet services. Majority of the respondents 42.5% (125) indicated that they accessed the internet through their smartphones; this is evident with the fact that due to advanced technology, mobile phone companies have come up with affordable smartphones which enable respondents to access internet services. 17.1% (50) of the respondents accessed internet services through their laptops, 9.2% (27) accessed the internet in their workplaces due to free Wi-Fi provided by most employers and on the other hand, 9.9% (29) accessed the internet at the campus ICT Lab. 10.3% (30) of the respondents stated that they accessed the internet at a cyber café and 5.2% (15) accessed the internet via their tablets. None of the respondents indicated that they do not have access to the web, a trend which is very encouraging. Table 4.3 summarizes the findings of the study as shown below.

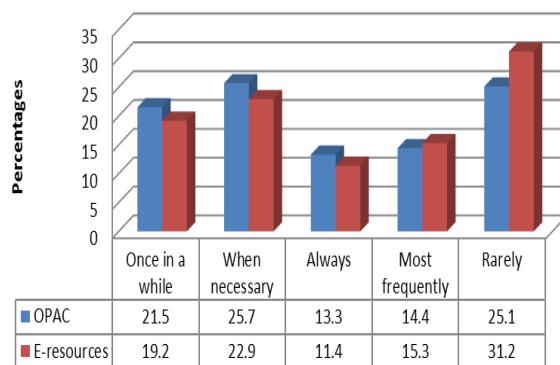
**Table 4.3. Access to Internet Services**

Internet Access	Frequency	Percentage
At my work place	27	9.2
At home	16	5.5
Through my laptop	50	17.1
Through my mobile	125	42.5
At the campus Lab	29	9.9
At the Cyber Café	30	10.3
Through my tablet	15	5.2
I have no access to the Internet	0	0
<b>Total</b>	<b>292</b>	<b>100.0</b>

#### 4.1.4 Use of OPAC and E-resources

The study sought to establish whether the respondents were aware of the OPAC system and E-resources as well as their frequency of use. The findings of the study indicated that all the respondents were aware of the OPAC system and E-resources. A smaller percentage of the respondents 14.4% (42) reported that they use the OPAC most frequently when searching for information materials from the library. 20.5% (60) used OPAC once in a while 24.7% (72) used OPAC when necessary and only 12.3% (36) used the OPAC system always. However, it was regrettable that 28.1% (82) rarely used the OPAC.

The findings of the study indicated that majority of the respondents 31.2% (91) rarely utilized the e-resources for varied reasons, which means that they relied on traditional print resources entirely. They further complained that they could not locate the e-resources on their topics. 22.9% (67) of the respondents only used e-resources when necessary, indicating that the information literacy program is relatively efficient but seems to indicate a little emphasis on the use of e-resources. Another 19.2% (56) of the respondents used e-resources once a week while 15.3% (45) of them stated that they used e-resources most frequently, and only 11.4% (33) indicated that they used e-resources always. These findings show that there is a lack of awareness on the availability of e-resources in the library, and this is the reason information literacy program should put more emphasis on the use of online journals to supplement print materials. Figure 4.4 illustrates the findings of the study.



**Figure 4.4. Frequency of Using E-resources and OPAC System in JKUAT, Mombasa Campus**

#### JKUAT, Mombasa Campus

The results of the survey are indications that majority of the respondents did not know how to use OPAC and e-resources in Jomo Kenyatta University of Agriculture and Technology. This may be because the OPAC terminals or E-resources centres are few in the Campus library, or they get discouraged to use it because they always find that someone else using the material they are searching and they cannot wait until the person is done with it. These results give an indication that the library users do not use the OPAC and E-resources frequently, and this becomes a hindrance to accessing information resources. However, it may be argued that the library collection is still too small to use the OPAC system, but it is important that the users understand the importance of using OPAC and E-resources as tools to save time in accessing information resources.

#### 4.1.5 Information Literacy Skills

The researcher sought to assess the respondents' level of information literacy skills. The researcher did so by posing statements about information literacy skills.

**Table 4.4. Level of Information Literacy Skills.**

Statement		VC	C	UN	VUC	T	M
Use information effectively	F	95	112	45	40	292	2.90
	%	32.5	38.4	15.4	13.7	100	72.5
Formulate questions based on information needs	F	31	78	141	42	292	2.34
	%	10.6	26.7	48.3	14.4	100	58.5
Able to retrieve useful information	F	32	63	145	52	292	2.26
	%	11.0	21.5	49.7	17.8	100	56.5
Recognize need for information	F	63	121	83	25	292	2.76
	%	21.5	41.4	28.5	8.6	100	69.0
Identify potential sources of information	F	40	68	123	61	292	2.30
	%	13.7	23.3	42.1	20.9	100	57.5
Able to evaluate information	F	37	67	138	50	292	2.31
	%	12.7	22.9	47.3	17.1	100	57.8
Develop successful search strategies	F	35	51	111	95	292	2.09
	%	12.0	17.5	38.0	32.5	100	52.3
Using information in critical thinking and problem solving	F	39	90	86	77	292	2.31
	%	13.4	30.8	29.5	26.3	100	57.8

The findings are presented in the four-point Likert's scale as indicated in Table 4.4 below where VC=Very Comfortable C= Comfortable UN=Uncomfortable and VUC=Very Uncomfortable.

The results of the study showed that majority of the respondents 72.5% stated that they used information acquired from different sources effectively to improve their knowledge, 69.0% of the respondents were able to recognize the need for information such as to create awareness, enrich knowledge and for further research. 58.5% of the respondents stated that they knew to formulate questions based on the information that they needed, 57.8% of them reported that they were able to use information acquired in critical thinking and problem-solving cases and evaluate information gathered from different sources for different purposes well.

57.5% of the respondents stated that they were able to identify potential sources of information from the internet, journals, books and library. 56.5% of them reported that they were able to retrieve useful information for their academic and social needs from different sources both online and offline while only 52.3% of the respondents stated that they had developed successful search strategies both in the library and online searches. Based on the findings of the study, the high frequencies of library visits by students reveal that the library as a place is valued highly, however, on how effective they are in locating, evaluating and using the information from the library remains a big question. This is when the information literacy program comes in handy because it helps the library users utilize the available resources more efficiently. The study indicated that the respondents level of skills in information literacy is wanting since only a handful of them can retrieve information and use it effectively.

Lack of information literacy skills by students inhibits efficient utilization of the information resources in Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus. The findings of the study are in agreement with the results of Mathangani and Irura (2005) who stated that examiners at the University of Nairobi noted the lack of diversity of ideas and content in the students' projects, examination scripts and term papers. This indicated that students heavily depend on lecture notes, and they were not using the varied resources available in the library.

According to King'ori, (2014) both lecturers and student in tertiary institutions need adequate skills to handle the

challenges of this information age. They not only need to find relevant and up-to-date information but also be able to evaluate critically and use the information effectively. One of the primary functions of a librarian in a learning institution is to guide the lecturers and students in becoming regular consumers of information. Lock (2003) states that there are two ways of assessing information skills among tertiary institutions. The first way relates to study skills which students will need to put to use during their study. The skills may include the ability to use a library and its resources for advancing one's studies, performing in-depth literature searches needed for a particular area of study and being able to satisfy their tutors and assessors. The second way is preparing students for skills needed upon leaving the education system. Some of the skills are awareness and understanding information production, practical ideas on how to acquire, manage, disseminate and use the acquired information. It also includes the critical appraisal of the content and validity of the information.

#### 4.1.6 Evaluation of Internet Sources

The study sought to find out the search engines used by respondents during their academic work in the library. The findings of the survey established that majority of the respondents 45.9% (134) used Google search engine, 33.9% (98) used Yahoo while very few of them 20.2% (60) used Google Scholar for their searches. More often, the respondents approached the Google search using the assignment question or topic title and mainly to check their e-mails. The respondents also stated that Google is the best because they can extract any information. Compared with the library Website, Google has no restrictions. Figure 4.5 presents the findings of the study.

#### 4.6.2 Methods Used in Provision of Information Literacy Programs by the Librarians

The librarians were also asked to state the methods used in providing information literacy, and one of them stated:

Both theoretical and practical modes are used in teaching Information Literacy. Students are taken to the Electronic Class (Library lab) in the Library, where Library staffs run general classes. After completing the theory part, the students are taken for a library tour where they are shown various sections of the library such as the central circulation, reference, inter-library, journal, Audio-visual and the short loan.



"Some topics taught during the Information Literacy include: an overview of collections, services and facilities, library rules and policies, information retrieval skills, the use of the Online Public Access Catalogue and other retrieval tools and online databases."

Supporting the already given methods, the other librarian stated:

"The students are also taken to the Online Public Access Catalogue) to have hands-on experience in the use of the OPAC. Information Literacy is taught as a part of General Studies, a course offered to first-year student."

The teaching of the Library Orientation Program or Information Literacy is designed to introduce the new students to the library and its layout, the staff, the collections, the service and how to use the library to locate information. For senior students or post-graduates, special training sessions are also organized for searching and retrieval of online database...

Finally, the study sought to know how effective the above mentioned methods were in equipping students with adequate information literacy skills. One of the respondents stated:

"Most students that attend the teaching of the Information Literacy are equipped with skills to independently identify, locate and retrieve information, to the extent that they also can assist fellow students."

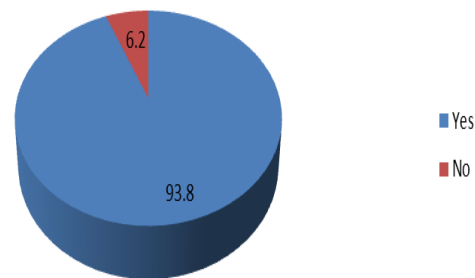
The findings of the study show that librarians were playing a limited role in the instruction of information literacy skills to students yet they have attended workshops and are supposed to spearhead the promotion of the information literacy programs in universities. This calls for a more vigorous move by the librarians in the university to collaborate with the Deans in incorporating the information literacy program into the university curriculum.

The findings of the study are in agreement with the findings of Kavulya (2003) who noted that most students are actually introduced to information literacy skills during Library orientation though the attendance is usually much lower. Library orientation is a very important introductory stage to information literacy, so students should not miss it. This is where students are given a guided tour of the library, shown or given a lecture on its facilities and services. The students are shown the sections in the library and how resources in each section can be accessed. Finding aids, library rules, regulations and procedures are explained. It includes activities such as the distribution of information materials that describe the library system, introductory notes, library tours conducted by staff, demonstration on how to find and retrieve information, different tools such as catalogues and journal indexes.

#### 4.7 Significance of Information Literacy Education and Training in JKUAT, Mombasa Campus

##### 4.7.1 Inclusion of Information Literacy Education

The students were asked to state whether information literacy education and training courses should be included in their programs. Almost all of the respondents 93.8% (274) stated that information literacy education and training courses should be included in university programs while only 6.2% (18) of them held a contrary opinion. Figure 4.8 illustrates the findings of the study.



**Figure 4.8. Inclusion of Information Literacy Education in Graduate Program.**

Information Literacy should be continuous as it is a prerequisite for lifelong learning. Information literacy should be taught at every level. Masters and even Ph.D. students still need to learn more about information literacy, since technology keeps changing, students at all levels must be abreast with current knowledge and skills required to create and use information for knowledge sharing. Information literacy education gives confidence to students and provides them with the opportunity to improve upon their existing skills. Again it helps students maintain the quality of their work since they can appropriately determine what they need to fill the gaps in their academic work (Kavulya, 2003).

##### 4.7.2: Significance of Information Literacy Skills

The study sought to establish how significant information literacy skills had been to the respondents' research and academic work. Table 4.7 summarises the findings of the study.

**Table 4.7. Significance of Information Literacy Skills to Students**

Significance	Frequency	Percentage
Faster access and retrieval of needed information	89	30.4
Effective and efficient use of information	49	16.7
Ability to evaluate information and its sources critically	27	9.1
Understand the economic, legal, and social issues surrounding the use of information	63	21.5
Ability to use information ethically and legally	69	22.3
<b>Total</b>	<b>292</b>	<b>100.0</b>

The results of the survey indicated that majority of the respondents 30.4% (89) stated that information literacy had been helpful in faster access and retrieval of information, 22.3% (69) of them indicated that information literacy had given them the ability to use information acquired from different sources ethically and legally, 21.5% (93) of them stated that information literacy education had enabled them to understand the economic, legal, and social issues surrounding the use of information, 16.7% (49) of them stated that information literacy education had enabled them to acquire both print and electronic sources effectively and efficiently while only 9.1% (27) of them stated that information literacy education had instilled in them the ability to evaluate information and its sources critically.

#### 4.8 Enhancement of Information Literacy Skills in JKUAT, Mombasa campus

##### 4.8.1 Improvement of Library Skills by Librarians

The library staffs were further asked to explain their efforts in sustaining and enhancing information literacy skills among postgraduate students. One of the librarians stated:

"We conduct continuous training sessions to graduate students irrespective of the year of study and more so the school-based group. We also have adequate one on one interaction with the students to assess their diversified information needs and assist them regularly."

To buttress the point, another one of the librarians was of the opinion that:

We try to encourage the management to facilitate the entrenchment of the Information Literacy programs in the common curriculum and make it compulsory and examinable. For individual benefits, we have one –on –one approach interacting with students especially postgraduates whenever necessary. Online, Print Library guides and e-tutorials on library operations are used.

##### 4.8.2 Challenges Experienced in Provision of IL Skills in JKUAT, Mombasa Campus

The study sought to establish the challenges the students encountered when searching for materials in the library. Majority of the respondents 29.1% (85) stated that they were unable to trace the materials they required either because it was not captured in the OPAC system, it was not at the location indicated, or it was not there in the library completely, 22.3% (65) of the respondents stated that most of the information available in the library were outdated, 19.2% (56) of them stated that the internet was slow in the library, and there were very few computers which were connected to the internet. Another 12.0% (35) of the respondents stated that they were unable to locate what they wanted because of lack of searching skills and 8.2% (24) of them indicated that there was minimal assistance from the library staff while 9.2%(27) of the respondents stated that the books were not well organized, and they had several locations in the OPAC system. Table 4.8 summarises the findings of the survey.

**Table 4.8. Challenges Encountered when Searching for Information.**

Challenges	Frequency	Percentage
Inability to locate information because of lack of skills	35	12.0
Minimal assistant from library staff	24	8.2
Books are poorly organised	27	9.2
Slow internet and less internet connected computers	56	19.2
Required material not available	85	29.1
Out-dated information	65	22.3
<b>Total</b>	<b>292</b>	<b>100</b>

The study also sought to establish the challenges faced by library staff in JKUAT, Mombasa Campus face in their quest to improve information literacy skills. One of the librarians was of the opinion that:

Students who join universities for the first time lack basic information handling skills, including basic computer skills. Most students come from poorly technologically equipped schools and, therefore, are poorly equipped to use computers for purposes of accessing information that is largely available electronically. This means therefore that information literacy teachers are forced to begin the lessons at very basic levels... There is a lack of resources necessary to successfully offer

information literacy programs. The ever shrinking university budgets have resulted in shortages of staff and the proper facilities such as computers and computer laboratories.

"Also, the university library is small thus; there is inadequate reading space for students in the library. Also, there is the lack of current information materials in the university library since most of the materials are quite out-dated.

**The other librarian supported the statement above and added that**

The library has electronic resources, including CD-ROMs and databases on various subjects and disciplines from which students can search and access information. The library has limited Internet facilities although the expansion is underway. The library is aware of information literacy standards for higher education and they are being implemented... Most of the university students irrespective of their education level do not have adequate information literacy skills hence they often get stuck hence they are unable to get the information/material that they are looking for. The library staffs also lack adequate time to train adequately the students' relevant information literacy skills due to their program of study.

Finally, the respondents were asked to give further suggestions on how effective information literacy program can be structured and maintained at JKUAT, Mombasa Campus.

**One of the librarians stated that**

The library should prepare and publish a User service manual to help library users in retrieving information and the Commission for University Education (CUE) should entrench the information Literacy program into the curriculum which should be compulsory and examinable across all programs offered in the university. Also, the teaching staff in various departments/disciplines should support information literacy programs provided by libraries by, for example, popularizing the programs among their students. The attendance of the information literacy sessions in the library can be improved if lecturers informed their students how valuable the programs are in their studies.

**One of the librarians was of the opinion that**

There should be regular, several and continuous training of all students in the university that is formally incorporated in the library services on information literacy...There is need to integrate information literacy programs into the curriculum, particularly in institutions that have not done so. In that way, the information literacy programs would be taken more seriously by students. Participation in the programs should be made mandatory for all first-year students. More library staff members should be hired to support the provision of information literacy programs.

#### Conclusion

Only a few of the respondents had a clear understanding of what information literacy entails. Despite the fact that all the respondents do visit the library and were aware of the OPAC system and E-resources, only a smaller percentage of the respondents indicated that they use the OPAC and E-resources most frequently when searching for information materials in the library.

Majority of the respondents have slightly above average skills in information literacy since the majority of the respondents can use the information acquired from different sources effectively to improve their knowledge, can recognize the need for information such as to create awareness, enrich

knowledge and for further research on other skills among others. However, only a few were able to retrieve useful information for their academic and social needs from different sources both online and offline.

Major role played by library staffs in promoting information literacy skills was orientating users on the effective use of the library as the main role of the library staff in supporting the integration of information literacy skills. Other roles included preparing and introducing information resources and library services for students and educators, giving advice/consultation on information retrieval and report writing. Also, the librarians prepare to teach and learning support tools such as teaching manuals the existing roles of library staff in supporting information literacy skills.

Majority of the respondents were introduced to information literacy education and training courses through basic library orientation. Other methods used to provide information literacy skills included receiving information literacy lessons, demonstrations and through Seminars/Workshops, they attended in and out of school. However, these methods were not very effective since most students' have low information literacy skills despite attending orientations programs.

Some of the significance of information literacy skills from the respondents included: faster access and retrieval of information, ability to use information acquired from different sources ethically and legally and enabling them to effective and efficient use information they acquired from the different sources whether print or electronic sources among others.

#### Recommendations

To ensure that students of Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus have adequate Information literacy skills, the study recommends:

##### i) Teaching Methods

Various methods should be employed in the teaching and assessing information literacy skills among students. These methods may include: one-on-one instruction, interactive classes, online tutorials, as well as building assignments around research situations. This will help the students to develop necessary information literacy skills, built the already gained knowledge by the students as well as prepare them for life-long learning.

##### ii) E-Library Resources

Lecturers should be encouraged to include the use of the e-library resources and computers as well as the Internet and online searching skills as part of the students' assignments. This will encourage the students to learn more about electronic libraries and information literacy as well as reduce over-reliance on the traditional methods.

##### iii) Workshops

The students should be encouraged to seek one on one interactions with the librarians and attend workshops, demonstrations and orientation programs organized by the library department to improve their information literacy skills. However, the library should offer more than mere library orientation. This will equip the students with good information literacy skills that will enable them to effectively utilize the information resources in the library.

##### iv) Copyright Issues

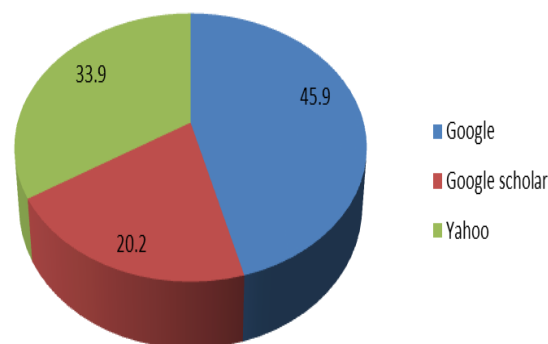
Topics/ issues as plagiarism, copyright, citing and referencing consulted sources, computer literacy skills, database searching, and organization of retrieved information,

evaluation and use of information. This will enable the students to be self-directed learners who are well equipped with adequate information literacy skills for their academic purposes.

#### Suggestion for Further Studies

To effectively implement information literacy skills programs and instill adequate information literacy skills to the university students:

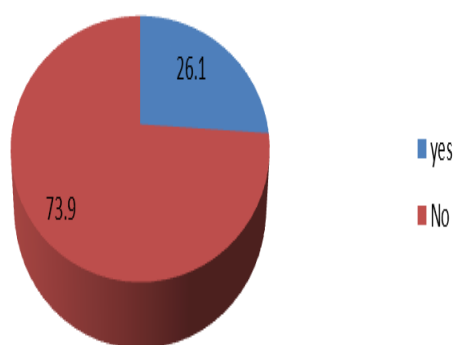
- i) There should be a study on the contribution of lecturers in the development of information literacy skills among their students as well as the significance of information literacy skills among the lecturers and public in general.
- ii) There should be an analysis of the available infrastructure to supports information literacy skills among Kenyan universities.



**Figure 4.5. Search Engines Used by the Respondents.**

The findings of the study are in agreement with the results of Li, Leung and Tam (2007) who noted that nowadays, many students over rely on the internet searches like Google and undermine the academic resources in their libraries. This supports the fact that on information literacy program is supposed to train users on sourcing authoritative works from online databases. Google database generates their listings automatically using "crawl" or "spider" the web software. Their findings are then indexed to build the search base. Crawler-based search engines are good when one has a particular topic in mind.

The study sought to establish the students' ability to evaluate the credibility of Internet sources correctly. Only 30.1% (88) of the respondents knew how to tell whether a web source is worth using while 69.9% (204) of them did not know. The respondents who stated that they knew how to check the credibility of e-resources were asked to name any three things that they would look out for. Only 26.1% (23) of them stated the correct way of assessing the credibility of the work. They suggested that one had to check: Author and authors' credentials, the credibility of the site, the date when the site was created and last up-dated, check if there are any spelling errors and check if the address or e-mail to contact the author is provided. The majority of the respondents 73.9% (65) partially knew how to evaluate the credibility of the internet sources. This suggests that in spite of having received Internet training from library staff and information literacy skills, the majority of the respondents still did not know how to tell whether a web source is worth using. Figure 4.6 presents the findings of the study.



**Figure 4.6. Knowledge of Correctly Evaluating the Credibility of Internet Sources**

Based on the findings of the study, most of the respondents in Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus are information illiterate because they cannot adequately locate information and judge the credibility of the information from the website. According to the Association of College and Research Libraries (2006) an information literate person should be able to: access information effectively, evaluates information critically, incorporate selected information into one's knowledge base, understands the socio-economic and legal issues pertaining information and access and use information ethically and legally.

Corroborating ACRL's observation, ("Information Literacy" 2007) states that an information literate person should be able to identify complete and accurate information and to retrieve information. He or she formulates study questions, retrieves the needed information effectively, evaluates the content obtained, organizes it for practical use and adds value to the existing body of knowledge. Doyle (1992) shared the same sentiments.

#### 4.5 Role of Librarians in the Integration of Information Literacy Programs in JKUAT, Mombasa Campus

The respondents were asked their perception on the role or mission of librarians in supporting information literacy in Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus.

**Table 4.5. Role of Library Staff in Supporting Information Literacy Programs in JKUAT, Mombasa Campus.**

Role of Library Staff	Frequency	Percentage
Orientating the use of library	125	42.8
Preparing and introducing information resources and library services for students and educators	50	17.1
Giving advices/consultation on information retrieval and report writing	74	25.3
Participating in the teaching team with educators	27	9.2
Making teaching and learning support tools such as teaching manuals, exercises and websites	16	5.5
Total	292	100.0

The results of the survey indicated that majority of the respondents 42.8% (125) orientated users on the effective use of the library, 17.1% (50) stated preparing information resources and introducing library services for students and educators. 25.3% (74) of the respondents stated giving advice/consultation on information retrieval and report writing, 9.2% (27) of them stated participating in the teaching team with educators while only 5.5% (16) of them reported making teaching and learning support tools such as teaching manuals, exercises and websites. Table 4.5 summarises the findings of the study.

#### 4.5.1 Proposed Role of Librarians in Promoting Information Literacy Skills

The study sought to establish what other roles the respondents suggest for the library staff to help them improve their information literacy skills. Based on the results of the study, majority of the students 33.2% (97) stated that the librarians should be involved in educating students on the analysis of information requirements for their research topics, academic work, and research general, 20.9% (61) of them stated that they should be carrying out continuous demonstrations of methods of information retrieval in the library apart from orientations. 18.8% (55) of the respondents stated they should assess and evaluate students' information literacy skills, 13.4% (39) of them stated the librarians should be involved in the teaching plan for the courses in which information literacy is integrated while 13.7% (40) of them stated that the librarians should be involved with all of the above. The findings of the survey are illustrated in Table 4.6.

**Table 4.6. Proposed Role for Librarians**

Proposed Role for the Librarians	Frequency	Percentage
Analysing the teaching plan of the course in which information literacy will be integrated	39	13.4
Assessing and evaluating students' information literacy skills	55	18.8
Educating students on the analysis of information requirements for their research topics	97	33.2
Demonstrating methods of information retrieval	61	20.9
All of the above	40	13.7
Total	292	100

In support of the findings of the study, one of the librarians stated:

Library administrators should be allowed to teach or co-teach different courses that entail information literacy skills. This can also include stipulating teaching as one mission of librarians, preparing teaching venues, such as computer laboratory and small conference room, preparing teaching facilities, allocating time for teaching or meeting with educators...

The findings of the study are in agreement with the findings of other scholars. Standing Conference of National and University Libraries (1999) and Li (2006) in their work stated that librarians play an important part in enhancing information literacy in learning institutions. ACRL (2000), stated that librarians coordinate the collection of relevant educational resources for the different sources by arranging them systematically and teach students as well as their lecturers how to retrieve quick information.

Enger et al., (2002) also states that librarians in learning institutions should prepare information resources to help

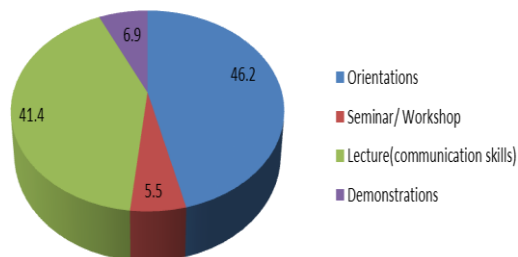


students and emphasizes problem-based learning. Also, ACRL has set the methods for library implementation to make sure that the librarians are competent and experienced personnel to educate students (ACRL, 2006). Rockman (2004) explains that an academic library has three primary functions to assist educators in information literacy instruction: to revise their courses to suit the changing needs of the students; to integrate technology like the use of databases and electronics information resources in assignments and to support integration information literacy in the course outcomes.

#### 4.6 Methods Used in Provision of Information Literacy Program in JKUAT, Mombasa Campus

##### 4.6.1 Methods Used to Introduce Information Literacy Programs

Respondents were also asked to indicate how they were introduced to information literacy education and training courses, and the findings showed most of the respondents 46.2% (135) were introduced to information literacy education and training courses through basic library orientation. 41.4% (121) indicated receiving information literacy lessons through their educational curriculum (Communication Skills), a common unit which is a must for newly admitted students. Demonstrations of computer use and Internet access skills were reported by only 6.9% (20) of the respondents who were mainly undertaking their Masters and Ph.D. programs while 5.5% (16) indicated learning it through Seminars/Workshops they attended in and out of school. Figure 4.7 presents the findings of the study.



**Figure 4.7. Methods Used to Provide Information Literacy Programs**

The library staff were asked whether they had information literacy training as well as to specify the frequency of the training in information literacy programs in Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus. One of the librarians stated as follows:

"Information literacy program is done once per academic year during orientation and library tour for new students but even continuing students are also invited. The library orientation program is usually mandatory at JKUAT. Also, there is continuous training on access to E-resources."

Supporting this view, the other one was of the opinion that:

"Demonstration on the use of library resources as well as retrieval of information is conducted occasionally within a semester, and one on one consultation is also done whenever students' need arises..."

##### 4.6.2 Methods Used in Provision of Information Literacy Programs by the Librarians

The librarians were also asked to state the methods used in providing information literacy, and one of them stated: Both theoretical and practical modes are used in teaching Information Literacy. Students are taken to the Electronic

Class (Library lab) in the Library, where Library staffs run general classes. After completing the theory part, the students are taken for a library tour where they are shown various sections of the library such as the central circulation, reference, inter-library, journal, Audio-visual and the short loan.

"Some topics taught during the Information Literacy include: an overview of collections, services and facilities, library rules and policies, information retrieval skills, the use of the Online Public Access Catalogue and other retrieval tools and online databases."

Supporting the already given methods, the other librarian stated:

"The students are also taken to the Online Public Access Catalogue) to have hands-on experience in the use of the OPAC. Information Literacy is taught as a part of General Studies, a course offered to first-year student."

The teaching of the Library Orientation Program or Information Literacy is designed to introduce the new students to the library and its layout, the staff, the collections, the service and how to use the library to locate information. For senior students or post-graduates, special training sessions are also organized for searching and retrieval of online database... Finally, the study sought to know how effective the above mentioned methods were in equipping students with adequate information literacy skills. One of the respondents stated:

"Most students that attend the teaching of the Information Literacy are equipped with skills to independently identify, locate and retrieve information, to the extent that they also can assist fellow students."

The findings of the study show that librarians were playing a limited role in the instruction of information literacy skills to students yet they have attended workshops and are supposed to spearhead the promotion of the information literacy programs in universities. This calls for a more vigorous move by the librarians in the university to collaborate with the Deans in incorporating the information literacy program into the university curriculum.

The findings of the study are in agreement with the findings of Kavulya (2003) who noted that most students are actually introduced to information literacy skills during Library orientation though the attendance is usually much lower. Library orientation is a very important introductory stage to information literacy, so students should not miss it. This is where students are given a guided tour of the library, shown or given a lecture on its facilities and services. The students are shown the sections in the library and how resources in each section can be accessed. Finding aids, library rules, regulations and procedures are explained. It includes activities such as the distribution of information materials that describe the library system, introductory notes, library tours conducted by staff, demonstration on how to find and retrieve information, different tools such as catalogues and journal indexes.

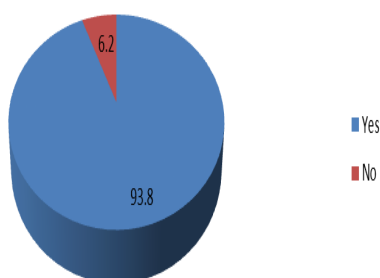
#### 4.7 Significance of Information Literacy Education and Training in JKUAT, Mombasa Campus

##### 4.7.1 Inclusion of Information Literacy Education

The students were asked to state whether information literacy education and training courses should be included in their programs. Almost all of the respondents 93.8% (274) stated that information literacy education and training courses should be included in university programs while only 6.2%



(18) of them held a contrary opinion. Figure 4.8 illustrates the findings of the study.



**Figure 4.8. Inclusion of Information Literacy Education in Graduate Program.**

Information Literacy should be continuous as it is a prerequisite for lifelong learning. Information literacy should be taught at every level. Masters and even Ph.D. students still need to learn more about information literacy, since technology keeps changing, students at all levels must be abreast with current knowledge and skills required to create and use information for knowledge sharing.

Information literacy education gives confidence to students and provides them with the opportunity to improve upon their existing skills. Again it helps students maintain the quality of their work since they can appropriately determine what they need to fill the gaps in their academic work (Kavulya, 2003).

#### 4.7.2: Significance of Information Literacy Skills

The study sought to establish how significant information literacy skills had been to the respondents' research and academic work. Table 4.7 summarises the findings of the study.

**Table 4.7. Significance of Information Literacy Skills to Students**

Significance	Frequency	Percentage
Faster access and retrieval of needed information	89	30.4
Effective and efficient use of information	49	16.7
Ability to evaluate information and its sources critically	27	9.1
Understand the economic, legal, and social issues surrounding the use of information	63	21.5
Ability to use information ethically and legally	69	22.3
Total	292	100.0

The results of the survey indicated that majority of the respondents 30.4% (89) stated that information literacy had been helpful in faster access and retrieval of information, 22.3% (69) of them indicated that information literacy had given them the ability to use information acquired from different sources ethically and legally, 21.5% (963) of them stated that information literacy education had enabled them to understand the economic, legal, and social issues surrounding the use of information, 16.7% (49) of them stated that information literacy education had enabled them to acquire both print and electronic sources effectively and efficiently while only 9.1% (27) of them stated that information literacy education had instilled in them the ability to evaluate information and its sources critically.

## 4.8 Enhancement of Information Literacy Skills in JKUAT, Mombasa campus

### 4.8.1 Improvement of Library Skills by Librarians

The library staffs were further asked to explain their efforts in sustaining and enhancing information literacy skills among postgraduate students. One of the librarians stated:

"We conduct continuous training sessions to graduate students irrespective of the year of study and more so the school-based group. We also have adequate one on one interaction with the students to assess their diversified information needs and assist them regularly."

To buttress the point, another one of the librarians was of the opinion that:

We try to encourage the management to facilitate the entrenchment of the Information Literacy programs in the common curriculum and make it compulsory and examinable. For individual benefits, we have one –on –one approach interacting with students especially postgraduates whenever necessary. Online, Print Library guides and e-tutorials on library operations are used.

### 4.8.2 Challenges Experienced in Provision of IL Skills in JKUAT, Mombasa Campus

The study sought to establish the challenges the students encountered when searching for materials in the library. Majority of the respondents 29.1% (85) stated that they were unable to trace the materials they required either because it was not captured in the OPAC system, it was not at the location indicated, or it was not there in the library completely, 22.3% (65) of the respondents stated that most of the information available in the library were outdated, 19.2% (56) of them stated that the internet was slow in the library, and there were very few computers which were connected to the internet. Another 12.0% (35) of the respondents stated that they were unable to locate what they wanted because of lack of searching skills and 8.2% (24) of them indicated that there was minimal assistance from the library staff while 9.2% (27) of the respondents stated that the books were not well organized, and they had several locations in the OPAC system. Table 4.8 summarises the findings of the survey.

**Table 4.8. Challenges Encountered when Searching for Information.**

Challenges	Frequency	Percentage
Inability to locate information because of lack of skills	35	12.0
Minimal assistant from library staff	24	8.2
Books are poorly organised	27	9.2
Slow internet and less internet connected computers	56	19.2
Required material not available	85	29.1
Out-dated information	65	22.3
Total	292	100

The study also sought to establish the challenges faced by library staff in JKUAT, Mombasa Campus face in their quest to improve information literacy skills. One of the librarians was of the opinion that:

Students who join universities for the first time lack basic information handling skills, including basic computer skills. Most students come from poorly technologically equipped schools and, therefore, are poorly equipped to use computers for purposes of accessing information that is largely available electronically. This means therefore that information literacy teachers are forced to begin the lessons at very basic levels... There is a lack of resources necessary to successfully offer

information literacy programs. The ever shrinking university budgets have resulted in shortages of staff and the proper facilities such as computers and computer laboratories.

"Also, the university library is small thus; there is inadequate reading space for students in the library. Also, there is the lack of current information materials in the university library since most of the materials are quite out-dated.

The other librarian supported the statement above and added that:

The library has electronic resources, including CD-ROMs and databases on various subjects and disciplines from which students can search and access information. The library has limited Internet facilities although the expansion is underway. The library is aware of information literacy standards for higher education and they are being implemented... Most of the university students irrespective of their education level do not have adequate information literacy skills hence they often get stuck hence they are unable to get the information/material that they are looking for. The library staffs also lack adequate time to train adequately the students' relevant information literacy skills due to their program of study.

Finally, the respondents were asked to give further suggestions on how effective information literacy program can be structured and maintained at JKUAT, Mombasa Campus. One of the librarians stated that:

The library should prepare and publish a User service manual to help library users in retrieving information and the Commission for University Education (CUE) should entrench the information Literacy program into the curriculum which should be compulsory and examinable across all programs offered in the university. Also, the teaching staff in various departments/disciplines should support information literacy programs provided by libraries by, for example, popularizing the programs among their students. The attendance of the information literacy sessions in the library can be improved if lecturers informed their students how valuable the programs are in their studies.

One of the librarians was of the opinion that:

There should be regular, several and continuous training of all students in the university that is formally incorporated in the library services on information literacy... There is need to integrate information literacy programs into the curriculum, particularly in institutions that have not done so. In that way, the information literacy programs would be taken more seriously by students. Participation in the programs should be made mandatory for all first-year students. More library staff members should be hired to support the provision of information literacy programs.

### **Conclusion**

Only a few of the respondents had a clear understanding of what information literacy entails. Despite the fact that all the respondents do visit the library and were aware of the OPAC system and E-resources, only a smaller percentage of the respondents indicated that they use the OPAC and E-resources most frequently when searching for information materials in the library.

Majority of the respondents have slightly above average skills in information literacy since the majority of the respondents can use the information acquired from different sources effectively to improve their knowledge, can recognize the need for information such as to create awareness, enrich knowledge and for further research on other skills among

others. However, only a few were able to retrieve useful information for their academic and social needs from different sources both online and offline.

Major role played by library staffs in promoting information literacy skills was orientating users on the effective use of the library as the main role of the library staff in supporting the integration of information literacy skills. Other roles included preparing and introducing information resources and library services for students and educators, giving advice/consultation on information retrieval and report writing. Also, the librarians prepare to teach and learning support tools such as teaching manuals the existing roles of library staff in supporting information literacy skills.

Majority of the respondents were introduced to information literacy education and training courses through basic library orientation. Other methods used to provide information literacy skills included receiving information literacy lessons, demonstrations and through Seminars/Workshops, they attended in and out of school. However, these methods were not very effective since most students' have low information literacy skills despite attending orientations programs.

Some of the significance of information literacy skills from the respondents included: faster access and retrieval of information, ability to use information acquired from different sources ethically and legally and enabling them to effective and efficient use information they acquired from the different sources whether print or electronic sources among others.

### **Recommendations**

To ensure that students of Jomo Kenyatta University of Agriculture and Technology, Mombasa Campus have adequate Information literacy skills, the study recommends:

#### **v) Teaching Methods**

Various methods should be employed in the teaching and assessing information literacy skills among students. These methods may include: one-on-one instruction, interactive classes, online tutorials, as well as building assignments around research situations. This will help the students to develop necessary information literacy skills, built the already gained knowledge by the students as well as prepare them for life-long learning.

#### **vi) E-Library Resources**

Lecturers should be encouraged to include the use of the e-library resources and computers as well as the Internet and online searching skills as part of the students' assignments. This will encourage the students to learn more about electronic libraries and information literacy as well as reduce over-reliance on the traditional methods.

#### **vii) Workshops**

The students should be encouraged to seek one on one interactions with the librarians and attend workshops, demonstrations and orientation programs organized by the library department to improve their information literacy skills. However, the library should offer more than mere library orientation. This will equip the students with good information literacy skills that will enable them to effectively utilize the information resources in the library.

#### **viii) Copyright Issues**

Topics/ issues as plagiarism, copyright, citing and referencing consulted sources, computer literacy skills, database searching, and organization of retrieved information, evaluation and use of information. This will enable the

students to be self-directed learners who are well equipped with adequate information literacy skills for their academic purposes.

### Suggestion for Further Studies

To effectively implement information literacy skills programs and instill adequate information literacy skills to the university students:

iii) There should be a study on the contribution of lecturers in the development of information literacy skills among their students as well as the significance of information literacy skills among the lecturers and public in general.

iv) There should be an analysis of the available infrastructure to supports information literacy skills among Kenyan universities.

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