

Prospects of Digital Libraries in Enhancing Academic Materials Access: A Survey of Libraries in Higher Learning Institutions in Kilimanjaro Region

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Abstract

The study set out to explore prospects of using digital libraries to enhance access to academic materials to library users in the Higher Learning Institutions (HLIs) in Kilimanjaro region, Tanzania. Interviews, questionnaires and focus group discussions were methodological underpinnings adopted to explore the case using cross-sectional type of designs. Study findings revealed that despite the fact that each HLI had a library, but sitting pattern did not keep pace with the increasing number of students enrolled each year. Opening and closing hours were also observed to be an obstacle for many library users to access learning materials, lack of variety and updated books in various study disciplines, and involvement of a lot of mechanical books searching was also observed to be challenges facing readers in the existing libraries. The turning point for the above mentioned challenges is to establish digital library. However, digital library implementation fall into doldrums because of the following identified factors; shortage of fund, low technology, power rationing, inadequate Information and Communication Technology (ICT) tools to the libraries, shortage of skilled personnel who can start and run digital library, unstable network infrastructures, and high cost for internet bandwidth. The study calls for deliberate action to implement digital libraries especially in HLIs in order to harvest the prospects of digital libraries in enhancing access to learning materials and consequently improving students' academic performance.

Keywords

Library, Digital library, Higher learning institution, ICT

1. Introduction

1.1 Background Information

Technological advancements have shown a substantial growth concerned with each and every field whether it be the communication systems, astronomy, semiconductor devices, automobiles, and electronic devices of daily usage, bio-electronic devices, building and architectural design techniques or the computers. These advancements in technologies have been witnessed as days pass by (Patil, 2009). One of the areas in which technological advancements has been clearly witnessed is the Information and Communication Technologies (ICTs). Such advancements have been manifested themselves in many application domains, one of which is in education, and particularly in facilitating educational library functions (Makri, 2004). Arkim (2010) contends that before, libraries were full of

paper books arranged in shelves by category and alphabetically. Today, a library is never complete without computers, and although there are still books in shelves, they seem to be gathering dust and become more of decoration rather than source of information. The author further asserted that ICTs facilitates implementation of digital libraries.

A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible via computers. The digital content may be stored locally, or accessed remotely via computer networks (Greenstein and Thorin, 2002). Seadle and Greifeneder (2007) added that a digital library is based on documents in digital form that are handled like traditional library documents in standard processes (collecting, cataloging, and providing access) and that are made available online for users via catalog records. A digital library may offer many technology-enabled functions and services that support users, both as information producers and as information users (Soergel, 2008).

It is asserted by Alhaji (2008) that the needs for digital libraries become significant when we look for improved information sharing, improved and wider access of library materials, and improved preservation of the same. Hawkins (2002) pointed out that when the number of library users increases with no or little increased library resources such as reading areas, library materials and librarians the basic purpose of having a library become weakened.

According to the URT (2010) in its report on Basic Education Statistics in Tanzania (BEST) 2006-2010 there has been increasing number of students enrolled to higher learning institutions in Tanzania. Figure 1 gives a summary of net enrolment of students in higher leaning institutions in Tanzania in five consecutive years, from 2005-2006 academic year to 2009-2010.

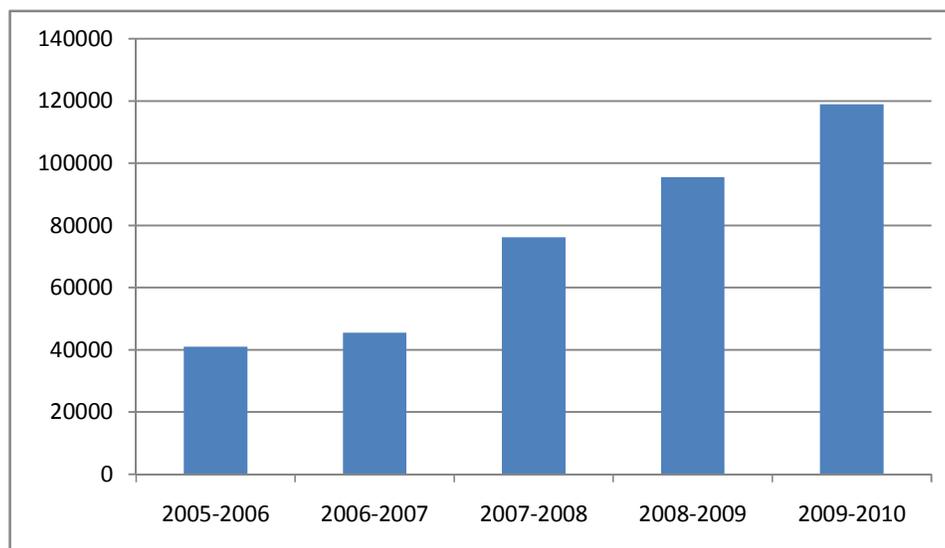


Figure 1: Trend of students' enrollment in Tanzania HLIs for five consecutive academic years, *Source: URT, 2010*

As it can be seen the number of enrolled students in 2009-2010 academic year is more than twice as much as that of 2005-2006. With this increased number it is clear that potential library users increased as well in those academic years. This study was carried out therefore to survey the libraries in higher learning institution in the area of study to see how they operate and if they suffice the basic goal of providing academic materials access to their reader

1.2 Problem Statement

The number of students enrolled to higher learning institutions increases with years which entail the increasing library users. With the increasing library users it is mandatory to increase library resources such as librarians, seating spaces, and library materials. To increase seating space for example, is likely to need physical expansion of the libraries. Furthermore some higher learning institutions have also established distance learning courses. It is high time them to look if the existing libraries suffice with the present trend. With presence of digital libraries we can be assured of access to academic materials at anytime and anywhere. The present study was therefore carried out to, first survey the current status of the existing libraries in the area of study, and second finds out ways in which digital libraries can help to enhance access to academic materials.

1.3 Objectives of the study

The general objective of this study was to explore prospects of using digital libraries in enhancing access to academic materials by library users in Higher Learning Institutions. Specific objectives of the study were;

- i. To examine the current status of existing libraries in the area of study in serving potential readers
- ii. To ascertain challenges facing the implementation of digital libraries in the study area, and
- iii. To find out ways to which digital libraries can help to supplement traditional libraries in accessing learning materials.

1.4 Research questions

In order to come out with sound findings the present study looked forward to answer the following research questions;

- i. What is the current readers-serving status of libraries existing in the area of study?
- ii. What challenges faces the implementation of digital libraries, and what is the way through?
- iii. In what ways can digital libraries help to supplement traditional libraries?

1.5 Significance of the study

The present study was carried out to survey the existing libraries in higher learning institutions in Kilimanjaro region. The survey helped to establish the status of the libraries in that study area. Findings from this study therefore helped researchers to provide recommendations to the institutions on how to improve provision of their library services their readers. The use of digital libraries has been suggested and recommendations on how to make it effective were provided. This will help stakeholders in both levels from policy makers, policy implementers, and the whole community at large to effectively utilized the same and hence improves opportunities for academic materials access to readers. The study can furthermore be used to reduce literatures gap for other researchers who would like to research of the similar area.

2. Research Methodology

2.1 Research Design

A cross section research design that involved asking questions to respondents at a single point at a particular time was used in this study. The reason for selecting the cross section survey design is that it was time and resource effective hence enabled the researchers to come up with best results.

2.2 Choice and Description of the Study Area

This study was conducted in Kilimanjaro region. Kilimanjaro region is one of the 30 regions of Tanzania. The headquarters of the region is Moshi. Kilimanjaro region is bordered to the North and East by Kenya, to South is bordered by Tanga region, to South-West by Manyara region and to West by Arusha region. According to the 2002 Tanzania census the population of Kilimanjaro was 1,138,149 constituting 90 percent rural residents (URT, 2002). Kilimanjaro region is among the regions with big number of higher learning institutions in Tanzania, with a total of five higher learning institutions.

2.3 Population, Sampling and Sample Size

2.3.1 Population

The population for this study comprised libraries in the higher learning institutions in Kilimanjaro region. Among the higher learning institutions in Kilimanjaro region, four are university colleges and one is the Open University of Tanzania-Kilimanjaro centre. In the 2011/12 academic year the four University colleges comprised a total of 7916 students. These are the main potential library users. Other respondents involved in this study were academic staff, librarians and admissions officers.

2.3.2 Sample Size

This study involved surveying libraries in higher learning institutions in Kilimanjaro region. It surveyed a total of four libraries in the four higher learning institutions in the region. Those higher learning institutions were Moshi University College of Co-operative and Business Studies (MUCCoBS), Mwenge University College of Education (MWUCE), Kilimanjaro Christian Medical College (KCMCo), and Stefano Moshi Memorial University College (SMMUCo)-Masoka campus. The Open University of Tanzania-Kilimanjaro Centre was not involved in this study because most of its students are distance students and therefore its library was not involved. A total of 80 respondents, 20 from each institution, were drawn from representative sample. 20 academic staff (five from each institution), eight librarians (two from each institution) and four admissions officers (one from each institution) were involved in this study. Total respondents involved in this study were therefore 112.

2.3.3 Sampling

Simple random sampling technique was employed to obtain the representative sample from the population under study. The reason for using simple random sampling method is that the technique allowed for equal chance of representatives to be involved in the study.

2.4 Data Collection Methods

Data was collected from the four higher learning institutions in Kilimanjaro region. Both primary and secondary (qualitative and quantitative) data were collected in this study. A variety of methods and sources of information was used in the study as a means of cross-checking. The main data sources were questionnaires, interviews, internet search, surveying existing library documents, and physical observations of the libraries in place.

2.5 Data Analysis and Presentation

The study used descriptive statistics technique. Data were coded and analyzed using Statistical Package for Social Science (SPSS). In this statistical package descriptive statistics such as frequencies, means and percentages were determined where the implications of the results led to recommendations.

3. Findings

3.1 Trends of students enrolments

Trends of students' enrolments for the five consecutive academic years, from 2005/06 to 2009/10, in the four higher learning institutions were investigated. The trend shows an increasing number of students enrolled as years go. This increasing number suggests also continuous increasing library users in the respective institutions. Figure 2 gives a summary of these trends.

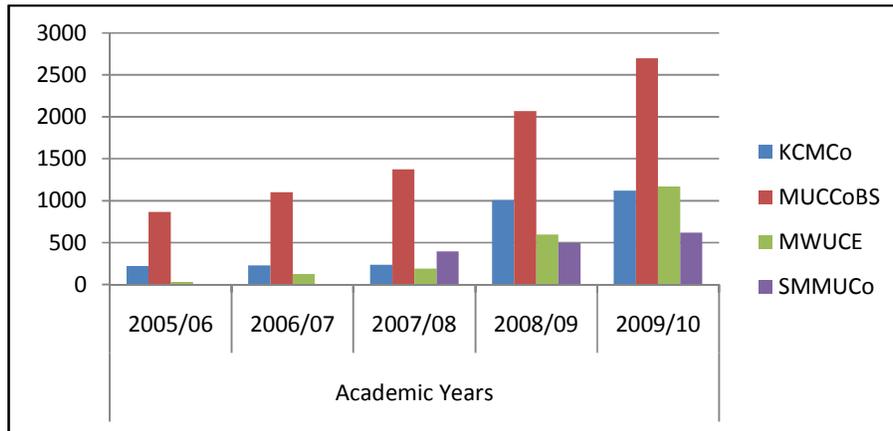


Figure 2: Trends of students enrollments in the surveyed institutions, *Source: URT, 2010*

3.2 Types of respondents involved

This study involved potential library users and the admissions officers in the respective libraries in the area of study. Potential Library users involved were students, academic staff and librarians. Students formed a major group of respondents interviewed where by 20 students from each institution, making a total of 80 students (equivalent to 71.4% of all respondents) were involved. This group constituted a major part of respondents because students are the dominating users of library services, and basically this group is the target group of this study. The other group of respondents that were involved in the study was academic staff. This group involved 20 academic staff, five from each institution visited, the group therefore constituted 17.9% of all respondents. Two librarians from each institution's library were also involved in this study. The total librarians involved in this study were eight, equivalent to 7.1% of all respondents. The last group was admissions officers. One admissions officer from each institution was involved, making a total of four admissions officers which is equivalent to 3.6% of all respondents involved in this study. Figure 3 summarizes these respondents' groups.

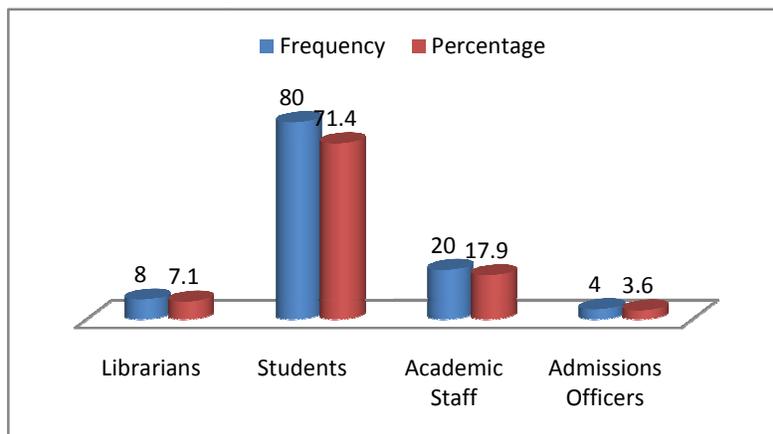


Figure 3: Composition of respondents involved in the study

3.3 Library status

3.3.1 Library operating time

Each of the four higher learning institutions in Moshi Municipality that were involved in this study had at least one main library, a traditional one. Consequently four libraries were visited during this study. It was established that none of the surveyed library operates in 24 Hours. Also all of the four surveyed libraries were found to be completely closed for the whole day in public holidays. Furthermore only the MUCCoBS library operates on Sundays, however it operates for only three hours, other libraries operate only on weekdays and Saturdays. During weekdays all libraries are opened at 0900 Hours except that of MUCCoBS which is opened at 0830Hours. Closing hours for all the surveyed libraries is 2200 Hours. The operating hours in Saturdays differs from one library to another as it is summarized in Table 1.

As it is presented in Table 1, this study found that out of the 168 hours of the week, KCMCo library is operating for only 69 hours, MUCCoBS library is operating for only 69.5 hours, MWUCE library is operating for only 74 hours, and SMMUCo library is operating for only 69 hours. Public holidays in which libraries are closed were not counted herein, the study therefore assumed a semester with no single public holiday.

Library	Weekdays (Hours)		Saturdays (Hours)		Sundays (Hours)		Calculated total operating Hours per week
	Opening	Closing	Opening	Closing	Opening	Closing	
KCMCo	0900	2200	0900	1300	-	-	69
MUCCoBS	0830	2200	1400	1800	1500	1800	69.5
MWUCE	0900	2200	0900	1800	-	-	74
SMMUCo	0900	2200	0900	1300	-	-	69

Table 1: Libraries working hours in weekdays

These results further suggest that, in a 16 weeks semester, KCMCo library is not operating for a total of 99 hours (equivalent to approximately 4 days) in a week, which is also equivalent to 64 days in a semester. MUCCoBS library is not operating for 98.5 hours (equivalent to approximately 4 days) in a week, which is also equivalent to 64 days in a semester. MWUCE library is not operating for 94 hours (equivalent to 3.9 days) in a week, which is also equivalent to 62.7 days in a semester. Lastly, SMMUCo library is not operating for a total of 99 hours (equivalent to approximately 4 days) in a week, which is also equivalent to 64 days in a semester. These results are summarized in figure 4. Further analysis of these data reveals that each of these institutions is operating for seven (7) weeks in a semester while the remaining nine (9) weeks all the libraries are closed.

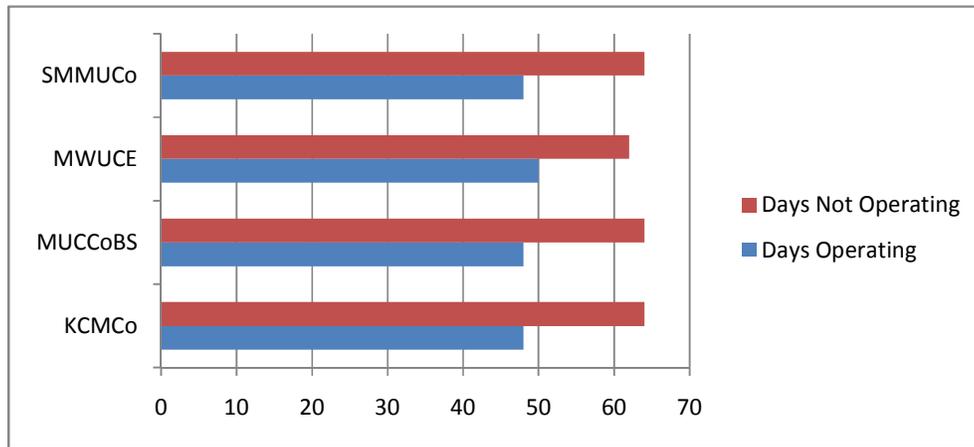


Figure 4: Summary of days in which libraries operates and not in a semester

3.3.2 Seating space

Findings showed that in the 2011/2012 academic year the smallest library out of the four surveyed libraries had a seating capacity of 50 readers at a time, while the largest library had a seating capacity of 200 readers at a time. Furthermore the total number of students enrolled to the institution with smallest and largest library was 465 and 3890 respectively as summarized in table 2. This number of enrolled students is the number of only those students registered as library users.

Higher Learning Institution	2011/12 Academic Year		
	Enrolled Students	Library Seating Capacity	Percentage (%)
KCMCo	961	100	10.4
MUCCoBS	3890	200	5.1
MWUCE	2600	200	7.7
SMMUCo	465	50	10.8
TOTAL	7916	550	6.9

Table 2: Ratio of library seating capacity to students' enrollment

As seen in table 2, KCMCo and SMMUCo are the institutions with a relatively good ratio of enrolled students per library seating space i.e. approximately 1:9 (this ratio is equivalent to 10.4% and 10.8% of all KCMCo and SMMUCo students respectively who can seat in the library at a time), while MUCCoBS has a poor ratio i.e. 1:26 (which is an equivalent to only 5.1% of all MUCCoBS students be accommodated in a library at one time). These findings suggests that none of the institution can serve even one eighth of all students at a time, which implies that potential library users are likely to miss the library service at the time they want to make the most of them.

3.3.3 Library Expandability

The present study observed that libraries in the area of study tend to add new volumes of library materials when need arises and financial resources are available. A physical survey however showed that the libraries are almost full with library materials which alarms for the need of physical expansion of libraries to add new book shelves so as to accommodate future depositories. However all surveyed libraries are built with block walls and concrete of which libraries' physical expansion looks impractical. When the needs to expand libraries will become serious the institutions will then

be forced to construct new big library buildings. This implies to more financial resources for constructing new library buildings will soon be needed to each of the visited institution.

3.3.4 Items Searching

Libraries consist of thousands of volumes of items such as books and journals. Knowing an exact position to find an item is important to save readers' time. For that reason therefore it is necessary to have searching mechanisms that will facilitate in locating where exactly a certain item is found in the library. A survey of the four libraries revealed that all of them have software to facilitate items searching, however the software is only accessible within the library premises. Readers cannot access that software at remote places and therefore it becomes difficult for them to know if a certain item is within the library at a particular time until they physically visit the library.

3.3.5 Borrowing and returning of library materials

The study discovered that only one library out of the four surveyed libraries uses special software for checking in and checking out of library materials. The software facilitates tracking of borrowed library materials. Furthermore it was discovered that time to return borrowed library materials differs from students and staff in all libraries visited. The library by-laws for returning borrowed materials are not so strict to staff, but much enforcement is stressed to students. Time for students to stay with library material differs from one institution to another. The study revealed that maximum number of days to stay with library materials differs from one institution to another; 14 being the maximum number of days while three is the minimum. It was also realized that materials in special reserve are not allowed to be borrowed; they should be read within the library. However in some of the libraries a reader is allowed to read a special reserve material for a maximum of only three hours.

3.4 Challenges facing library users

The present study went further to find out what library users consider to be the main challenges facing them when accessing or aiming to access library services. Respondents responded by providing different challenges that face them as far as their library access is concerned. 80.4% of all respondents who were interviewed mentioned lack of enough library seating space as one of the challenges facing library users, 40.2% mentioned limited library access in terms of time and remote access, 22.3% mentioned lack of variety of reference books in various fields, and 31.3% said that some of the courses were missing updated books. Other reasons mentioned were inability to share library items (especially when someone else have borrowed it) 17.9%, short time to stay with library items 8.9%, and difficulties in searching of library items in some of the institutions 35.7%. These findings are summarized in figure 5. As seen in the summary the challenge that was mentioned by most of respondents was the lack of enough library seating space.

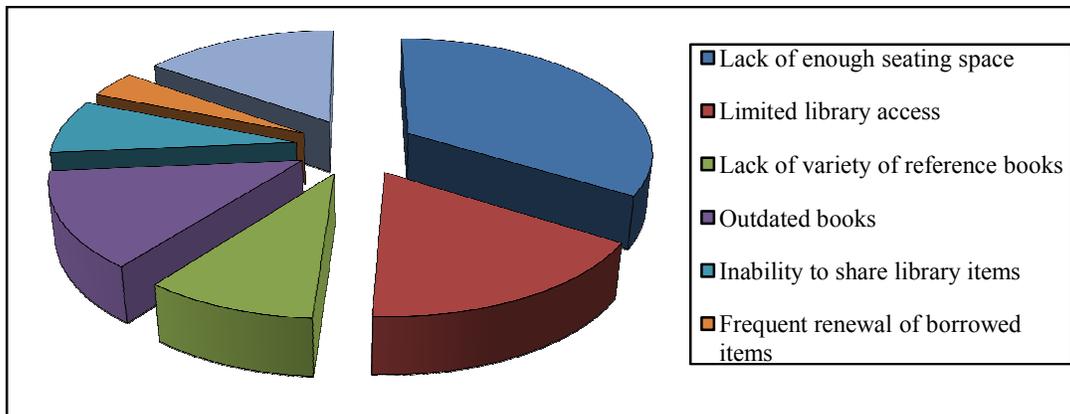


Figure 5: Challenges facing library users

One of the respondent who was a student at one of the surveyed institutions when he was asked about challenges that face him in using the library services provided the following “...I went to the library several times but I fail to get a place to seat because the library is always full... if you are late a little bit after it has opened you cant find a seat... if you decide to borrow a book so that you can go and read it somewhere else you find all copies of books borrowed as they are few...”

Another students who was talking about few time to stay with library material said “...I think the main challenge is accessing books in special reserve... we are allowed to access a book for only three hours... but some of the problems in the books need more than three hour to be solved...”

However it was observed that there is a trend of some of the libraries to be overloaded starting from the middle of semesters and especially when time for final exams is approaching. This was observed by a librarian in one of the visited library who said the following “...You cannot be able to see if this library is not sufficient until in the 6th or 7th to the last weeks of the semester where everyone wants to come to the library...”

Hawkins (2002) pointed similar results when trying to explain weaknesses of traditional libraries. Hawkins contended that if we proceed with the library model as we have known it, the costs associated with storing and archiving the information will bankrupt our institutions of higher education. Makri (2004) added that traditional libraries are characterized by many weaknesses such as fewer resources on the traditional library catalogue, lack of vast access to information, and items located in the library catalogue are more difficult to assess for relevance, since only limited meta-data about the items are displayed to users.

Although a challenge few library personnel was not mentioned by respondents in the study area but Hawkins (2002) pointed it out in his publication. When the author pointed out about library costs he said that most of the current concerns about library costs focus on the initial acquisition of materials. This is a significant problem, but there are other less apparent costs as well. The costs of cataloguers, reference librarians, and other personnel are substantial.

3.5 Digital library

3.5.1 Respondents understanding to Digital Library

A question was set to tape respondents understanding of the term “digital library” in order to be able to establish the level of understanding of such term among the interviewees. It was established that more that 80% of the respondents said they are aware of the term and provided more or less similar definitions referring it as the way of accessing academic materials electronically; 6.3% of all respondents said that a digital library is a kind of search engine that is used purposely to search academic materials, 33.9% referred it as the library that a user can access it at any place through computers connected to the internet, 7.1% referred it as electronic materials that are digitized and made available over computer network, 23.2% referred it as an advanced library which allows storage and retrieval of materials, 16.1% said it is a virtual library that provides access to library materials 24/7 and in any place, while the remaining 13.4% were not able to define as what exactly digital library meant to them (Table 3).

Definition of the term Digital Library by respondents	Frequency	Percentage
A kind of search engine that is used purposely to search academic materials	7	6.3
The library that a user can access it at any place through computers connected to the internet	38	33.9
Electronic materials that are digitized and made available over computer network	8	7.1
Advanced library which allows storage and retrieval of materials electronically where only subscribed users can be able to access it	26	23.2
A virtual library that provides access to library materials 24/7 and in any place	18	16.1
No response	15	13.4
TOTAL	112	100

Table 3: Ratio of library seating capacity to students' enrollment

These definitions by respondents are somehow similar to those provided by literatures. According to Ager (1999) and Blandford and Buchanan (2003) a digital library is a system that composes a family of automated systems that together provide a comprehensive capability to manage the digital content of an enterprise. However the working definition of the digital library from both a conceptual and a practical standpoint is provided by the following principles:

- A digital library is an integrated set of services for capturing, cataloging, storing, searching, protecting, and retrieving information.
- Digital library services bring order where data floods and information mismanagement have caused much critical information to be incoherent, unavailable, or lost.
- Digital library architecture emphasizes organization, acquisition, preservation, and utilization of information.
- Digital library systems are realizations of architecture in a specific hardware, networking, and software situation.

With those principals Ager (1999) divided the capabilities of digital library systems into the following areas:

- Capture or creation of content
- Indexing and cataloging (metadata)
- Storage
- Search and query
- Asset and property rights protection
- Retrieval and distribution

3.5.2 *Advantaged of digital libraries*

Most of the respondents seemed to have an idea of what a digital library is, then the study went further to try to capture what respondents think are the advantages of a digital library. 45 said that with digital libraries there is no need to physically visiting a library so as to access library materials. 28 respondents said that digital libraries are capable of handing huge amount of data, 10 respondents

said that multimedia data such as graphics, images, audio, video and animations can simply be included in a digital library. 40 respondents mentioned the absence of library physical boundaries, 32 respondents said that it allows information sharing, 42 said library materials will be available anywhere in 24 hours of a day and 7 days of a week, and 12 respondents said that with digital libraries there is no need of constructing big library buildings as readers will be accessing library materials at their places. Figure 6 summarises these findings.

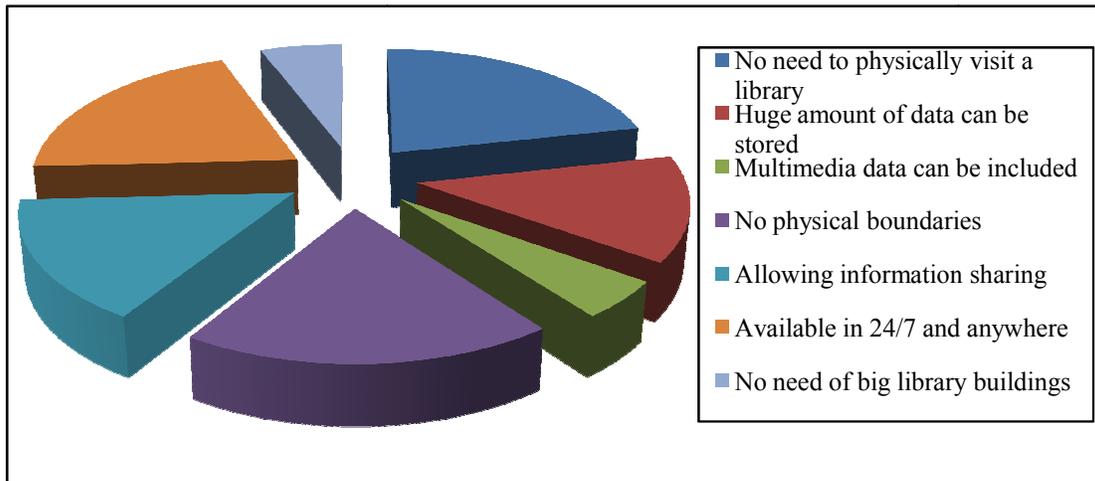


Figure 6: Advantages of digital libraries

In addition to what respondents in the study area narrated, Soergel (2008) pointed out that a digital library functions by linking many types of information objects in many formats (including documents and databases) in all media into a complex structure. Also users both use and create information, and the processes of using and creating information are closely intertwined. The old distinction between producers of information (the few) and users of information (the many, the people, the masses) is rapidly fading away. Power to the people!

3.5.3 Challenges facing implementation of Digital libraries

Despite of the good awareness of respondents on the advantages of digital libraries, none of the surveyed institutions had a digital library in place. Respondents were than asked to give out their views on what they think are the barriers that impedes implementation of digital libraries in their area. The following challenges were mentioned; 60 respondents mentioned the shortage of fund to start, 45 mentioned low technology i.e. we don't have enough technological capacity to install and operate digital libraries, 42 mentioned power rationing i.e. power is not stable which will sometimes cause the library services to be inaccessible, 30 mentioned inadequate ICT tools to the libraries, 38 mentioned shortage of personnel who have enough skills to run/operate digital library, 24 mentioned unstable network infrastructures, and 28 respondents mentioned high cost for internet bandwidth.

4. Conclusion and Recommendations

4.1 Conclusion

4.1.1. Existing Libraries

From the survey done by this study it was established that each of the higher learning institution in Kilimanjaro region has a library. However, all the libraries in that area of study are traditional ones. The statuses of those investigated libraries were identified as follows;

- i. Libraries physical access: In order to get hold of information or library materials in any of those libraries you must physically visit the library. Some of the library had software for materials searching which are helpful when searching for academic materials in the library, but the software is accessible only in library premises.
- ii. Libraries operating time: None of the library operates in public holidays, and out of the four visited libraries only one operates on Sundays however it operates for only three hours. None of the libraries operates in 24 hours. And the total amount of time in which each of the libraries operates in a semester is less than the time a library does not operate. This deprives library users the right to have unsuspended access to library materials.
- iii. Libraries' seating space: None of the libraries in the study area can serve even one eighth (i.e. 12.5%) of all registered library users at a time. This equally suggests that when only 12.5% of registered library users will need to use the library at a time, they won't be able to do it.
- iv. Limited storage space/hard to physically expand the library: As time goes libraries are getting full of materials while the users are increasing therefore a need to add more seats. However it is hard to physically expand the libraries.

4.1.2. Doable threats

The number of students enrolled in higher learning institutions increases with years. This entails an increasing number of library users in the respective institutions. Because this number is increasing the lack of library spaces will be very significant as years go. Changes of curriculum and discovery of new facts, publications of new books, journals, papers, dissertations, etc. makes new volumes of library materials to continuously be added to the existing fixed libraries. Establishment of distance learning courses in some of the higher learning institutions calls for possibilities of potential students to have vast academic materials access at their places. All of these calls for a deliberate effort to ensure that disposition of materials are not impinged on by these changes and at the same time readers/learners are not affected by the same.

4.1.3. Digital libraries

More than 80% of students, academic staff, librarians and admissions officers in the area of study are aware of term digital library. Even if their definitions might not be very much precise but these respondents were at least able to provide definition(s) of the digital library. Digital libraries were also identified to have more advantages as far as academic materials access is concerned as opposed to the traditional libraries. Some of these advantages as identified in these study are No need of physically visiting a library in order to access library services, the digital libraries can store huge amount of information, multimedia data such as audio, images, graphics, video and animation can be accessed via digital libraries, no library physical libraries is required, library materials are available in 24/7 and in any place, and no need of physically expanding library buildings to accommodate new repositories and new library users. Digital libraries also gives power to people by allowing users to both use and create information as contrary to traditional libraries where few creates information and many (the mass) access it.

4.1.4. Challenges impeding implementation of digital libraries

The following challenges were identified to impede implementations of digital libraries in the area of study:

- i. Shortage of fund to establish and run the same
- ii. Lack of technological capacity in terms of ICT tools/facilities
- iii. Power rationing creates doubt if digital libraries can successfully be established and run
- iv. Shortage of skilled personnel who can establish and/or run digital library,
- v. Absence of stable network infrastructures in terms of servers, physical cabling and wireless access points
- vi. High cost to acquire internet bandwidth from Internet Service Providers
- vii. Lack of political will from responsible persons due to absence of adequate policies for digitization of library activities

4.2 Recommendations

4.2.1 Short term plans

The study recommends the following short term plans to the libraries as a solution to solve library problems as identified during a physical survey to the libraries:

- Provide library service for 24 Hours and for at least one third of all registered library users at a time
- Establish library expansion plan
- Install software for checking in and out library materials
- Install security camera that will monitor movements in the library
- Install security systems
- Employ more librarians and add working shifts
- Add new publications as often as possible

4.2.2 Long term plans

In order to address the problems associated with traditional libraries as presented, this study recommends that digital libraries should be established and run in each of the higher learning institutions. For digital libraries to be successfully established the following must be addressed;

- The government should establish mechanisms to provide stable power supply especially in higher learning institutions settings
- The higher learning institutions must put deliberate efforts to acquire tools for digital libraries
- The institutions should educate sufficient number of personnel who will establish and implement digital libraries
- Collaboration by all key stakeholders in the education process to genuinely allocating sufficient funds for digital libraries implementations. This is possible through mobilization of resources for the same including establishing a special library fund by the government and other library stakeholders as well as daring putting in place a pilot digital library (bearing in mind that to dare is to do)

- ICT infrastructures in all levels should be improved
- Create appropriate policies which will govern the creation, installation and use of digital libraries
- Although many members of higher learning institutions communities seem to be aware of the digital libraries, but this study calls for deliberate awareness creation to all other stakeholders including policy makers, policy implementers and the community at large on the necessity and opportunities offered by the digital libraries over conventional traditional libraries so that they can effectively utilize its prospective benefits.

However the study does not recommend traditional libraries to be totally replaced by digital libraries because not all academic materials found in the libraries can be digitized. Also ICT infrastructures are not that much promising, and ICT illiteracy to some of library users is still high which can impede them from accessing academic materials digitally. And in any way, therefore, digital libraries should not be regarded as a threat to librarians' jobs but rather an opportunity that enhances academic materials access to more library users than ever before.

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