

# THE USE AND IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON MALAWIAN ACADEMIC LIBRARIES: A CASE STUDY OF MZUZU UNIVERSITY LIBRARY

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## Abstract

Tertiary institutions are centres of learning and knowledge generation. It is important therefore that libraries which are hubs of learning and which stock most of information in the institutions of higher learning should have Information and Communication Technologies (ICTs) which will aid in the processing, accessing and dissemination of information in this information age. The study aimed at exploring the level of ICT application in Malawian academic libraries focusing on Mzuzu University Library. Specifically, the study was carried out to: determine level of application and use of ICT in Mzuzu University Library; determine the relevance of ICT in Mzuzu University Library establish how skillful and knowledgeable the staff are in the use of ICT resources, and to determine the factors that affect the use of ICTs in Mzuzu University Library. Data were collected by ta means of a questionnaire which was administered to 18 library staff of which 16 responded. The study reveals that Mzuzu University Library is computerized/ automated and that it uses KOHA software. Most of its vital services: reader services division, reference services, technical services, acquisition and cataloguing are computerized. Most of the ICTs are available in the Library. The most common ICTs in the Library are: Internet, OPAC, desktop computers, online databases, CD-ROM, and duplicating machines; and that the library personnel mostly use Internet, online databases and OPAC. The Library personnel has very good skills for using these ICTs. These ICTs are relevant to the Library because it offers several benefits for example, conserving space in the Library, speeding up cataloguing and classification in the library, removing repetitive tasks and impacting on charging and discharging of books in the Library; and that the ICTs are being used for several purposes of using the ICTs in the Library by the library staff include to acquire information, to communicate with colleagues, to process information, to store information, to access library collection and to disseminate information. Despite the relevance if ICTs to Mzuzu University Library, there are several factors that are affecting the application and use of these ICTs. The main factors include inadequate funding, epileptic power supply and lack of ICT skills that would help in using the ICTs. Hopefully, the results will also help in making improvements.

**Keywords:** Information and Communications Technologies, academic libraries, Mzuzu University, Malawi

## 1. INTRODUCTION

It is not contestable that we are living in an information society. This is a society that among others is characterized by the use of Information and Communication Technologies (ICTs) in many aspects of life. ICTs refer to a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information. These may include video, facsimile, telephone, computers with Internet

connectivity, broadcasting technologies (radio and television) (Tinio, 2002). Advent of ICTs has forced all types of institutions including tertiary institutions to be applying ICTs in their different sections. Tertiary institutions are centres of learning and knowledge generation. It is important therefore that libraries which are hubs of learning and which stock most of information in the institutions of higher learning should have ICTs which will aid in the processing, accessing and dissemination of information in this information age.

Academic libraries which are libraries located in these tertiary institutions to support learning, teaching and research processes (Aina, 2004), are expected to use various types of technologies to aid the services they render. The impacts of new technologies are felt by libraries in every aspect. Everyday new technological advances affect the way information is handled in libraries and information centers (Krubu and Osawaru, 2011). This implies that libraries have to move with technological advancements failing which they would be failing to satisfy their users' needs. According to Rana (2009), ICTs hold the key to the success of modernizing information services.

ICT has impacted on every sphere of academic library activity especially in the form of the library collection development activities, like building and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions like lending; implement efficient and effective library cooperation and resource sharing networks; implement management information systems; develop institutional repositories of digital local contents, and digital libraries; and initiate ICT based capacity building programmes for library users, (Krubu and Osawaru, 2011; Nwakwuo and Nwakwuo 2014).

### **1.1. Statement of Problem and Objectives of the Study**

As stated above, application and use of ICTs in academic libraries comes with several benefits. It is important therefore that academic libraries in every country including Malawi make use of these ICTs. Unfortunately, despite the numerous benefits that are experienced in the application and use of ICT in academic libraries, these libraries, still experience some obstacles or hindrances in the application and effective use of the ICT resources in the library. It has been observed that ICT application, use and implementation in many Malawian academic libraries, including Mzuzu University Library is facing a lot of problems. In addition to this, mostly, library workers are seen to be doing their work manually. Limited research has been conducted to explore the level of ICT application in Malawian academic libraries. Therefore, these studies aimed at exploring the use and impact of ICTs and depict some of the inhibiting factors that are hindering the implementation and use of ICTs in Malawian academic libraries focusing on Mzuzu University Library. Among others, the study fills the existing gaps in the use and adoption of ICTs in the operation of Malawian academic library. In order to achieve the aim of this study, the following objectives have been set up to: determine level of application and use of ICT in Mzuzu University Library; determine the relevance of ICT in Mzuzu University Library; establish how skillful and knowledgeable the staff are in the use of ICT resources; and determine the factors that affect the use of ICTs in Mzuzu University Library.

## **2. LITERATURE REVIEW**

Literature on the subject of ICT as regards to the targeted institutions is very minimal. However, a lot of experts have written a lot on the use and impact of ICT in academic libraries in general.

### **2.1 ICT Application and Use in Academic Libraries**

The invention of ICT is expected to change every sphere of the library. With the invention of ICTs, various types of them are being used by libraries for various reasons or purposes. A study conducted by Islam (2007) in Bangladesh found that ICTs were applied almost in all library activities including, data processing, communication, circulation, cataloguing, bibliography, serials control, and creation of an in-house database. Contrary to this, Krubu and Osawaru (2011) in their study conducted in two Nigerian Universities' libraries found out in both academic libraries, only three divisions of the library were computerized/ automated. These included: readers services division, technical service division and collection development division. Similarly, a study conducted by Ajayi, Shorunke and Akinola (2013) revealed that academic library staff were not using ICTs for most of important library and information services including: charging and discharging, cataloguing, ordering and serials. Therefore, it can be argued or concluded that the level of automation of academic libraries differ. It was therefore, important for the researcher to carry out research in the mentioned academic institution so as to ascertain their level of automation. ICTs are available in the libraries so that library staff should be using them. Adeniji, Adeniji and Oguniyi (2010) argue that the mostly used ICTs in academic

libraries by the library staff are the computer and Internet. Contrary to this, a study by Krubu and Osawaru (2011) found that CD-ROM and online databases were mostly used ICTs in academic libraries. The later study also found that Internet was not widely used.

## 2.2. Relevance of ICTs in Academic Libraries

The use of ICTs in libraries comes with several benefits. ICTs enhance library services in time to users (Nwakwuo and Nwakwuo 2014; Gurikar and Mukherjee 2015). This is evident in many services like automation of circulation services. Traditionally, borrowing of items in libraries involves the librarian writing down the user name and book details which consumes a lot of time. The use of ICTs however makes this whole process faster. In addition, technologies like the Internet is helping a lot in acquisition of library materials where by the library can just fill in the form and pay online then materials can be delivered to the library (Krubu and Osawaru, 2011). The application of ICTs in academic libraries enables libraries to implement efficient and effective library cooperation and resource sharing networks (Krubu and Osawaru, 2011; Ajayi, Shorunke and Akinola, 2013; Nwakwuo and Nwakwuo, 2014). This helps libraries to be benefiting from one another and enables cost sharing (Nwakwuo and Nwakwuo, 2014). Ajayi, Shorunke and Akinola (2013) reveal some benefits of application and use of ICTs in academic libraries as that among the importance of the easing the work of library personnel in the library, speeding up cataloguing and classification of library materials processes; and reducing theft and mutilation of library materials. ICTs in academic libraries also help to conserve space through storage of information electronically (Nwakwuo & Nwakwuo 2014). ICTs are also beneficial in academic libraries because they are used for several purposes. Among others, ICTs in academic libraries are used for career advancement and chatting with colleagues (Adeniji, Adeniji & Oguniyi, 2010); and for storing information (Krubu and osawaru, 2011).

## 2.3 Factors Hindering Use of ICTs in Academic Libraries

Much as ICTs offer several benefits to academic libraries, their application and use is affected by several factors. Many academic libraries face a problem of epileptic power supply (Krubu and Osawaru, 2011; Lawal – Solarin, n.d.). The use of ICTs in libraries is aided by availability of power supply. Ebijuwa (2005) suggests that electricity is available 24 hours.

Poor funding is also another factor inhibiting the application of ICTs in academic libraries (Kumar and Biradar, 2010; Krubu and Osawaru, 2011; Nwakwuo and Nwakwuo, 2014). Inadequate funding could be solved by providing more generous financial support (Odion and Adetona, 2009). In addition, the use of ICTs in libraries requires staff with skills. However, several academic library staff lack ICT skills (Kumar and Biradar, 2010; Adeniji, Adeniji and Oguniyi, 2010; Lawal –Solarin, n.d; Nwakwuo and Nwakwuo, 2014). This might be attributing to the fact that most academic libraries do not provide for ICT training for their staff such that many librarians acquire the skills through trial and error (Krubu and Osawaru, 2011). It is important therefore that academic libraries train there staff in the use of ICTs. Some other factors affecting the use of ICTs in academic libraries include: lack of manpower (Kumar and Biradar, 2010); poor telecommunications infrastructure, lack of good government policy on ICT, high cost to acquire equipment, poor institutional policy on ICT, and difficulty of maintaining ICTs.

## 3.0 RESEARCH METHODOLOGY

### 3.1. Research Site

The study was conducted in the Mzuzu University Library. The Library is not a purpose built library since it was renovated from old Mzuzu Teachers Training College Demonstration Primary School. Apart from the main collection of about 45,000 volumes of books in the main library, the Library has children's section where children from various primary schools go and have access to books. It is the hub of the University learning and research and is the University's major source of information. It serves an estimated population of about 4,000. The library has about 21 members of staff (Abdullah, 2015).

### 3.2. Research Method

Quantitative data were collected using a set of questionnaires that was self-administered to Mzuzu University Librarians. Specifically, the questionnaire was chosen because it is effective in carrying out a research study since it gives each subject an opportunity to write down their views without timidity (Donald, 1995). In addition, questionnaires are useful in obtaining opinion of judgments; and for surveying attitudes; applicability to many subjects at the same time; and completion of the questionnaire at the respondents convenience (Connaway & Powell 2010). The questionnaire employed in this study was designed based on various prior

studies such as Nwakwuo and Nwakwuo (2014), Ajayi, Shorunke and Akinola (2013) and Krubu and Osawaru (2011). The questionnaires were physically distributed to the staff and were later collected by the researcher herself. Purposive sampling techniques were used to select the respondents of the study. This involved the researcher choosing the library staff she judged that was knowledgeable on the issues under study (Aina and Ajifuruke, 2002). For example, Library care takers were not among the respondents in this study. Data were analyzed using Microsoft Excel. The analyzed data are presented in graphs and tables.

## 4. DATA ANALYSIS AND DISCUSSION

This section analyses and discusses data that were collected to achieve the objectives stated above. Therefore, the arrangement of the data in the section is based on the objectives stated in the Introduction above. Firstly, the section gives demographic details of respondents based on age, gender and highest qualification. Then it gives data collected on the objectives.

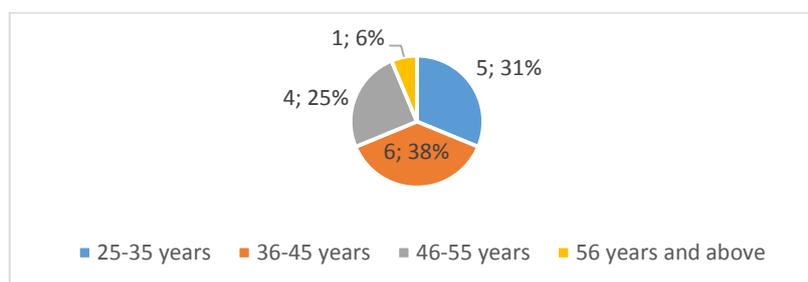
As stated above, Mzuzu University library has 21 personnel. The aim was to distribute to all the 21 people. However, during data collection period, some library personnel could not be reached. The researcher distributed questionnaires to 18 people. Out of these, 16 people responded making up 89% response rate. This section therefore analyses and discusses data obtained from the 16 respondents.

### 4.1. Demographic Characteristics of Respondents

#### 4.1.1. Age and Gender

Figure 1 below summarizes results on age of the respondents. The Figure shows that most librarians (6, 38%), are in the age category of between 36-45 years followed by those aged between 25-35 years old, 5(31%). This is in line with the findings of Krubu and Osawaru (2011).

**Figure 1: Age of respondents** **N=16**



Of the 14 people who responded to the question on gender, 11 (75.5%) were males. The results on gender differ from the findings of Krubu and Osawaru (2011) in two Nigerian academic libraries where more (60.4%) were females. Though Ajayi, Shorunke and Akinola (2013) also found that more respondents were males as the case in this study, there was not a big difference in terms of gender representation in their study as males were 51%. The difference might be attributed to the fact that librarianship is a male dominated field in Malawi.

#### 4.1.2. Highest Qualification

Fourteen people indicated their highest qualification. Results in Table 1 below show that the majority, 6(42.8%) have Malawi Library Association Certificate. This is a certificate that equips people with basic skills and knowledge of librarianship for a year. The Table also shows that 4 (28.6%) have Bachelor's Degree Certificates. The results also show that nobody holds a PhD. The implication of this study's findings to Mzuzu University Library Management is to send more people for further training.

**Table 1: Highest qualification of respondents** **(N=14)**

S/N	Qualification	No. of people	Percentage
1	Malawi Library Association Certificate	6	42.8
2	Diploma in LIS	2	14.3
3	Bachelor's Degree in LIS	2	14.3
4	Post Graduate Diploma in LIS	0	0
5	Master's Degree in LIS	4	28.6
6	PhD	0	0

## 4.2. ICT application and use in Mzuzu University Library

### 4.2.1 Whether Mzuzu University Library is Automated

Respondents were asked to state whether the library is automated or not because ICT application in libraries also involves automation of libraries. It can be concluded that the library is automated because, of the 13 people who responded to the question the majority, 12(92.3%) indicated that the library is automated. This is in line with most studies conducted in other countries like Nigeria (for example by Krubu and Oswaru, 2011) and in Chhattisgarh (for example, Gurikar and Mukherjee, 2015) which indicate that most academic libraries are automated.

### 4.2.2 Software Used in Mzuzu University Library

Users were asked to indicate the type(s) of software used in the Library. Table 2 below indicates that the Library uses KOHA. One person who chose the 'other' category indicated that Dspace is the other software being used in the Library. This differs from other libraries in some developing countries like Nigeria which mostly use SLAM (Krubu and Oswaru 2011)

**Table 2: Software used in Mzuzu University Library N=16**

S/N	Software	No. of respondents	Percentage
1	SLAM	1	6.3
2	KOHA	14	88
3	ERICA	1	6.3
4	CDS/ISIS	0	0
5	Other (specify)	1	6.3

### 4.2.3 Services Computerized/Automated

Table 3 below shows results on the types of services that are computerized or automated. From the Table, it appears that most of the services except for serial services 7(43.8%) are computerized. The results in this section are in line with the findings of Islam (2007) who also found that ICTs were applied in most of the services in the academic library in Bangladesh. However, the findings differ from the findings of a study conducted by Ajayi, Shorunke and Akinola (2013) in Nigeria which found that ICTs were not applied in most of the core functions of the academic libraries: charging and discharging, cataloguing, ordering and serials. One can perhaps assume that Mzuzu University Library is doing a commendable job of automating almost all its services.

**Table 3: Services computerized or automated in Mzuzu University Library N=16**

S/N	Service	No. of respondents	Percentage
1	Readers Service division	15	93.8
2	Technical service	13	81.3
3	Acquisition	10	62.5
4	Reference services	11	68.8
5	Serial services	7	43.8
6	Cataloguing	14	87.5

### 4.2.4 Types of ICTs Available in Mzuzu University Library

Respondents were asked to indicate the types of ICTs available in Mzuzu University Library. Table 4 below depicts the results.

**Table 4: Types of ICTs available in Mzuzu University library N=16**

S/N	Type of ICT	No. of respondents	Percentage
1	CD-ROM	13	81.3
2	OPAC	15	93.8
3	Fax	4	25
4	Internet	16	100
5	Multimedia	8	50
6	Mobile phones	7	43.8
7	Duplicating machine	11	68.8
8	Desktop computers	15	93.8
9	e-book readers	6	37.5
10	Television for relaxation	5	31.3
11	Online databases	14	87.5
12	Others (specify)	1	6.3

From the Table above, the mostly available ICTs in the Library include Internet (16, 100%), OPAC (15, 93.8%), Desktop computers (93.8%), Online databases (87.5%), CD-ROM (81.3%) and Duplicating machine (11, 68.4%). The few number indicating that mobile technologies are available in the Library (43.8%) questions the role of Mzuzu University library in providing its services through mobile technologies like mobile phones in this information age.

#### 4.2.5 The Type of ICTs that Mzuzu University Library Staff Use

Table 5 below summarizes the ICTs that the respondents use. From the Table, it is clear that the Library staff mostly use Internet (15, 93.8%) seconded by online databases (14, 87.5%) and then OPAC (13, 81.3%). The wide use of Internet may be attributed to the fact that this is accessible on many devices including desktop computers and mobile phones. The wide use of online databases may be attributed to the fact that some good number of respondents (11, 68.8%) use the ICTs for the purposes of research as indicated in Table 6 below. One can perhaps assume that the Library staff use these online databases to search information they use in their research work. The OPAC might be widely used because it helps every library staff as well as every user to access library collection. As indicated in Table 6 most of library staff (15, 93.8%) use the ICTs to access the library collection. Though the respondents were not asked which ICTs help them to access library collection, one can perhaps assume that it is the OPAC that helps them to achieve this because it is the OPAC where most library staff are seen using it in looking for what is contained in the library. The findings of this study somehow agree with the findings of Adeniji, Adeniji and Oguniyi (2010) whose study also found that the Internet was also mostly used in academic libraries. It also partly agrees with the findings of Krubu and Osawaru (2011) who found that online databases are widely used among academic libraries' staff. On the other hand, their study also found that computers were also widely used which is not the case in this study as only half (8, 50%) indicated to use them. The findings of this study also somehow differ from the findings of Krubu and Osawaru (2011)'s study which found that CD-ROMs are widely used and that Internet is one of the least used ICT by academic libraries staff.

**Table 5: The type of ICTs that you use N=16**

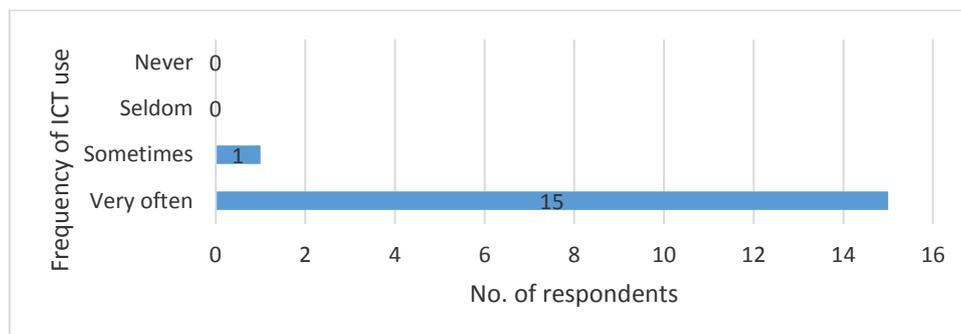
S/N	ICT used	No. of people	Percentage
1	CD-ROM	8	50
2	OPAC	13	81.3
3	Fax	3	18.8
4	Internet	15	93.8

5	Multimedia	8	50
6	Mobile phones	8	50
7	Duplicating machine	7	43.8
8	Desktop computers	8	50
9	e-book readers	3	18.8
10	Television for relaxation	5	31.3
11	Online databases	14	87.5
12	Others (specify)	1	6.3

#### 4.2.6. Frequency of ICT Use in Mzuzu University Library

Respondents were asked to indicate how often they use ICTs in the Library. Figure 2 below depicts the results on this. From the Figure, the majority (15, 93.8%) use the ICTs in the Library; and that only 1(6.3%0 use the ICTs sometimes. The Figure also shows that nobody uses the ICTs seldom or never. This is very encouraging to the Library Management because its staff frequently uses the ICTs.

**Figure 2: Frequency of ICT use in Mzuzu University Library N=16**

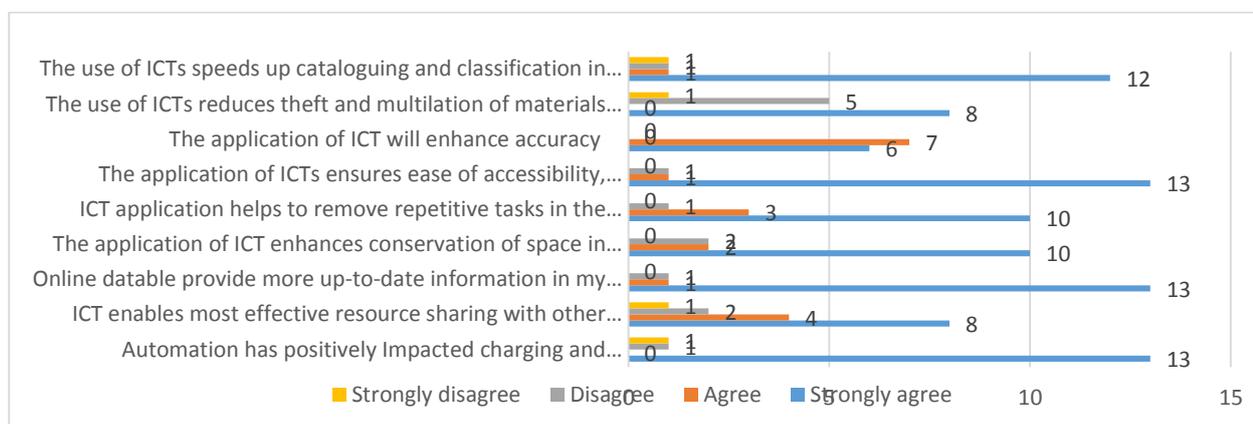


### 4.3. Relevance of ICTs in Mzuzu University Library

#### 4.3.1. Benefits of ICTs in Mzuzu University Library

Figure 3 below depicts results on nine Likert Scale Statements all associated with benefits of using ICTs in academic library. From the Figure, it can be concluded that the Library enjoys several benefits of using the ICTs as there is high levels of agreement with most of the statements. The lowest agreement is on the statement which says *the use of ICTs reduces theft and mutilation of materials in this library*. The findings on this statement differs from the findings of Nwakwuo and Nwakwuo (2014) whose study found that application of ICTs reduces theft and mutilation of materials in the academic libraries.

**Figure 3: Benefits of using ICTs in Mzuzu University Library N=16**



### 4.3.2 Purpose of Using the ICTs in Mzuzu University Library

As stated above, relevance is also associated with the purposes of using the ICTs. Table 6 below depicts the results on the purposes that Mzuzu University Library personnel use the ICTs. From the Table, it can be concluded that the ICTs in Mzuzu University Library are used for several purpose the most top purpose include: to acquire information (16, 100%), to communicate with colleagues (15, 93.8%), to process information (15, 93.8%), to store information (15, 93.8%), for accessing library collection (15, 93.8%) and to disseminate information. These findings differ from the findings of some previous studies on the topic (for example, Adeniji, Adeniji and Oguniyi, 2010; Krubu and osawaru, 2011).

**Table 6: Purposes for using the ICTs in Mzuzu University Library N=16**

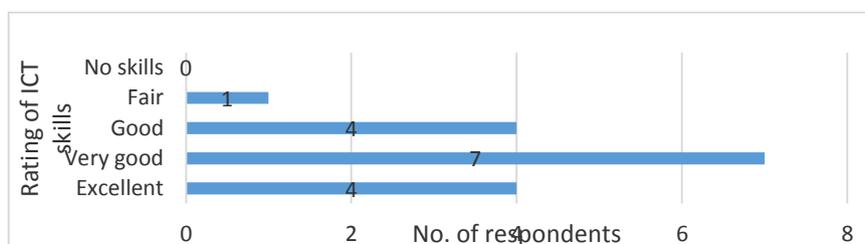
S/N	Purpose	No. of people	Percentage
1	To communicate with library users	11	68
2	To communicate with colleagues	15	93.8
3	To acquire information	16	100
4	To process information	15	93.8
5	To disseminate information	14	88
6	To store information	15	93.8
7	For in depth research work	11	68
8	For accessing library collection	15	93.8
9	To digitize library collection	11	68

### 4.4. How Skillful Mzuzu University Library Staff Are in the Use of ICT Resources

#### 4.4.1 ICT Skills

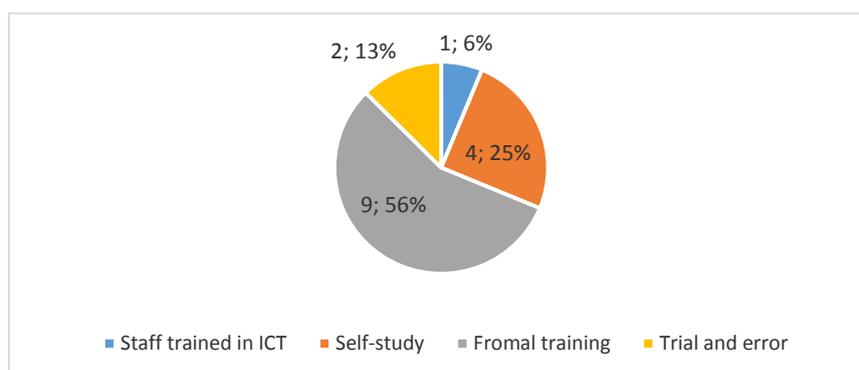
Respondents were asked indicate their level of ICT skills because literature shows that the level of ICT skills affects the use of ICTs in academic libraries (Krubu & Osawaru 2011; Nwakwuo & Nwakwuo 2014). Figure 4 below shows that majority, (11, 68.8%) have at least very good skills thus combining those who have very good skills (7, 43.8%) and those with excellent skills (4, 25%). This is contrary to findings of some previous studies on the topic (for example, Krubu and Osawaru 2011) which indicate that only a few academic library staff has very good skills.

**Figure 4: ICT skills of Mzuzu University Library staff N=16**



A follow up question was asked to find out how the library personnel acquired their ICT skills. In line with some studies (for example, Krubu and Osawaru 2011) in literature, majority of Mzuzu University Library personnel (9, 56% ) acquired their skills through formal training as depicted in Figure 5.

**Figure 5: ICT skills of Mzuzu University Library staff N=16**



#### 4.5 Factors Militating Against the Use of ICTs in Mzuzu University Library

Table 7 below shows results on the factors that affect the use and application of ICTs in the library.

The results from Table 7 above show that the main factors militating against the use of ICTs in the Library include: inadequate funding (12, 75%), epileptic power supply (12, 75%) and lack of ICT skills (10, 63%). The results in this section contradict with results in some section above which shows that a good number of library staff have at least good ICT skills. Maybe the question is what staff mean by good. The results of this study however may be understood on the fact that a good number of library personnel (4, 25%) also claim to have obtained their ICT skills through self-study. The Library therefore should continue offering some formal ICT training ICTs to their staff.

**Table 7: Factors militating against the use of ICTs in Mzuzu University Library**

S/N	factors	No. of respondents	percentage
1	Inadequate funding	12	75
2	Epileptic power supply	12	75
3	Lack of good governance	1	6.3
4	Time constraint	3	19
5	Technical know how	9	56.3
6	Lack of ICT skills	10	63
7	Difficulty in maintaining ICTs	5	31.3
8	Poor institutional ICT Policy	9	56.3
9	Others (specify)	0	0

#### 4.6 Conclusions and Recommendations

This study aimed at investigating the use and impact of ICTs in Malawian academic libraries focusing on Mzuzu University Library. From the findings discussed above, it can be concluded that Mzuzu University Library is computerized/automated and that it uses KOHA software. Most of its vital services: reader services division, reference services, technical services, acquisition and cataloguing are computerized. Most of the ICTs are available in the Library. The most common ones are Internet, OPAC, desktop computers, online databases, CD-ROM, and duplicating machines; and that the library personnel mostly use Internet, online databases and OPAC. The Library personnel has very good skills for using these ICTs.

From the findings, it can be concluded ICTs are relevant to the Library because it offers several benefits and that they are for several purposes. Specifically, the use of ICTs speeds up cataloguing and classification in the library, automation has positively impacted charging and discharging of books in the library, ICT enables most effective resource sharing with other libraries, online database provide more up-to-date information in the library, the application of ICT enhances conservation of space in the library, ICT application helps to remove repetitive tasks in the Library, the application of ICTs ensures ease of accessibility, searchability and currency of information, and that the application of ICT will enhance accuracy. The main purposes of using the ICTs in the Library by the library staff include acquiring information, to communicate with colleagues, to process information, to store information, for accessing library collection and to disseminate information.

Despite the relevance if ICTs to Mzuzu University Library, there are several factors that are affecting the application and use of these ICTs. The main factors include inadequate funding, epileptic power supply and lack of ICT skills that would help in using the ICTs.

Based on the findings and the conclusions made, the paper offers the following recommendations: the Library management should be offering training on ICTs to its staff; the Library management should be encourage the use of mobile phones in the library as only a few library use them; the Library management should make sure that it always has power; the Library should be given more financial support that will enable it acquire more ICTs to be used in the Library.

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