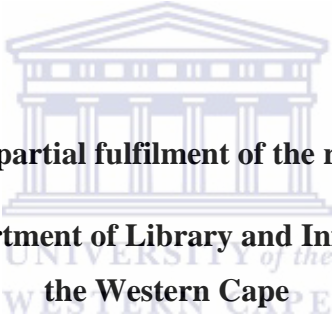


**THE USE OF MULTIPURPOSE COMMUNITY TELECENTRES AND THEIR
SERVICES IN MALAWI: THE CASE OF LUPASO COMMUNITY TELECENTRE**

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3371186

**A mini-dissertation submitted in partial fulfilment of the requirements for the degree of
MLIS (Structured) in the Department of Library and Information Science, University of
the Western Cape**

The logo of the University of the Western Cape, featuring a classical building facade with columns and a pediment, with the text 'UNIVERSITY of the WESTERN CAPE' below it.

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ABSTRACT

Telecentres in Malawi are being established to bridge the digital divide. Though the basic assumption is that once telecentres have been established many will adopt them, they are being used by a relatively small percentage of the population. However, limited systematic research has been done to understand why. The purpose of this study was to examine factors influencing the acceptance and use of telecentres and their services in Malawi. Specifically, the study aimed at establishing: the access and usage patterns of telecentres and their services; relevance of telecentre service to the community members; factors affecting the usage of telecentres; and challenges facing telecentres and their users. The study employed Rogers's Diffusion of Innovation Theory which explains how innovations are taken up.

This was a quantitative and qualitative case study of one Multipurpose Community Telecentre: Lupaso Telecentre. Questionnaires were given to 130 users who visited the Telecentre during a two-week data collection period in May 2014. Face to face interviews were conducted with three telecentre staff and management committee; and one Malawi Communications Regulatory Authority staff, the implementers of the project. Document and records analysis and observation were used to verify data from the Telecentre users, staff and the management committee; and to formulate some questions for interviews with some key informants.

The study reveals that a majority (94.6%) view the Telecentre as an important project; it is improving human skills, increasing the finances and strengthening social capital of the community members and many (85%) users are satisfied with Telecentre service. The negative finding is that only a few people use and benefit from the Telecentre; there is uneven access: users are generally male, young, with low educational and income levels, farmers and Nkhondes; and the ICTs are not the chief attraction. The study finds that convenience and cheaper services; compatibility of services with community's needs; communication channels, social system, visibility of the benefits of using the Telecentre; and complexity of ICTs influence the use and non-use of the Telecentre. Furthermore, the Telecentre and users are facing several challenges that have a negative impact on telecentre usage. Some of the challenges are: lack of Internet searching skills, frequent blackouts, lack of local content and high costs of services.

The study concludes that working on these factors and challenges may help in increasing user base. Hopefully, the results will help those implementing and operating the telecentres on how best to attract more users to the telecentres. The results also add to the body of literature in general.

Key words: Malawi, digital divide, telecentre, multipurpose community telecentres, Lupaso Telecentre, rural areas.

DECLARATION

“I declare that **The use of multipurpose community telecentres and their services in Malawi: The case of Lupaso Community Telecentre** is my own work, that it has not been submitted before for any other degree in any other university and that all the sources used or quoted have been indicated and acknowledged by means of complete references.”

Signed:



Date:

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WESTERN CAPE

DEDICATION

I would like to lovingly dedicate this work to my friend, Late Ancilla Mtende Nyirenda who always wanted to see me succeed in life. Her love and support when she was on earth kept me going.



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To you Lord Almighty, I say thank you for being with me throughout this journey. I will forever praise your name.

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LIST OF ABBREVIATIONS

CVA	Competing Value Approach
DoI	Diffusion of Innovation
ESCOM	Electricity Supply Corporation of Malawi
GCIS	Government Communications and Information Systems
ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
IK	Indigenous Knowledge
JCE	Junior Certificate of Education
LIS	Library and Information Science
LTLMC	Lupaso Telecentre Local Management Committee
MACRA	Malawi communications Regulatory Authority
MOU	Memorandum of Understanding
MSCE	Malawi School Certificate of Education
MPCCs	Multipurpose Community Centres
MPCT	Multipurpose Community Telecentre
MPCTs	Multipurpose Community Telecentres
SARI	Sustainable Access in Rural India
SPSS	Statistical Package for Social Sciences
UTAUT	Unified Theory of Acceptance and Use of Technology
VDC	Village Development Committee

CHAPTER ONE

INTRODUCTION TO RESEARCH PROJECT

1.1. Introduction

This research is in the area of telecentres especially those established in rural areas. In many developing countries, like Malawi, the assumption is that once telecentres are established, then all community members will adopt them. However, the reality on the ground is different as they are being used by a few people (Etta & Parvyn-Wamahiu 2003; Kumar & Best 2007; Mtega & Malekani 2009). Therefore, a study on the acceptance and use of telecentres is vital as it may help to reveal factors influencing the use of telecentres and in turn help countries to increase user base and develop better telecentres for the communities. This, therefore, is of interest to the current study. The study investigated the factors influencing the use of telecentres and their services in Malawi through the lens of one rural telecentre.

This chapter, therefore, provides a general introduction to the research project. The Chapter provides background to the study, describes the research problem, aim and objectives and research questions. Furthermore, the Chapter describes Rogers's Diffusion of Innovation (DoI) Theory which guided the study. The Chapter then provides the significance and limitations of the study, ethical statement and how the chapter has been organised.

1.2. Background and motivation

It is not debatable that we are living in an information society which, among others, is characterized by the use of Information and Communication Technologies (ICTs). However, the use of these ICTs in developing countries is not even. Most people who use these ICTs are those that are found in urban areas, while in rural areas there is lack of access to ICTs. This difference leads to the so-called digital divide. According to Salanje (2006:69), digital divide is the gap between the ones who have access to ICTs and those who do not have. Normally, this is measured in terms of access to computers, telephones and radio. Since access to ICTs does not automatically lead to use, digital divide also looks at the skills that one has to use the ICTs.

Therefore, efforts all over the world are being made to support the use of ICTs in rural areas so as to bridge the so-called digital divide. One of the ways is through the establishment of telecentres. There is no single definition of a telecentre but the common characteristic is that it is "a physical space that provides public community based access to ICTs for educational,

personal, social and economic development” (Gómez & Hunt & Lamoureux 1999:15; Harris 2001:73). Telecentres are called by different names in different countries. Some of the terms being used are: Kiosk, Rural Knowledge Centres, Village Knowledge Centres, Community Access Points, Telecogates, Multipurpose Community Telecentres (MPCTs) also known as Multipurpose Community Centres (MPCCs), and, so on (Mukerji 2008:1). Though all these refer to one thing, MPCTs refer to telecentres that are able to provide variety of services to different user groups in a community for example: services for education and training; information, health, culture; social issues and information sharing by members in the community (Jensen & Esterhuysen 2001:2).

The telecentre idea was born in 1985 in a small village called Velmdalen in Sweden with the idea of bringing benefits of ICTs to rural areas. The concept has been widely adopted in the United States, Canada and Australia, while in Africa and Asia the notion is still taking root (Etta & Parvyn-Wamahiu 2003:29).

In developing countries, like Malawi, these facilities are also being established with the aim of improving social and economic development of rural communities which are often marginalized and outside towns and cities (Isaacs 2007: 5) as well as empowering rural dwellers. For example, telecentres, through provision of ICTs, are enabling grass root access to global information through the Internet, promoting the sale of local products through the Internet and e-commerce. They are also helping rural communities to reduce travelling costs in search of the service and improving human capital through computer literacy programmes (Etta & Parvyn-Wamahiu 2003:29; Soriano 2007; Bailey 2009:1; Mukerji 2010).

Telecentres in Malawi are mainly being established to bridge the digital divide. Malawi’s digital divide can be attributed to the fact that it is a developing country. It is one of world’s poorest countries with the Gross National Product per capita of 774 US Dollars. The country is classified as the least developed country and a highly indebted country by the United Nations and the World Bank respectively. Almost half (50.7%) of the country’s population lives on less than 1 US Dollar a day (Malawi 2012: 204; Isaacs 2007: 2). On the Human Development Index, the country is ranked number 170 out 182 countries (United Nations Human Development Report 2013:143).

Malawi has a population of approximately 15 million people with a growth rate of 2.75%. Over 80% of its population lives in rural areas. For example, as of 2011, 12,966,770 (84.30%) and 2,414,123 (15.70%) lived in rural areas and urban areas respectively (United Nations Human Development Report 2013:196). The rural areas in Malawi are characterized by few roads and means of transport; limited access to ICTs; low literacy levels; and low income levels and highly dependent on farming and fishing as means of earning a living (Isaacs 2007: 5).

The literacy rate, which is defined as the number of people aged 15 and over who can read and write (Malawi 2012: 21), is also low. Only 65% of the population are literate. However, these figures are also not even because, based on place of residence, 89% of people based in urban areas are literate while only 61% of those based in rural areas are literate. In addition, gender is a factor in literacy: 74% of males and 57% of females are literate (Malawi 2012: 21).

The Information and Communications Technology (ICT) infrastructure in Malawi is poor. As of 2012, only 227, 295 had access to fixed telephone lines; 1197 (0.01%) were fixed broadband subscribers; 4,419 599 (27.83%) were mobile phone subscribers; and 652, 500 (4.35%) had access to Internet. In addition, only 8.7 % and 53.7% had access to television and radios respectively. There is limited access to ICTs in people's homes. For example, of the number of people who had access to Internet in 2012, only 5.5% had Internet access at home (International Telecommunications Union 2013). There is also limited access to ICTs like computers in schools in the country. Though it is not clear as to how many people in rural areas have access to ICTs, many authors and bodies (for example International Telecommunications Union 2002; Chigalu 2006; Isaacs 2007:5) have reported that most of people accessing the ICTs are located in urban areas. According to International Telecommunications Union (2002), rural dwellers have to travel long distances to access telephone and Internet services.

Therefore, the Malawi Government has been engaging in various initiatives so that these rural dwellers also have access to ICTs, hence bridging the digital divide. Some of the initiatives include: the development of the Malawi Growth Development Strategy 2006-2011 which has led to establishment of rural information centres which stock computers and information in various formats; the creation of Rural Telecommunications Policy in 2002 which made the

Malawi Government in collaboration with telephone network providers to acquire cheap cellular phones to be sold to Malawians at a cheaper price (Chigalu 2006). The other initiative has been the development of ICT Policy in 2003. One of the objectives of the ICT Policy is to improve ICT infrastructure in the rural areas through establishing MPCTs (Malawi 2003). Therefore, this policy can be said to have led to the establishment of telecentres in Malawi.

According to Chigalu (2006), the idea of introducing telecentres in Malawi started in early 2000s. The telecentres are being established by the Malawi Government through Malawi Communications Regulatory Authority (MACRA) with funding from International Telecommunications Union. There are three community managed MPCTs across the country one of which is Lupaso Telecentre (Banda 2014) which this study targeted. More information about Lupaso Telecentre is provided in Chapters Three and Four.

As in many developing countries, the telecentre movement is at a tender age in Malawi. According to Roman (2003:53), it is important to evaluate telecentres where they are at a tender age because they are being regarded as an innovation and pilot projects. At the same time, the researcher works as an Associate Lecturer in the Department of Library and Information Science at Mzuzu University in Malawi and one of the courses that she teaches is Rural Information Services. This has helped her to have an interest in rural information centres and telecentres and follow what is happening in these areas. She has read through newspapers and online news that the telecentre usage rate in Malawi is low. In addition, one of the telecentres in Malawi was closed for some time just after some months of operation. But limited systematic research so far has been conducted to understand the factors affecting acceptance and usage of telecentres and their services in Malawi.

Though there have been studies in other countries on how telecentres are being adopted, these have given various results. The factors that influence the use of telecentres in one community may not be the same factors influencing the uptake in another community. It is at this stage that a systematic study of the factors influencing the use of telecentres with respect to a given community is important. This is why Prado, Câmara and Figueiredo (2011:6) suggest that ICTs adoption should be understood within the social context. There was a need therefore to understand the factors influencing user acceptance and use of telecentres and their services in

Malawi. Hence, this study. Hopefully, lessons learned from the study will help the telecentre operators and the Malawi Government which is planning to establish more telecentres in understanding the best way of improving the social acceptability of telecentres. This study will also help in revealing the factors that lead to closure of telecentres and how to address them because, if they are ignored, telecentres will end up being closed which has been the case in some countries.

1.3. Problem statement

As stated above, the assumption behind telecentre establishment is that they will be used by many people. However, the review of literature in Chapter Two has shown that the reality on the ground is different in many countries. In Malawi, almost all telecentres have been in operation for over a year. However, as stated above, the experience of the researcher through reading newspapers, online news and visiting some telecentres reveals that these telecentres are being used by only a relatively small percentage of the communities' populations. There is need therefore to understand the reason why.

In addition, one of the objectives of the Malawi Government is to establish telecentres in all 193 constituencies of the country under a project called "Connect a Constituency Project" (Nyasa Times 2012). A constituency in this case means a 'body of voters in a specific area who elect a representative to a legislative body' (Kavanagh 1999:247). However, before this takes place, the Malawi Government needs to have knowledge of the usage of telecentres that are already in operation. Therefore, this study investigated the factors that influence user acceptance and use of telecentres and their services in Malawi.

1.4. Aim and objectives of the study

The main purpose of this study was to examine the factors that affect user acceptance and use of telecentres and their services in Malawi. The following were the specific objectives of the study:

- To establish the access and usage patterns of telecentres and their services;
- To determine the relevance of services offered by telecentres to community members;
- To identify the factors affecting the adoption of telecentres; and

- To find out challenges that telecentres and users face

1.5. Research questions

The following research questions guided the researcher. These research questions are coming from the problem statement and objectives of the study. These questions reflect Rogers's DoI Theory discussed below which states that the adoption of an innovation depends on: the properties of the innovation (perceptions of its relative advantages, how compatible it is with its potential users' circumstances, how difficult it is to use; how visible its benefits are); how the innovation is communicated (by mass media or by people talking to one another); who adopts it and when; and the surrounding social system.

1. What are the access and usage patterns of the telecentres and their services?
2. How relevant are the services offered at the telecentres to community members?
3. What factors affect the usage of telecentres? For example:
 - How easy/complex are the services to use?
 - Who influences the use of the telecentres?
 - Where did the users hear about the telecentre?
4. What challenges do telecentres and their users face?

1.6. Theoretical framework

For so long research in the field of telecentres has been conducted without using theories. Since theories provide several benefits like guiding research and explaining what is happening (Chigona & Licker 2008:58), some theories have been developed and some have been borrowed from other fields to guide research in telecentres. The most popular ones include the DoI Theory developed by Rogers and popularly called Rogers's DoI Theory and the Unified Theory of Acceptance and Use of Technology (UTAUT) which was developed by Venkatesh, Morris, Davis and Davis (2003).

Briefly, as mentioned above, Rogers's DoI Theory says that whether an innovation is accepted or not depends on the properties of the innovation (perceptions of its relative advantages; how compatible it is with its potential users' circumstances; how difficult it is to use; how visible its benefits are); how the innovation is communicated (by mass media or by

people talking to one another); who adopts it and when; the consequence of the innovation; and the surrounding social system (Rogers 1995; Roman 2003; Chigona & Licker 2008). The telecentre concept being a new idea in many developing countries, it has been considered wise to be applying the Rogers's DoI Theory into telecentre research (Roman 2003:55; Chigona & Licker 2008:59).

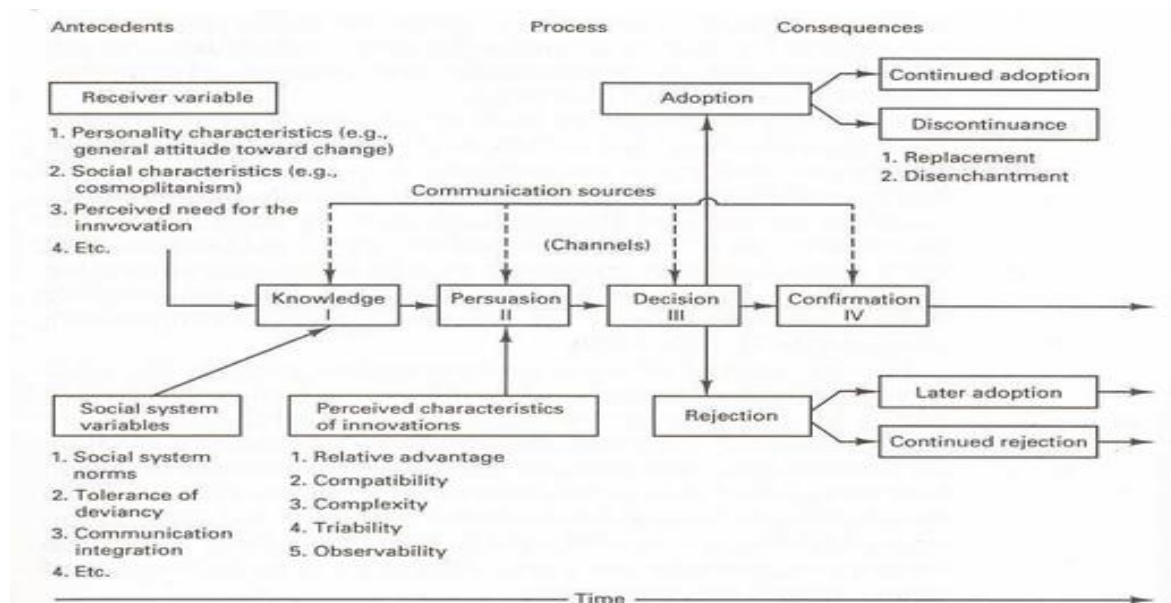
On the other hand, the UTAUT says that adoption of telecentres depends on: performance expectancy (the user's perception that using telecentres will improve their job performance); effort expectancy (the degree of ease potential users feel with respect to the use of an information system); social influence (the perception that important others believe that she or he has to use the telecentres); and facilitating conditions (the degree to which a user believes that organization and technical infrastructure exist to support the use of new information systems (Venkatesh *et al.* 2003).

This study used the former because it explains the adoption of an innovation. As stated above, in Malawi, a concept of a telecentre is new. For example, the first one started operating in 2007 hence the choice of the theory. At the same time, the researcher deems that the theory is simple to understand and use and has been widely used in telecentre and other ICT acceptance research studies, hence its application to this study. The following section discusses the components and predictions of the theory.

1.6.1. Rogers's DoI Theory

The Theory considers diffusion as a process that takes place over time, with antecedent conditions, characteristics of the adoption and consequences (Roman 2003: 56; Chigona & Licker 2008: 59). The term innovation refers to a product that is perceived as new by the adopters and not necessarily new to all people (Mark & Poltrock 2001:232). Figure 1 below shows Rogers's DoI Theory.

Figure 1: Rogers's DoI Theory.



Source: Rogers (1995)

Properties of an innovation

Rogers's DoI Theory proposes the following five properties of innovation which affect its adoption:

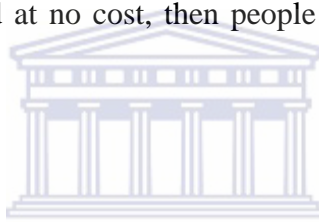
Relative advantage: This is associated with perceived costs and benefits (for example, economic returns, social prestige and saving time and effort) that come with the adoption of innovation as compared with the previous and alternative ways of doing things (Rogers 1995:216). The Theory predicts that an innovation is likely to be adopted if it offers a better way of doing things than its precursor and if it brings new good things which were not there without it. Therefore, the more the innovation is perceived to be advantageous, the more it is likely to adopted (Roman 2003: 57; Chigona & Licker 2008: 60).

Complexity: Complexity is the “degree to which an innovation is perceived as difficult to understand and use” (Rodgers 1995: 242). An innovation is expected not to be complex to use and understand because if people perceive it to be difficult to be used and understood even if people try to teach them, they might end up not adopting it. Therefore, it has negative correlation with the adoption of telecentres. This can be likened to the effort expectancy element of the UTAUT.

Compatibility: Compatibility is defined as the extent to which potential adopters perceive it to fit into social cultural values, needs and experiences (Rodgers 1995: 224; Chigona & Licker 2008:60). There is positive correlation between compatibility and adoption rate of innovation. For example, if the innovation addresses the information needs of the potential adopters then it will likely be adopted by many people in the community.

Observability: This is the extent to which the results of using an innovation are visible to others (Rodgers 1995:244). Rogers's DoI Theory predicts that the adoption rate can be increased if potential adopters can easily see the benefits of the adoption. Observability is also associated with the observability of the telecentres. For example, if there are no posters indicating the existence of telecentres, then some people will not be able to see them.

Trialability: This is concerned with the effort and cost of trying an innovation. DoI predicts that if an innovation can be tried at no cost, then people are likely to adopt it (Chigona & Licker 2008:60).



Communication channels

It is important for an innovation to be publicized so that people become aware of its existence. The Theory suggests that an innovation can be communicated through mass media and interpersonal skills. Though mass media are considered the best as they reach more at once, people are more likely to be influenced to adopt an innovation when they hear about it from people they associate with like friends, relatives, and many more because these may persuade them (Rodgers 1995:18; Rogers & Singhal 1996).

Social Systems

This can be likened to the social influence component of the UTAUT. Rogers (2003:23) defines a social system as “a set of interrelated units that are engaged in joint problem solving to accomplish a common goal”. The fact that these people come together to solve a problem, and someone in the social system is aware of the benefits of using innovations, telecentres for example, then he or she is likely to communicate that to his or her friends. In addition to that, opinion leaders like chiefs also play a great role in the diffusion of the innovation because

these are the people respected in a society. Therefore, if they view an innovation as beneficial, people are likely to get the information and use it.

Length of time and adoption

Rogers's DoI Theory predicts that length of time affects the adoption rate of any innovation. People are grouped as innovators (those who adopt at the very earliest times), early adopters, early majority, late majority, and laggards (those who never adopt). This categorization depends on when people adopt an innovation. Mostly, innovators are adventurous and because of that their adoption decision is not influenced by anyone, hence they are first to adopt the innovation. On the other hand, early adopters are usually those people who are respected by their communities and usually influence others in the community to adopt an innovation. Laggards as the name suggests, are usually the last ones to adopt the innovation due to various factors like lack of financial resources (Chigona & Licker 2008:61).

Consequences of innovation

The consequences of an innovation can be the positive and negative effects of the innovation. The positive effects are those that are usually expected to happen. For example, an expected consequence of the telecentre could be to improve ICT skills among community members. On the other hand, a negative consequence would be only having the educated accessing telecentres. Rogers (2003) suggests that change agents should consider the consequences of the innovation on the community.

Though all of these elements help to explain the adoption of telecentres, some of these can be left out. According to Roman (2003:60), there are three most important elements of DoI that researchers need to consider which include: perceived attributes of an innovation, communication of an innovation and consequences brought by an innovation. He further says that on the properties of innovation, only three properties i.e. relative advantage, compatibility and complexity are vital in the context of a telecentre. With reference to these arguments, this study employed properties of innovation i.e. relative advantage, compatibility and complexity; consequence of an innovation and communication channels. However, social system and observability which is also a property of innovation were added because these have been found to also explain the diffusion of telecentres (for example by Chigona & Licker 2008).

1.7. Research design and methodology

The research design and methodology are described in detail in Chapter Three. Briefly, the mixed method case study of one Multipurpose Telecentre (MPCT) was used in order to investigate the above research problem and answer the research questions. Data were collected using questionnaire survey, interviews, observation, and records and document analysis. This was done in three main phases for a period of two weeks.

1.8. Significance and limitations of the study

This study, through the lens of a case study of one telecentre, identifies and provides insights on what determines user acceptance and use of telecentres in Malawi. Lessons learned from the study will help the Malawi Government and telecentre operators in the course of establishing more telecentres and running telecentres on the best ways of improving the social acceptability of telecentres. It will add to the body of literature in general.

However, the study was limited to the users and staff in one telecentre and MACRA staff. Some further study on factors influencing acceptance and use of telecentres and their services in Malawi could also be conducted to include nonusers as well.

1.9. Ethical statement

Every research is supposed to adhere to ethical issues. This one is not exceptional. Therefore, ethical guidelines of the Research Committee of the University of the Western Cape were adhered to. In addition, permission was sought in writing from the Lupaso Telecentre management staff and committee to carry out the study at Lupaso Telecentre. The letter from Lupaso Telecentre granting permission to conduct research at the Telecentre is attached as Appendix C.

Participation was voluntary and respondents were allowed to withdraw at any stage of the research process. The researcher made sure that the user participants' rights to privacy, anonymity and confidentiality were protected. This was made explicit in the letter of consent that the respondents were expected to sign before they took part in the study. Considering the fact that confidentiality cannot always be assured depending on several factors for example, the type of data being collected (Bailey 1996:32), key informants were not assured confidentiality because it would be important to differentiate some points based on the position of key informants. During interviews, participants were informed of the use of

recorders in case of any recording. Letters of consent for user and key informants have been attached as Appendix A and Appendix B respectively.

1.10. Outline of chapters

Chapter one has introduced the research project and has explained the problem statement and the rationale behind it. It has also given a description of the theoretical framework being used in the project, the ethical statement and the significance and limitations of study. Chapter two analyzes and synthesizes the literature on the adoption of telecentres. It looks at what others have written on the topic. The chapter also examines the methods used in the studies reviewed because they provide guidance for the current study. Chapter three is concerned with the methodology used in the research. It describes the case study site, research design, phases used, population, sampling, data-gathering instruments, the pilot study etc. Chapter four presents and summarizes qualitative data collected through interviews, observation, records and document analysis. Chapter five summarizes quantitative data from user questionnaire survey. Chapter six is about interpretation and conclusions of the findings. It also outlines recommendations and areas for further studies.



CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The purpose of this chapter is to look at literature on the usage and acceptance of telecentres. As argued by Neuman (2011:124), the essence of conducting literature review is that knowledge accumulates and people can learn and build on what others have done. This implies that conducting the literature review for this research helped to put it in the context of similar studies.

A survey of the research and professional literature on the usage of telecentres covers the following major themes:

- Access and telecentres usage patterns;
- Relevance of telecentres to rural communities;
- Factors influencing diffusion of telecentres; and
- Challenges facing telecentres and their users in the communities.

The following paragraphs will discuss what has been written on these themes. The focus in the review is on developing countries of Africa (for example, Malawi, Nigeria, Tanzania and South Africa), Brazil, China, India, Jamaica, Latin America, Mexico and Taiwan. The focus is on telecentres located in rural areas with the exception of South Africa which also locates telecentres in urban areas that target the urban poor people.

There are various means of providing public access to ICTs and telecentres is just one of them. The following section discusses these models. The idea is to put telecentres within the context of other ICT public access models.

2.2. Different models of public access to ICTs

Due to the so-called digital divide, which was discussed in the previous chapter, there exist different models of ICT public access venues ranging from public libraries offering Internet, telecentres in rural areas to urban cybercafés with the aim of bridging this divide. These are places where people go to look for information and communicate using ICTs without restrictions (for example based on gender, age and race) for free or sometimes at a cost (Coward, Gomez & Ambikar 2008: 1). Since digital divides cannot be bridged with physical

access to ICTs alone but also with the capability and skills of using them (Salanje 2006:69; Coward, Gomez & Ambikar 2008: 1), some facilities also focus on providing these skills. This section provides a brief discussion of four models: public libraries, cybercafés, telecentres and the Thusong Service Centres highlighting what they offer, purpose, their similarities and differences as well. The discussion will help to put telecentres within the context of other ICT public access.

2.2.1. Public libraries

Worldwide, public libraries are considered as one of the most important sources of information. Their role has been the provision of information services like lending of books, information literacy instructions, reference and current awareness services.

In several parts of the world, and at different rates of advancement, time and money have been invested by the library authorities to provide access to ICTs (Tlabela, Roodt, Paterson & Weir-Smith 2007:49; Feather & Sturges 2003:530; Coward, Gomez & Ambikar 2008:2). In South Africa for example, inclusion of ICTs in libraries is being considered as one of the measures of combating digital divide (Tlabela *et al.* 2007:49). There are basically four reasons why ICTs have been added into libraries: ICTs help in accessing information and libraries have always served as information sources; several information management skills required in a digital environment can be acquired from books and other sources of printed materials stocked in libraries; accessing information on the Internet requires certain skills which can be obtained within libraries; and that libraries are often well placed and respected by community members thereby being considered as venues where ICT can easily be deployed (Tlabela *et al.* 2007: 49). In addition to offering access to ICTs, most public libraries also offer training on how to use the Internet and a range of related computing services. Most public libraries offer these services for free (Bertot, McClure & Jaeger 2008:287).

Public libraries are established and funded by governments. They seem to be one of the most valued and important sources of information (Feather & Sturges 2003: 530; Tlabela *et al.* 2007: 50) because they are located in both urban and rural areas. However, Coward, Gomez and Ambikar (2008: 8) note that people seem to value them less because most of the

information in these libraries is outdated due to the fact that most of these libraries are funded by government and that in most developing countries, their collection is donor dependent.

2.2.2. Telecentres

As pointed out in the previous chapter, the common characteristic of telecentres is that they are physical spaces offering public access to ICTs for personal, educational, social and economic development (Gomez, Hunt & Lamoureux 1999:15; Harris 2001:73). Telecentres are mostly located in isolated communities like rural areas and also poor neighbourhoods in urban areas with no access or having low levels of telecommunications access (Feather & Sturges 2003: 631; Tlabela *et al.* 2007:36). Mostly, in rural areas, these are the only venues for accessing ICT services (Haseloff 2005). The main purpose of these facilities is to bridge digital divide by providing access to information and communication services to marginalised populations (Tlabela *et al.* 2007:36; Coward, Gomez & Ambikar 2008:2).

Ownership of telecentres ranges from individuals, small medium and micro-enterprise community based organisations to those by non-governmental organisations (Tlabela *et al.* 2007:36). In developing countries like Malawi, telecentres are associated with a range of development projects that aim at reducing the so-called digital divide and established through international cooperation projects or governmental programmes (Feather & Sturges 2003: 631; Haseloff 2005; Coward, Gomez & Ambikar 2008:2). When not deeply rooted in their community from inception, implementation and planning to secure support of the community members, these venues face serious risks of disruption when the programme terminates. Due to this, many organizations leave the management of telecentres in the hands of the communities (Feather & Sturges 2003: 631).

To achieve their objectives, telecentres contain a wide range of equipment though these differ from one telecentre to the other. Basically, telecentres offer computer services, telephony, Internet, email, DVD and CD-ROM, typing, fax, printing, photocopying facilities and computer literacy skills training (Tlabela *et al.* 2007:36). In addition, most telecentres contain a library where people can access the books. However, unlike libraries which offer skills like Internet searching and information literacy instructions, these telecentres do not offer such kind of training. In most cases, it is up to those individuals in the community who know how to use the Internet to teach others (Prado, Câmara & Figueiredo 2011:4). This is also why

some scholars (for example, Chigona & Licker 2008:70) argue that telecentres increase digital divide.

2.2.3. Cybercafés

These mainly target the better-off parts of the society and are mostly common in urban areas (Haseloff 2005; Coward, Gomez & Ambikar 2008: 2). The main purpose of cybercafés is to bridge the digital divide by providing access to ICTs to people who cannot afford Internet connections at their homes and sometimes function as a centre for support where users learn about new tools for them to know how to use the technologies (Haseloff 2005; Coward, Gomez & Ambikar 2008: 7).

Cybercafés mostly operate as small-scale businesses and mostly owned by individuals (Coward, Gomez & Ambikar 2008: 7). They are not attached to an institution; do not receive any external assistance or funding; and are not established within development programs or political initiatives (Haseloff 2005; Coward, Gomez & Ambikar 2008:2).

Cybercafés offer public access to Internet and other technologies like computers, photocopiers, phones, emails and printers on a temporary contract (pay per use). They are the most common public spaces for Internet in both developing and developed world. Cybercafés are most dominant and widely used venues of public access to Internet as compared to other public facilities like libraries in urban areas (Haseloff 2005; Coward, Gomez & Ambikar 2008:2). However, these do not offer training but have a potential of functioning as a training centre thereby helping in overcoming skills divides (Haseloff 2005). In addition, in some countries, these offer trivial information and users are sometimes not allowed to download and install third party applications like open source software which are sources of innovations (Coward, Gomez & Ambikar 2008:13).

From the discussion of the above three ICT public access venues, it can be summarised that each public venue has its own positive impact on communities. However, since each of these does not tackle all areas of development that can help bridge the digital divide, it is important that they collaborate in order to provide the most impact (Coward, Gomez & Ambikar 2008:12). For example, collaboration between public libraries and telecentres may transform rural public libraries into community hubs where people can access health information, e-

government and ICT skills (The Library and Information Services (LIS) Transformation Charter 2014). As such, facilities like the Thusong Service Centres are being established in South Africa.

2.2.4. Thusong Service Centres

These are mostly popular in South Africa. Initially called MPCCs, the Thusong Service Centres are established under the Government Communication and Information Systems (GCIS) with the purpose of addressing the inequalities in accessing relevant and empowering government information (GCIS 2013; The LIS Transformation Charter 2014). Thusong is a Sesotho term which means ‘a place of relief’ (Twinomurinzi, Phahlamohlaka & Byrne 2012: 205). The aim of implementing these is that communities access a wide range of government services and products as well as engaging with government programmes for their own empowerment (Twinomurinzi, Phahlamohlaka & Byrne 2012: 205; The LIS Transformation Charter 2014).

These are considered as one-stop centres where much needed services and information about government to local communities are offered by local, provincial and national governments, as well as other service providers. To achieve the objectives, the approach uses different forms of media, which include print and electronic, and direct person to person communication with community members (Twinomurinzi, Phahlamohlaka & Byrne 2012: 204; The LIS Transformation Charter 2014).

In general, the approach is organised on a six-block service model which incorporates the services.

1. Government social and administrative services (for example grants and personal documents)
2. Offices (phone, postal services, printers, desktop publishing etc.)
3. Education and skills development (Adult education and specialised education)
4. Local Economic Development services (advice on small businesses)
5. Business services and community opportunities (small, medium and micro enterprise)
6. Information and communication activities (Government information and on-site guidance regarding services, community information and awareness (Twinomurinzi, Phahlamohlaka & Byrne 2012: 204; GCIS 2013; The LIS Transformation Charter 2014).

Basically, every Thusong Service Centre has the following basic government services: health, social grants, identity documents and passports. Any further government representation at the Thusong Service Centre is based on the particular needs of a particular community (Twinomurinzi, Phahlamohlaka & Byrne 2012: 204) which makes each centre unique (Tlabela *et al.* 2007:31).

The Thusong Service Centres can be considered to be unique and different from all other models of public access to ICTs in that they seem to combine library, telecentre services and many more. For example, from the six building blocks of the Thusong Service Centres, blocks 3 and 6 overlap with the services of the Library and information services for example, those of public libraries while building block 2 overlaps with the services of telecentres (The LIS Transformation Charter 2014). Some services provided by Thusong Service Centres based on the telecentre model include: telephony, photocopying, Internet, scanning, computer training and faxing (Tlabela *et al.* 2007:31).

In addition, the Thusong Service Centres are expected to work with the Indigenous Knowledge (IK) Systems resource centres in recording, documenting, storing and disseminating IK to knowledge institutions for its uptake and use in academic research and innovation and for general use by local and indigenous communities. The role of Thusong Service Centres as IK resource centres is vital because it would lead to transformation of Thusong Service Centres from information consumers to information producers (The LIS Transformation Charter 2014). In addition, this is an important initiative since IK, which is knowledge unique to every society, can be used to empower communities; combat marginalization and a source of decision making at local level in various aspects of life including agriculture, health care, food preparation, education and natural resource management (Owiny, Mehta & Marezki 2014:236).

To sum up, this section has compared four different models offering public access to ICTs. The discussion has helped to put telecentres within the context of other ICT public access venues. The following paragraphs focus on the literature on the usage and acceptance of telecentres and their services in rural communities.

2.3. Access and telecentre usage patterns

The literature on usage of telecentres places much emphasis on access and usage patterns of telecentres and their services. Access is defined as number of users and types of users (for example, the educated, women or men, the youth) (Etta & Parvyn-Wamahiu 2003: 5). In general, research on access has been looking at amount of use, who uses them (for example the educated, the youth) and what is used within these telecentres. Some studies only focus on number of telecentre users and the categories of people who use telecentres (for example Kumar & Best 2007); some in addition to the mentioned aspects, also focus on how frequently an individual visits telecentres (for example Etta & Parvyn-Wamahiu 2003); and some also focus on services that are frequently used (for example, Mtega & Malekani 2009). One common finding in these studies is that, though the telecentre movement is based on the criterion of the universal access so that every member of the communities surrounding the telecentres should have access to them, only a few people use telecentres and that access is not available to all categories of people.

2.3.1. Number and type of people using telecentres

Etta and Parvyn-Wamahiu (2003) report on a study conducted in five African countries, Uganda, Mali, South Africa, Senegal and Mozambique, to evaluate the success of telecentres in some African countries which were considered as telecentre pioneers. It was survey research using both quantitative and qualitative methods to collect data from users, potential users (non-users) and telecentre management. It involved a sample size of 36 telecentres. A sample size of 3,586 respondents representing users and non-users was drawn from the communities surrounding the telecentres. It collected data through key informant interviews, observation in telecentres, focus group discussions within communities and document analysis in telecentres. User logs, reports and official documents were some of the documents that were analysed in this study.

Across all the five countries, the study found that only a small percentage of population use the telecentre because only an average of 10-20 people visited the telecentre on a daily basis (Etta & Parvyn-Wamahiu 2003: xxii). The study also found that telecentre access is not available to all based on demographic factors of gender, age and occupation as frequent users were men, young and the educated. For example, in Uganda and Senegal, 70% of users were men (Etta & Parvyn-Wamahiu 2003: 155).

The findings of Etta and Parvyn-Wamahiu (2003) are similar to the findings of Kumar and Best (2007) who conducted a study on the diffusion of Kiosk in India in 2003. Their study also revealed that telecentre uptake is very low and that users are generally young, male, school or college students, relatively more educated and belonging to relatively higher income households. This study went broader because, in addition to gender, age and education, it also looked at the income level and occupation of the users.

The Etta and Parvyn-Wamahiu (2003) and Kumar and Best (2007) studies however, to some extent differ with the findings of a study by Soriano (2007), which was conducted in China in 2006. Like the other two previous studies, this study revealed that only a few people use telecentres. The study also revealed that access varies according to gender. However, unlike the previous studies which found that more men than women access telecentres and their service, this study found that more women than men used telecentres (Soriano 2007).

Mtega and Malekani (2009) report on a study they conducted in four selected districts of Tanzania. The study was conducted to investigate the usage patterns and challenges facing telecentres in Tanzania. Four telecentres, one from each district, were selected purposively based on their location (those located in rural areas were selected) and the economic activities of the communities (those communities with the majority of members involved in farming). A combination of methods was used to collect data. At one of the telecentres, 100 out of the total population of 22, 535 people were randomly selected and these were interviewed using structured questionnaires. Researchers also conducted semi-structured interviews with staff from all telecentres. They also used participant observation and document analysis methods in all telecentres.

The study was similar to the study by Etta and Parvyn-Wamahiu (2003) Kumar and Best (2007) and Soriano (2007) in that it also looked at the number of telecentre users. Like the previous three studies, this study revealed that very few people use the telecentres on a daily basis. For example, at one of the four targeted telecentres, only 10 people against the targeted population of 450, 000 people visit the telecentre on a daily basis. However, unlike the previous studies which looked at age and gender of users, this study only looked at occupation of respondents. The study also revealed that access varies among individuals

within communities since it found that the telecentres' frequent users are students and workers often arriving in the communities for vacations.

Similarly, a study by Prado, Câmara and Figueiredo (2011) in Brazil in 2010 indicates that telecentres are only used by a few people and that access varies across demographic characteristics. The study, which targeted telecentres operated by a non-profit organisation known as Gems of the Earth, examined how individuals use ICTs at the telecentre. It was a survey research that collected data from 538 adults aged 18 and above using quantitative methods. The sample size was randomly selected from two communities served by the telecentres and this consisted of both users and nonusers. The two communities were purposively selected (Prado, Câmara & Figueiredo 2011). The study also found that telecentres are used by a relatively small percentage of population. The study revealed that out of the targeted sample of 538, only 241 (44.8%) used the telecentres (Prado, Câmara, Figueiredo 2011:12). In addition, the study revealed that those who enjoy the benefits of the telecentres include the youth and the educated ones (Prado, Câmara & Figueiredo 2011:21).

2.3.2. Services frequently used

Though telecentres offer a variety of services, literature shows that some services are used more than others. A study by Mtega and Malekani (2009) also looked at the services that were frequently used and found that the frequently used services were radio and computer training programs (Mtega & Malekani 2009:79). This can be attributed to the fact that computer training was offered by the telecentres only in the communities and that radio program was offered for free. Kirkman, Cornelius, Sachs and Schwab (2002:196) note that the services that are frequently used are likely to be those that are offered for free and are only provided by that telecentre in the community.

Similarly, Chikumba (2011) conducted a study on usage of ICT services in two telecentres in Malawi. Just like the former study, this study also revealed that the services likely to be frequently used are those that are provided by the telecentres only in the communities. Examples of these were library services and computer training program (Chikumba 2011:98). Furthermore, Chikumba (2011:99) found that in both telecentres, the least used services are fixed telephone services. This might be attributed to the fact that these days, most people own cell phones thus they compare the benefit of using the fixed phones to those of using cellular

phones. As stated by Walters (1992:38), when a new product is developed, it is the benefit of the proposed service that interests the customer more than the service itself.

All in all, these studies show that, though the assumption is that once telecentres have been established then all community members will use and benefit from them, the reality is different on the ground because they do not reach a lot of people. The number of telecentre daily users may include some users who visit the telecentres more than twice a day (for example in a study by Etta & Parvyn-Wamahiu 2003:156). These studies also show that telecentres have failed to accommodate all groups of people in rural communities since access varies across age, gender, education and occupation. Therefore, as suggested by Mtega and Malekani (2009:86), efforts should be made to ensure that the benefits of ICTs provided in telecentres should reach more people in rural areas. Failing which, very few people will continue enjoying the benefits of these technologies. The following section discusses the benefits that those who use telecentres in rural areas enjoy from them. It also discusses the purpose for using telecentres.

2.4. Relevance of telecentres to rural communities

Telecentres are being established to make positive changes in rural communities which imply that they should be relevant to the communities they serve in order to justify their existence. Moreover, some scholars (for example, Chigona, Lekwane, Westcott & Chigona 2011) question the importance and value of the existence of telecentres in this age of mobile technologies. Relevance is associated with the benefits that users draw from the use of and their purposes for using telecentres, their services and content. It is also associated with how satisfied users are with the services provided in the telecentres (Etta & Parvyn-Wamahiu 2003: 7).

2.4.1. Benefits of telecentres to rural communities

Telecentres in rural areas help to generate business enterprise and employment; empower people through access to knowledge and information; provide information related to market, better farming practices; and reduce travelling costs and time that people spend in search of the services usually located in urban areas (Lesame 2006:29; Buhigiro 2012:121). In addition, telecentres help users to improve skills and life, further studies and communication of users with their colleagues and friends on the Internet (Lesame 2006:29; Chigona *et al.* 2011:12).

Van Belle and Trusler (2005) report on a study conducted in Cape Town, South Africa. This was an interpretative case study of one telecentre located in the Western Cape Province of the country. The study explored the implementation issues of MPCCs now known as Thusong Service Centres in the rural areas. It was a qualitative case study utilising interviews with various stakeholders involved with the implementation of the MPCCs. The study also utilised written documents. The study revealed that telecentres are important because they bring new opportunities to the community members in which the telecentre are located. Specifically, the study found that telecentres bring entrepreneurial opportunities because the knowledge gained through computer training helped people to produce artefacts. When these artefacts are sold, they help people to improve their lives and also as contribute to their country's economy. It can therefore be argued that telecentres offer qualitative change (Bozeman & Rogers 2002:770) which simply means that the attainment of skills at the telecentre produces new results in this case, increasing income capital of the communities.

Some empirical research studies (for example, Soriano 2007 in China and Chilimo 2008 in Tanzania) have linked benefits and effectiveness of telecentres to communities by examining the role telecentres are playing in improving the livelihoods of rural communities. Particularly, they have focused on five aspects: human capital (the skills, knowledge, ability to labour and good health important to the ability to pursue different livelihood strategies), financial capital (or the resources which are available to people and which provide them with different livelihoods), natural capital (natural resources used to generate means of survival for example land and water) physical capital (basic infrastructures such as transport, shelter, water, energy and communications and the production equipment and means, which enable people to pursue their livelihoods and social capital (also referred to as social resources upon which people draw in pursuit of livelihoods, such as networks, membership in groups) (Soriano 2007).

Both studies, by collecting data through interviews and focus group discussions with users and nonuser and interviews with project leaders in their respective countries, reveal that telecentres improve the livelihoods of rural community members. The studies revealed that through computer training courses and literacy classes participants are able to acquire new skills, thereby improving *human capital*. In addition, telecentres improve human capital of farmers by providing farmers with information on livestock and poultry raising which

improves their skills. Market demand information helps farmers to predict when to best sell farm produce thereby improving *financial capital*. Some of the human skills like computer skills enable them to get jobs and consequently extend their financial capital (Chilimo 2008:354). This implies that telecentres can improve the capital assets directly or indirectly *social capital* is improved as telecentres in rural areas provided space for youth and women to interact and share knowledge. Furthermore, the study by Soriano (2007) revealed that telecentres increase *natural capital* and *physical capital* through promotion of tourism and ecotourism due to information on the Internet and by facilitating the transfer of information from rural mountainous villages and cities which help to overcome geographical barriers respectively (Soriano 2007). Both Soriano (2007) and Chilimo (2008:369) suggest that more research needs to be done in other communities to ascertain the effectiveness of telecentres, hence this study in Malawi.

Attwood, Diga, Braathen and May (2013) report on a study conducted in South Africa. The study investigated the impact of free computer training and telecentre use on individuals in poor communities in KwaZulu-Natal. A participatory action research process was used. Firstly, telecentre users were offered training and then quality assessment measures were undertaken. The study revealed that telecentres are important in rural communities. Overall two thirds of the total of 113 respondents indicated that the telecentres change their quality of life. Some of these changes included: getting a job, improving nature of job, improve business and increase family members income; feel empowered or increases self-esteem, hope, direction, happiness and/or confidence; help in having more friends, networks and social interaction; and acquire greater knowledge of the world by increasing access to information (Attwood *et al.* 2013).

Telecentres are also beneficial to their communities because they promote active citizenship and participative democracy. For participative democracy to be achieved, GCIS (2013) suggests that a variety of forms of media need to be used for the provision of information and two-way communication services. In addition, Hunt (2001:1) argues that people are supposed to be able to exercise their responsibilities and rights of citizenship using ICT. Therefore, setting up of telecentres is being considered as a critical move because ICTs contained in them allow information dissemination and access, combined with reasoned dialogue, strengthen democracy. They also have a capability of reducing isolation, enable an ordinary

citizen to make more informed contributions to local management and politics; help in people to access decentralised municipal services like legal assistance online; and stimulate the sharing of knowledge and experience (Dixit n.d.: 59; Hunt 2001:6-9). ICTs present in the telecentres also have a potential of fostering a two-way communication whereby governments can explain their intentions to the communities and the communities express their needs at the same time (Twinomurinzini, Phahlamohlaka & Byrne 2012:210). In South Africa for example, the Thusong Service Centres are being established to empower citizens; ensure freedom of access to information as well as participation in its political system; have access to a variety of government services and a range of information products and to communicate with the government at one locality with the main objective of addressing imbalances in access to relevant and empowering government information (GCIS: 2013). Every centre provides standard government basic services which include: social grants, health, education, passports and identity documents (Twinomurinzini, Phahlamohlaka & Byrne 2012:204). It can, therefore, be argued that these are also helping rural communities to save money and time because the access of these services is very expensive as the distances are very vast.

In addition to fostering active citizenship and participative democracy at national level, in some countries like Hungary and Latin America, telecentres foster these two at local level as well. Telecentres in these countries offer neutral public places for debates, discussion, meeting and learning (Dixit n.d.: 55; Hunt 2001:6-9).

2.4.2. Purposes for using telecentre services

People use telecentres and their services for various purposes. Some use telecentres for educational purposes like obtaining information for doing or completing assignments, some use them for social purposes like communicating with friends and relatives, finding information on agricultural prices, marketing techniques, looking for jobs (Lesame 2006:21; Soriano 2007; Chilimo 2008:121).

Chigona *et al.* (2011) report on a study they conducted between 2010 and 2011 in Cape Town, South Africa, to ascertain the benefits and uses of shared computing facilities in the age of mobile technologies. The study revealed that people use shared computing facilities to look for jobs, social networking, banking and searching for institutions (Chigona *et al.*

2011:6). Though this study targeted urban poor, it gives an overview of why the poor people use the shared facilities which have almost similar objectives to rural telecentres that this study targeted in Malawi.

In their study, Prado, Câmara and Figueiredo (2011) also examined the reasons why community members use the telecentres. The study revealed that the major uses of the telecentres are related to school work for example, assignments; for personal reasons; for entertainment; professional or work-related and to participate in civic life. These uses were related to the use of Internet and other ICTs available within the telecentres. However, there were some other people who used other telecentre services. These use the telecentre in order to learn about health care, sanitation, or how to tend to their crops and animals and how to read and write at the telecentre (Prado, Câmara & Figueiredo 2011: 12).

2.4.3. User satisfaction with telecentre services

Telecentres need to satisfy what users expect of them so that they are deemed relevant. In general, research studies have shown that majority of users are satisfied with the services that the telecentres offer to them.

In their study, Etta and Parvyn-Wamahiu (2003) found that most users are satisfied with services offered in the telecentres because telecentres link them and their communities to wider audiences, facilitate external communication and promote knowledge of computer technology among local community members (Etta & Parvyn-Wamahiu 2003:xxiv). However, those who indicated that they are not satisfied with the telecentres, attributed this to lack of failure of telecentres to provide them with needed information. Similarly, studies by Soriano (2007) and Chilimo, Ngulube and Stilwell (2011) in China and Tanzania respectively report that though rural dwellers have various information needs (for example, health information, agricultural information and educational information), that they expect their telecentres to address, telecentres do not address some of these. In Tanzania for example, only two out of the four targeted telecentres provided information on agriculture and people still relied on face to face communication (Chilimo, Ngulube & Stilwell 2011:45).

Similarly, a study by Lesame (2006) in South Africa which was conducted to assess how ICTs offered by telecentres contribute to the social economic development and reduce

illiteracy found that most users (80% of the respondents) view the telecentres and their services positively because telecentres bring about positive changes to them and their communities and would miss them if were closed. However, the minority that viewed telecentres negatively indicated that they required some services (for example, laminators and scanners) which were not being offered during the time of data collection (Lesame 2006:22). It can, therefore, be argued that there is a link between services offered and satisfaction of user with the telecentre.

All in all, the studies reviewed in this section show that telecentres are relevant as community members benefit from them, use them for various purposes and that the majority are satisfied with their services. These purposes and satisfaction however, may depend on the services that are being offered in the telecentres. It is important therefore for telecentre managers and operators to link the services they provide and what people would need from the telecentres so that the telecentres address those needs and become more relevant. Lack of meeting information needs for example, can cause the telecentres to fail (Chilimo, Ngulube & Stilwell 2011:37).

2.5. Factors influencing usage of telecentres

To better understand acceptance and use of telecentres and their services, it is important to explore the factors that influence the use and non-use of telecentres (Kumar and Best 2007; Bailey 2009; Prado, Câmara & Figueiredo 2011). Though telecentres are established to benefit all community members, as discussed above, the telecentre uptake in most communities is very low. This low usage of telecentres has been attributed to several factors. Several authors by means of surveys and case studies have written on factors that contribute to low telecentre adoption rate. The following paragraphs will review some of these studies and their findings.

Kumar and Best (2007) report on a study they conducted in India. The study was conducted to understand why kiosk use had not been able to diffuse among a wider section of the communities in which they were located (Kumar & Best 2007). The kiosks that were studied were those implemented under Sustainable Access in Rural India (SARI). The researchers employed Rogers's DoI Theory. However, they only employed three elements of the theory: perceived attributes of an innovation, communication of an innovation and consequences of

an innovation. On the perceived attributes of an innovation, they only employed three elements: relative advantage, compatibility and complexity. They were justified to use these attributes by Roman's (2003:56) suggestion that these are the most important factors to be looked into when employing DoI in the study of telecentres. A sample size of five telecentres was chosen. It targeted users, non-users, telecentre operators and telecentre project officials. The study surveyed 132 kiosk users in five telecentres. The users were selected randomly from the records of the telecentres. Interviews were conducted with users, 12 kiosk operators, four SARI Project officials and eight government officials. To get information on non-users, the study used data from a survey by SARI project officials that targeted the villages and covered users and non-user households.

The findings indicate that relative advantage affects the adoption of telecentres positively. Respondents indicated that they use the telecentres because it saves money, time and effort as compared to alternative providers of the same services which were far away and expensive. Compatibility affects the telecentre usage both positively and negatively. Telecentres were compatible with the needs of the community. The respondents indicated that they use the telecentres because they offer services like e-government services which are mostly needed by the communities. However, computer lessons were not compatible with social norms such that women who did not have power in controlling financial resources did not use them and this affected the adoption of telecentres by women negatively. The user interface and applications of computers were complex and this affected its adoption negatively (Kumar & Best 2007).

The implications of the findings to telecentre managers and operators on the adoption of telecentres are very clear. This means that if people see that they gain something from using the services provided by the telecentres as compared to getting the same from other places like cybercafés, then they will be willing to use them. The telecentres therefore should be established close to people and offer services costing lower than the services offered by the alternative (for example, internet cafés); telecentre managers should be paying attention to the needs of the community so that the services should be compatible with the community's needs, and the equipment should be simple to use.

The study also found that there is no clear connection between communication channels and user adoption. The study revealed that telecentre operators had made efforts to raise awareness both through mass media and interpersonal channels but users were only the educated. However, one would argue that the connection between communication channels and telecentre usage would be clear if the researchers had asked users about where they heard about the existence of the telecentres (for example, where did they hear about the telecentre existence for them to start using them? Was it because of people or their friends?) because the question of the awareness and promotion of telecentre was posed to the telecentre operators only. Consequences of innovation affected the telecentre adoption negatively as it increased the knowledge and digital gap that was already there because it was only used by the most educated (Kumar & Best 2007).

The findings of Kumar and Best (2007) study are to some extent in line with the findings of Chigona and Licker (2008) who conducted a study to understand the adoption of Smart Cape computing facilities among the urban poor in Cape Town, South Africa. The study used the same Rogers's DoI Theory. The researchers collected data from users, nonuser, librarians (in charge of the libraries in which the computing facilities were located) and project managers. The study also discovered that community members will adopt telecentres if they draw benefits from their use, when telecentres offer services that are compatible with their needs and when the facilities are not complex to use. It also revealed that the social system, especially bonds existing in communities, influences adoption of telecentres. The respondents indicated that they use telecentres because they were told by friends. This is linked to interpersonal channels of communication. Just like the Kumar and Best's (2007) study, a study by Chigona and Licker (2008) also found that consequences of an innovation affect the telecentre adoption negatively. This study revealed that the Smart Cape facilities increase skills divide as the facilities are mostly enjoyed by those who have computer skills obtained elsewhere and not in the facilities because the facilities do not provide the training (Chigona & Licker 2008:70).

The study however, to some extent, differs from Kumar and Best's (2007) study because it discovered that communication channels play a role in the telecentre adoption since some community members started using the facilities after being told by their friends (Chigona & Licker 2008:68). This might be attributed to the fact that in the latter study, users were asked

where they heard about telecentre existence which was not the case in the former study as this question was only posed to telecentre staff.

Bailey and Ngwenyama (2009) report on a study in Jamaica which investigated factors that influence usage and success of telecentres in developing countries. It targeted four telecentres which were selected purposively based on their location (two rural areas and the other two from urban area). Data were collected through analysis of documents and observation of persons using telecentre facilities and services, and training sessions. The researchers also conducted interviews with four telecentre managers, one from each telecentre.

The study found that social ties (existing social networks and bonds like friendships and family relationships), location (the proximity and distance from the communities), literacy (how educated people are) and employment opportunities influence telecentre usage. Social ties influence the telecentre usage because people go to communicate with friends and family members. This also influences older people to start using the telecentres with the aim of communicating with their children who are abroad. Location also plays a role in telecentre usage because the telecentre is their only source of ICT facilities close to where they were staying. Literacy affects telecentre usage both negatively and positively because at first, the illiterate did not use the telecentre services but it offered opportunities to telecentres to start offering literacy skills which made people who were illiterate to start using the telecentres. The study also revealed that employment opportunities affect the telecentre usage positively because the jobless community members were helping the telecentres voluntarily and ended up being offered job placement within the telecentres. This motivated other community members to also start using telecentres (Bailey & Ngwenyama 2009: 5). Therefore, the implication of this is that if the telecentres are to be adopted by many, telecentre operators and managers should allocate them close to people, should offer literacy classes to those who are illiterate, should offer employment opportunities or services that will help the jobless find jobs. On bonds and social ties, telecentres should be providing room for interactions so that people should build friendships which will make users to go to telecentres to meet their friends and consequently, use the telecentre services.

Another study on the factors affecting diffusion of telecentres was conducted by Abdulwahab and Zulkhairi (2011) in Nigeria. The study was conducted to evaluate the effectiveness of

telecentres by investigating what determined user acceptance of telecentres in Nigeria (Abdulwahab & Zulkhairi 2011:402). The researchers used Venkatesh, *et al.*'s (2003) UTAUT which was combined with Competing Value Approach (CVA). The CVA is a model used for measuring effectiveness of an organisation. The model suggests that organisational effectiveness can be measured or evaluated through three value dimensions. The first value dimension is concerned with organizational focus; the second value dimension focuses on organizational structure emphasising on stability and flexibility; and the third value dimension is related to organizational means and ends with an emphasis on important processes (for example, goal setting and planning) to final outcomes (for example, productivity) (Quinn & Rohrbaugh 1983). The elements that were derived from CVA included: management effectiveness (actions of staff within the telecentre) and programme effectiveness (related to beneficial results of using the telecentre).

The study surveyed 250 telecentre users and collected data from them through questionnaires. The study revealed that five elements have an impact on the telecentre usage and success. The study proved that performance expectancy affects the adoption of telecentre positively as users use the telecentres because they perceive that using telecentre helps to accomplish their job quickly and improves their job performance. Likewise, programme effectiveness positively affects telecentre usage because users use the telecentres because they believe that using telecentres help in socio-economic development of user's community. Social influence has a positive correlation with telecentre adoption. Users indicated that their telecentre usage is due to the fact that the people they consider important like parents and leaders perceive that it is important that they (users) should use the telecentres. Management effectiveness affects telecentre adoption positively as users perceive that telecentre members of staff were accommodative. Facilitating conditions have a positive correlation with telecentre usage. The use of telecentres depended on resources (for example money) that users had. On the other hand, the study found that effort expectancy does not have any impact on telecentre usage (Abdulwahab & Zulkhairi 2011:406).

These findings to a large extent echo the findings of a study conducted by Wang and Shih (2009) in Taiwan which used the Venkatesh, *et al.*'s (2003) UTAUT. The research was conducted to understand the acceptance of telecentres. The study investigated the factors influencing the use of information kiosks from the citizens' perspectives so as to help the

government and other stakeholders implementing telecentres to develop better information kiosks for their citizens. It was a survey research with a sample size of 244 usable responses. The study gathered data using convenience sampling technique, by asking respondents if they were willing to participate in the survey. The study also found that performance expectancy, social influence and facilitating conditions affect adoption of telecentres. However, unlike the Abdulwahab and Zulkhairi (2011) which found that there is no relationship between effort expectancy and telecentre adoption, this study the more the effort is required to access telecentre services, the fewer adopt them. These findings therefore are in line with the findings of Kumar and Best (2007) and Chigona & Licker (2008) on complexity as discussed above.

The implication of these two studies on telecentre managers and operators is that they should make sure that the services they provide to the communities help the users improve their skills and job performance; offer various benefits to the communities and do not require much effort to use. In addition, the staff should be readily available to assist users when they encounter problems in the course of telecentre use (for example, teaching how to search for information on the Internet). More attention should also be paid to the social influence aspect as this was found to be a major influence on telecentre adoption (Abdulwahab & Zulkhairi 2011:410). This means that more people would adopt the telecentres if they perceive that people they view as important to them (for example, chiefs) feel that they (users) should use the telecentre. One can therefore argue that this is due to the fact that people in the community respect every decision carried out by the people who are important to them. This is why Abdulwahab and Zulkhairi (2011:410) recommend that the telecentre operators should take advantage of important others in the community like chiefs who can influence their people in the community.

In their study, Attwood *et al.* (2013) also analysed the structural factors deterring or advancing the effective use of telecentres by the local community. Like any other study on usage of telecentres, this study revealed that there are several factors that affect the usage of telecentres. The researchers found that gender norms affect the usage of telecentres by women negatively. The study found that some norms dictate that women are not supposed to use ICTs. This therefore, affects their participation and use of the telecentres. This can be linked to the compatibility of the Rogers's DoI Theory which states that when the service

does not fit into people's norms, people are likely not to use it (Rodgers 1995: 224). The study also revealed that lack of ICT awareness and skills and distance to where the telecentres are located affect the use of telecentres. The study found that some community members perceive computers to be meant for rich people only and that some users do not use telecentres because they have to travel long distances to reach telecentres. The implication to telecentre managers is that the services should fit in community's norms and telecentres should be located close to people. Awareness campaigns should also be undertaken for people in the rural communities to have a clear picture of what is offered within telecentres.

Some other factors identified in the literature include: the language used on the computers; high cost of services like computer training (Etta & Parvyn-Wamahiu 2003: xxiii; Soriano 2007; Kumar & Best 2007; Mtega & Malekani 2009: 83); lack of telecommunication networks, limited types of services and lack of information skills (Ellen 2000: 59).

All in all, it can be summarized that there are various factors that are known to influence user acceptance and use of telecentres and their services. However, from these studies, it is clear that such factors may not have the same influence in all communities. What may influence adoption of telecentres in community A sometimes may not influence adoption of telecentres in community B. Therefore, it can be concluded that there is no one size that fits all as the factors that affect telecentre usage will be based on the community itself.

2.6. Challenges faced by telecentres and users

Like any other project, telecentres face a lot of challenges in their operation. Likewise, their users also face challenges. This section discusses these challenges.

2.6.1. Challenges faced by telecentres

Telecentres are effective to the community when they provide services and content that meet user needs and demands. Colle (2004:14) observes that one of the biggest challenges faced by telecentres is intensive and continued efforts to make telecentre content relevant to local needs as they strive to provide appropriate information and services for community members.

Telecentres can also be more effective if they work together with other institutions having similar objectives. For example, collaboration between telecentres and libraries would have a huge impact on communities because libraries offer information literacy instructions which

are not offered by telecentres. However, collaboration is always a big challenge because some these facilities in many countries like South Africa are owned by different departments (Coward, Gomez & Ambikar 2008:12; The LIS Transformation Charter 2014). This lack of intergovernmental co-ordination puts the sustainability of centres at risk (The LIS Transformation Charter 2014).

Telecentres are also facing the challenge of justifying their existence especially in this age of mobile technology where some services that telecentres offer may also be accessed using mobile technologies like smartphones. Therefore, telecentres need to justify their existence by offering benefits to the communities (Chigona *et al.* 2011:1).

Etta and Parvyn-Wamahiu (2003:159) note that telecentres experience poor management challenges such that equipment does not work for long periods and that telecentres take long to buy cartridges sometimes on account of bureaucratic delays. Chigalu (2006) argues that spare parts and technical assistance in telecentres should be available when needed.

Networking telecentres to develop and share resources is another challenge faced by telecentres. In order for the mission of a telecentre to be more effective, it needs to organise itself in overlapping national, regional and international networks. These networks allow their members to share insight and experience, increasing their effectiveness and chance of success, share resources and to get access to resources more. Unfortunately, most telecentres are not networked (Colle 2001: 14).

Some other challenges include: unreliability and high cost of power supply; and unreliability of telecommunications and cost of access which limit the number of services being provided to communities (Etta & Parvyn-Wamahiu 2003:160; Mtega & Malekani 2009:83).

2.6.2. Challenges faced by telecentre users

The literature shows that users of telecentres face a lot of challenges. Some of these challenges may affect their telecentre usage negatively. A study conducted by Huerta and Sandoval-Almazán (2007) in Mexico revealed that in telecentres, Internet users lack three abilities: ability to navigate through a nonlinear environment to find the desired information; ability to analyze and synthesize the information retrieved; and ability to assess the quality of information. This lack of skills might also be attributed to the fact that most telecentres do not

offer Internet skills training and that computers and Internet phenomenon are recent technologies. When searching information, this lack of these skills frustrates telecentre users especially when they get poor results hence, stop using the telecentre services (Mtega & Malekani 2009: 81).

Telecentre users also face a challenge of slow speed of Internet which is as a result of low bandwidth in many telecentres. This challenge sometimes discourages users from using such services (Huerta & Sandoval-Almazán 2007; Mtega & Malekani 2009: 82).

Etta and Parvyn-Wamahiu 2003 (2003: xxiii) note that most telecentres keep formal government working hours which limits the time during which the facilities are open to the public. Chigalu (2006) suggests that telecentres must be open at hours when people want to use them.

Most telecentre users also complain about inadequate physical facilities. In most telecentres, the available space is either too small or poorly managed. This, therefore, leads to little privacy for users for example, of telephones (Etta & Parvyn-Wamahiu 2003:160).

Lack of information in local content is another challenge that many telecentre users complain about. A lot of web based information are about foreign countries and in foreign languages like English and French not understood by local communities (Etta & Parvyn-Wamahiu 2003: 160; Huerta & Sandoval-Almazán 2007:224; Coward, Gomez & Ambikar 2008: 9; Mtega & Malekani 2009:81). The use of foreign languages makes majority of community members to perceive telecentres as places providing services for the educated (Etta & Parvyn-Wamahiu 2003:160).

Poor location of telecentres is another challenge that users face. Some facilities are located far such that users have to incur transport costs. This affects their usage negatively (Etta and Parvyn-Wamahiu (2003; Coward, Gomez & Ambikar 2008: 9). In addition, some telecentres are located near police stations. As such, this threatens some users to visit them because they do not feel comfortable to visit such places (Etta & Parvyn-Wamahiu 2003:160).

2.7. Conclusion

This chapter has provided a review on the usage of telecentres and their services in some developing countries. In summary, the review of the literature shows that telecentres are

relevant to their communities because they offer several benefits like improving human capital, financial capital, natural capital and social capital. Telecentres are also potentially important for fostering participative democracy and active citizenship. Telecentres are being used for various purposes for example, for educational purposes like obtaining information for assignments, for communicating with friends and relatives and finding information on agricultural prices and marketing techniques. It seems that the majority of their users view them positively in their communities. However, the literature reveals that, despite the fact that telecentres are relevant to the communities, these facilities are being underused and that they are not accessed by all groups of people in their communities.

The literature also shows that telecentres face a lot of challenges that affect their operation and which may limit the number of services to their communities. Some of these challenges include:

- Failing to provide users with information in local languages;
- Unreliability and high cost of power supply;
- Unreliability of telecommunications and the high cost of accessing them;
- Lack of networks to which they can be connected; and
- Poor management challenges especially with those owned by governments.

Telecentre users also face challenges which may have a negative impact on their usage of the telecentres. Some of these include the following:

- Lack of Internet searching skills;
- Inadequate physical facilities;
- Lack of information in local languages within telecentres;
- Poor location of telecentres; and
- Shortages of telecentre opening hours since most telecentres keep formal government working hours.

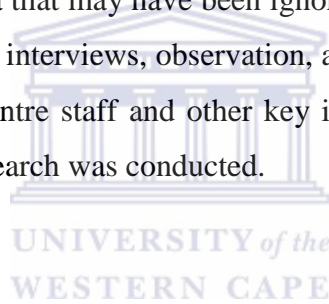
In addition to the challenges that telecentre users face that may end up influencing their telecentre usage, the literature also reveals several factors. Some of these include:

- Relative advantage of the telecentre;
- Complexity of ICT equipment available in the telecentres;
- Bonds existing in the communities;
- Employment opportunities;

- Communication channels used to publicise the existence of telecentres and;
- Compatibility of telecentre services with the needs, values and beliefs of community members.

The same literature shows that factors influencing the use of telecentres in one community may not be the same factors influencing the uptake in another community. Therefore, it is important to conduct studies of the factors influencing the use of telecentres with respect to a given community; hence this study in Malawi.

Apart from identifying the findings of other research, the other benefit of conducting the literature review has been identification of the methodologies used. This research is modelled on the studies that combined different methods because, as Onwuezbuzie and Jonson (2006:48) suggest, mixing methods helps to avoid limitations that can occur with the use of a single approach and captures data that may have been ignored by a single method. Therefore, this research used questionnaires, interviews, observation, and document and records analysis to collect data from users, telecentre staff and other key informants. The following chapter gives an overview of how the research was conducted.



CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

The aim of this chapter is to describe the methodology used to examine the use of telecentres and their services in Malawi viewed from the lens of a case study of one MPCT, Lupaso Community Telecentre.

This chapter first of all returns to the research questions that were given in Chapter One. Thereafter, the Chapter gives a description of the design and methodology that were used to gather data in order to answer the research questions. The aspects covered include: the research questions, a discussion of case study site and case study methodology, the research design, the data-gathering instruments, the pilot study, the population and sampling, and the data analysis techniques.

3.2. Research questions

The following research questions guided the researcher. They are formulated in order to address the research problem and objectives presented in Chapter One. As mentioned in Chapter One, these research questions reflect Rogers's DoI Theory discussed in Chapter One which states that the adoption of an innovation is determined by: the properties of the innovation (perceptions of its relative advantages, how compatible it is with its potential users' circumstances, how difficult it is to use; how visible its benefits are); how the innovation is communicated (by mass media or by people talking to one another); who adopts it and when; and the surrounding social system.

1. What are the access and usage patterns of the telecentres and their services?
2. How relevant are the services offered at the telecentres to community members?
3. What factors affect the usage of telecentres? For example:
 - How easy/complex are the services to use?
 - Who influences the use of the telecentres?
 - Where did the users hear about the telecentre?
4. What challenges do telecentres and their users face?

3.3. Case study site and case study methodology

The Telecentre was purposively chosen because of two reasons. Firstly, the Telecentre is one of the three community managed telecentres in Malawi. This suggests that the community bought into its establishment. Secondly, researchers need to choose cases that are easy to reach (Stake 1995:4) and Lupaso Telecentre is the most convenient to the researcher among the three community managed telecentres. More information about the site and its surrounding is given in Chapter Four.

A case study involves the researcher exploring a single entity or phenomenon and collecting detailed information using various methods and data collection procedures (Creswell 1994: 12). Though the researcher adopted this approach owing to the advantages discussed below, a case study has weaknesses which have led some scholars (for example George & Bennett 2005) to criticise it. The major criticism is lack of generalizability to other sites. In addition, George and Bennett (2005:23) argue that case studies are not good at measuring the long-term impact of a programme, which implies the measurement of benefits and changes in the community.

Despite the possible weaknesses of the case study method, the researcher thought it wise to use the approach because its advantages outweigh the weaknesses. The case study with its mix of data-gathering methods enabled the researcher to undertake an in-depth study of a unit and develop a detailed understanding of what is happening in complex circumstances (Aina 2002: 53; Flyvbjerg 2006: 221). Moreover, a case study is a way of conducting research within real life context using multiple sources of evidence (Flyvbjerg 2006: 224; VanWynsberghe & Khan 2007:9). Therefore, for the researcher to have a detailed and deep understanding of what really influences the use and acceptance of telecentres and their services in Malawi, it was important for her to study it in the real life context of one telecentre using various methods rather than targeting all telecentres in the country. In addition, a case study “ can close in on real-life situations and tests views directly in relation to phenomena as they unfold in practice” (Flyvbjerg 2006: 235). For example, in this case study, the researcher through observation had a chance to understand the viewpoints and behaviour of people on usage of the Telecentre.

Flyvbjerg (2006:221) argues that when one is researching on something concerning people, which was the case in this study, a case study is more applicable because context dependent

knowledge is vital in such studies. The study aimed at learning what influences the adoption of telecentre and their services in Malawi. Eysenck (1976:9) cited in Flyvbjerg (2006: 224) notes that case studies are vital in the process of learning rather than proving something hence the adoption of case study was justifiable.

As mentioned in Chapter One, the results of the study will add to the body of knowledge on the usage of telecentres. According to Flyvbjerg (2006:228), case studies are important in knowledge building in the field of social sciences hence, the adoption of the case study in this study was vital. Furthermore, the results from this study will provide insights of what influences telecentre acceptance in Malawi because a case which is strategically chosen offers generalizable results. For example, critical cases which possess characteristics for societies in question offer generalizable insights (Flyvbjerg 2006). The study targeted community managed telecentres located in rural areas. Lupaso Telecentre possessed these characteristics. Hence, the adoption of the case study approach.

3.4. Research design

The questions in this study were explored by means of a mixed method (quantitative and qualitative) case study of one MPCT, Lupaso Community Telecentre.

This study used both qualitative and quantitative approaches to collect in-depth information on the usage of the Telecentre from users, the Telecentre staff and MACRA staff. Four main methods were used to collect data: observation, interviews, a questionnaire survey and document and records analysis. A detailed description of each data collection method is provided in a later section. There were three phases:

- First of all, the researcher analysed documents and records in the Telecentre. Some of the documents and records analysed included the receipt books, the Telecentre's Constitution, Memorandum of Understanding (MOU) between the Telecentre, MACRA and Karonga District Council, the Telecentre's attendance book and guideline for the Lupaso Telecentre Local Management Committee (LTLMC) document. These were analysed to find out things like mission statement and objectives of the Telecentre, the role of LTLMC, the number of users using the Telecentre and services frequently used.
- The second phase involved administering the semi-structured questionnaires to users of the Telecentre.

- The third phase involved interviewing key informants. These included the Telecentre staff and LTLMC Chairman and the MACRA staff. Some of the questions centred on what should be done to increase the user base, types of people visiting the Telecentre and challenges the Telecentre is facing. Some questions partly confirmed data collected from the questionnaire survey and also clarify some aspects not covered by the questionnaire survey. Some questions were formulated based on the data collected through some other data-gathering methods for example, records analysis, from the questionnaire survey and observation. For all interviews, semi-structured interview guides which contained a skeleton of questions were used. The researcher was responsible for recording responses. Observation within the Telecentre was done concurrently with interviewing of the Telecentre staff and management and administering of the questionnaire.

Since mixed method studies consist of collecting data in concurrent or sequential or both phases (Creswell & Clark 2011:190), some phases in this case study were concurrent while some were sequential. This depended on whether data collected in one stage would inform the data in the other phase. For example, since the questionnaires had been developed before the commencement of the case study data collection exercise, the researcher started administering questionnaires before she finished reviewing documents and records. On the other hand, interviews were conducted after the records review and document analysis had been done and some questionnaires had been analysed because some findings in the first two stages informed questions for the latter stage; and that the document and records analysis as discussed in the next chapter helped to identify who to interview.

There are several reasons why it was important to mix data-gathering methods in this study. Mixing methods helps to avoid limitations that can occur with the use of a single approach and capture data that may have been ignored by a single method (Onwuezbuzie & Jonson 2006:48). The inclusion of open-ended qualitative questions in a questionnaire helps to enrich data collected in the quantitative questions (Jick 1979:605). Qualitative methodology helps researchers to have an understanding of how people interpret their experiences, construct their worlds, and what meaning they give to their experiences (Merriam 2009). In this case, qualitative research methods helped the researcher to obtain a deeper understanding and interpretation of factors that influence the acceptance and use of telecentres. In addition, mixing methods enabled the researcher to address different aspects of the same research

question with different methods which in turn extended the breadth of the project and allowed the researcher to be more confident of the findings. Moreover, the inclusion of the qualitative data-gathering methods (for example observation) capitalised on the researcher's closeness to the situation (Jick 1979:605), which is one of the fundamental principles of the case study approach (Flyvbjerg 2006: 224).

3.5. Data-gathering instruments

Due to the nature of the research questions and the data that were required to produce a complete research project, a combination of various instruments was used to collect data in this case study. Furthermore, the choice of the instrument depends on the researcher's consideration of advantages and disadvantages of each instrument (Connaway & Powell 2010:146). This section therefore, contains a discussion of the data-gathering instruments that were used. It gives an overview of what the instruments were used for and also why the researcher was motivated to choose each instrument. The section begins with a description of the pilot study which was conducted in a small telecentre in Cape Town in April 2014.

There are four methods of gathering data to be discussed: questionnaire survey, interviews, observation and document and records analysis. The research methodology is similar to other studies conducted on the same topic by some other researchers (for example, Etta & Parvyn-Wamahi 2003; Mtega & Malekani 2009). The data collection was conducted in May 2014.

3.5.1. Pilot study: Belhar Multipurpose Telecentre Cape Town April 2014

In the pilot study in a small telecentre in Belhar Cape Town in April 2014, the researcher and her supervisor spent two afternoons observing the workings of the centre and interviewing its management. The draft questionnaire was handed to four visitors in the centre. A pilot study is mostly conducted to pre-test the questionnaire before an actual study (Connaway & Powell 2010: 163). Despite the fact that the questionnaire was formulated with reference to the literature, it was still important for the questionnaire to be tested before the actual data collection (Fowler 2009:117). A pilot study provides guidance on the adequacy of the questionnaire (for example, simplicity of wording and possible ambiguities, and layout) and reveals some options that might have been ignored or overlooked by the researcher and offers an opportunity to identify items that do not obtain the information needed (Aina 2002:82; Punch 2003:34; Connaway & Powell 2010:163). In addition, the activity in Belhar was useful as it offered the researcher the opportunity of determining the length of time taken to

complete the questionnaire. After the pilot study in Belhar, some questions were rearranged. All in all, the main purpose of this exercise was to remove the bugs from the questionnaire so that the respondents in the main study should not have difficulties in answering the questionnaire (Punch 2003:34).

Before actual pretesting, the questionnaire draft was given to some lecturers in the Department of Library and Information Science at the University of the Western Cape and also one person who was familiar with the topic. These helped to spot methodological weaknesses in the instrument and to assess the validity of the instrument in terms of the research problem (Connaway & Powell 2010:161).

3.5.2. Records and document analysis

The words document and record are sometimes used interchangeably. However, these are different terms. A document contains information an organization uses to run and support effectiveness and efficiency of the operation of the organisation. An organisation creates documents at planning stage. As such, documents are bound to change. Examples of documents are policies and business plans. On the other hand, a record contains data collected in the course of organizational operations. It is generated during the course of organizational operations. Therefore, a record is evidence of a past occurrence and because of that, it does not change unless there was an error in recording (Bizimanuals.com 2013). An example of a record is accounts payable batch.

Records and document analysis is used in consideration of the fact that the researcher cannot be in all places at all times (Mertens 1998:324) and that an organisation's documents provide information about some realities that relate to the research problem (Have 2004:90). On the part of documents, the researcher analysed the Telecentre Constitution, the guidelines for LTLMC document and the MOU between Lupaso Telecentre, MACRA and Karonga District Council. On the part of the records, the researcher analysed the receipt books and the Telecentre attendance book. Particularly, records and document analysis was used to find out the mission statement and objectives of the Telecentre, the role of LTLMC, the statistics of the number of users using the Telecentre and services frequently used. This mainly therefore helped to answer research question 1. It also helped the researcher to formulate some questions for the interviews with some key informants. For example, the researcher discovered that one of objectives of the Telecentre is to create job opportunities. Then from

this, the researcher formulated an interview question for the Telecentre Manager and LTLMC Chairman as to how the Telecentre creates these job opportunities. The document and records analysis guide is provided as Appendix J.

3.5.3. Questionnaire survey

A survey is a type of research in which many respondents are sampled and answer the same questions (Neuman 2007:168). A questionnaire is described as a form containing a set of questions used to gather information from a number of subjects (Connaway & Powell 2010:146). The questionnaire survey in Malawi was used to collect data from Lupaso Telecentre users. A questionnaire survey provides several advantages. For example, there is uniformity in terms of the questions which contributes to reliability of the data (Fowler 2009:87; Connaway & Powell 2010:145). Questionnaires are the best way to collect large amounts of data within a short period of time, and cheaply, compared to other methods of data collection (Bell 1993:76; Connaway & Powell 2010:145).

Specifically, the researcher employed self-administered semi-structured questionnaires to collect data from the Telecentre users. The researcher opted for self-administered questionnaires because she wanted to minimise the non-response rates which are normally high in mail questionnaires (Connaway & Powell 2010: 222). The choice of semi-structured questionnaires, with a mix of closed and open ended questions, was based on the fact that the open-ended questions allowed the respondents to provide their own ideas, views and opinions on the subject under study (Aina 2002:32; Chikumba 2011:96). They thus, allowed the researcher to obtain answers that were not anticipated. According to Fowler (2009:99), open questions motivate respondents because they like the freedom of answering in their own words.

The researcher designed the questionnaire after reviewing the literature of similar studies which have already been described in Chapter Two (for example, Etta & Paravyn-Wamahiu 2003; Kumar & Best 2007; Chilimo 2008; Abdulwahab & Zulkhairi 2011; Buhigiro 2012). Rogers's DoI Theory as discussed in Chapter One also served to frame the questionnaire design. After formulating the questionnaire, it was given to an expert in the Department of Languages at Mzuzu University to translate it into the local language.

The questionnaire, provided as Appendix D, is divided into five sections. Section A aimed at gathering data on demographic characteristics of respondents, like age, gender, educational

level, their present studies, occupation, income level and language. These data were deemed relevant in examining the usage and access patterns.

Section B focused on the Telecentre usage and access patterns. This asked respondents the kind of services they frequently use; the length of time they have been using the Telecentre; what made them start using the Telecentre; and how frequently they visit the Telecentre.

Section C of the questionnaire contained the questions to determine the relevance of the Telecentre to the community. The main aspects of this section included:

- Purpose for using the Telecentre;
- Importance of the Telecentre;
- Benefits of using the Telecentre;
- Changes that users have experienced by using the Telecentre; and
- User satisfaction with the Telecentre services.

In order to determine the factors that influence the use of the Telecentre and its services, users were asked about what influenced them to use the Telecentre in Section D. This section was based on the Rogers's DoI Theory and asked the respondents:

- How they heard about the Telecentre;
- Who influences them to use the Telecentre;
- Their beliefs about the relative advantage of using the Telecentre;
- How compatible the services are with their information needs; and
- The visibility of the benefits of using of the Telecentre.

The Likert scale statements in this section probed respondents' perceptions of the factors that influence the use of the Telecentre. Most of these questions overlap with earlier questions because it was thought that comparing across questions serves as a form of triangulation to confirm or contradict possible findings. This section also asked respondents about their views why some people do not visit the Telecentre.

Section E asked respondents about challenges they face when accessing the Telecentre services. It also asked respondents to add comments for any important issues not covered in the previous questions. The questionnaire helped to partly answer all research questions.

Research texts gave guidance on the formulation of good questions. For example, the researcher avoided: double barrelled questions to avoid ambiguous answers (Bell 1993:80; Neuman 2007:171; Fowler 2009:94); and avoided abbreviations to ensure that questions meant the same thing to all respondents (Neuman 2007:170; Fowler 2009:89).

The questionnaire is rather long (six and half pages). However, Neuman (2007:181-182) argues that there is no set rule on appropriate length of questionnaire though the response rate drops for longer questionnaires.

Target population and sampling for the user survey

The term target population is used to refer to a specific pool of cases that the researcher wants to study (Neuman 2007:146). Target population depends on the purpose of the study (Nichols 1991: 32). Therefore, the target population of this study composed of the number of users of the Telecentre. Though there are no clear statistics as to how many they are, the Telecentre Manager estimates that the Telecentre serves about 720 users every month.

In most cases, it is difficult to include all members in the target population. Instead, a sample is used. Nichols (1991:128) defines a sample as “a selection of units chosen to represent the target population.” There are many formulas of determining sample sizes. However, Fraenkel and Wallen (2006:104) argue that there is no clear-cut outline as to what best characterizes sufficient sample but the sample size should be as large as the researcher can obtain with reasonable time, energy and expenditure. Therefore, the researcher aimed at targeting every user who visited the Telecentre during the two-week period she was there. A total of 130 users responded in this period. This represented 18.05% of the total number of users. It must be noted that there is a possibility that usage patterns vary across the year. For example, during rainy season some people are busy cultivating in their fields; and when schools are in session some school goers are in boarding schools. During these times, there is likelihood that the Telecentre may receive few users as compared to dry seasons and school holidays.

Every user who visited the Telecentre was given a questionnaire. Since some members visited the Telecentre almost every day, these were allowed to answer the questionnaire only once. The administering of the questionnaires was done by the researcher and two research assistants. These research assistants were college students who were studying towards a

certificate in teaching. These had experience in data collection as they had already been involved in data collection for some other projects. Since research assistants ought to have enough background information about the study (EMGO⁺ Institute for Health and Care Research 2010; Wilding, Leventon, Favretto & Dyer 2012:3), the research assistants were trained. During the training, the researcher explained the purpose of the research to them and went through the whole questionnaire question by question and words were clarified. In addition, the research assistants were encouraged to consult the researcher in case there were some questions that they would fail to explain to the respondents.

3.5.4. Interviews

For more in-depth responses, researchers usually employ interviews as a data collection technique. Bell (1993:91) defines an interview as a “conversation between interviewer and respondent with the purpose of eliciting certain information from the respondent”. This process is mostly guided by an interview schedule also known as an interview protocol (Neuman 2007:168). The major advantage of using interviews is their adaptability since the interviewer can follow up ideas and probe responses whenever they are not clear or suggest interesting new ideas (Bell 1993:91). In the process, the interview helps the researcher to stimulate the subject’s insight into the research problem, thereby exploring significant areas not anticipated in the original investigation and thus not covered in questionnaires (Aina 2004: 340). Probes for example, which are neutral ways of requesting respondents to provide clarification to an ambiguous answer and complete an incomplete answer so that the interviewer obtains relevant answer (Nichols 1991:38; Neuman 2007: 192), help the researcher to gain clarification on some respondents’ answers.

In this study, the qualitative interview technique was used to collect data from key informants. The key informants included the Telecentre staff thus: the Telecentre Manager, the Customer Care Manager; the LTLMC Chairman, and one member of the MACRA staff. The main aim of interviewing these key informants was to find out their perspectives on the usage of the Telecentre and its services and on how to improve it.

Data from all the four key informants were collected through face-to-face interviews. There are several reasons why the researcher opted for face-to-face interviews with all key informants. With the two Telecentre staff and LTLMC Chairman, the researcher conducted face-to-face interviews because they allow the interviewer to observe the surrounding and use

non-verbal communication (Neuman 2007: 296). In this case, since the researcher was in the Telecentre, she would ask questions based on her observation within the Telecentre as well. These respondents were asked about the type of people visiting the Telecentre, the services frequently used, their views on the relevance of the Telecentre to the community, the challenges that the telecentre face. In summary, this technique helped to partly answer all research questions i.e. 1, 2, 3 and 4. The interview protocol used to collect data from Telecentre Manager during the first interview is attached as Appendix E; with the Customer Care Manager as Appendix F; for the Chairman as Appendix G; the interview protocol for the second interview with the Telecentre Manager is attached as Appendix H.

Data from one MACRA staff were collected through a face to face interview due to the fact that some other form of interview like telephone come with a problem of limited length (Neuman 2007:190). The MACRA staff was included because MACRA oversees the project national wide. Therefore, they have a wider picture of several issues (for example, the factors that influence the usage of telecentres and their services and the problems that the telecentres face). In addition, the idea of including the MACRA staff was to get a deep understanding of the usage of telecentres in Malawi hence face-to-face interview was the best option. The interview protocol for MACRA staff is attached as Appendix I.

In both cases, the researcher as an interviewer was asking questions and recording answers. On recording responses, tape recorders were used (with interviewees' permission) to save time and to help researcher not to miss points raised by the respondents (Bell 1996:96).

3.5.5. Observation

The researcher also employed observation techniques to collect data within the Telecentre. As defined by Marshall and Rossman (1989:79) cited in Kawulich (2005), observation is "the systematic description of events, behaviors, and artefacts in the social setting chosen for study." The researcher was motivated to use the technique because it enables the researcher to record behavior as it occurs and compare what people actually do with what they say they do (Connaway & Powell 2010: 180). In addition, the use of observation in a study improves the quality of data collection and interpretation (DeWalt & DeWalt 2002:8). It is considered as a highly effective method in an in-depth study in a small community (Nichols 1991:12).

The researcher was guided by the suggestions by some scholars (for example, Bailey 1996; Neuman 2007) that observation should focus on the following three things: physical

surrounding; members of the community and their actions; and behaviour of people. Therefore, in this study, these three main things were observed. On physical surrounding for example, the researcher observed the services that were being offered; and the problems that the Telecentre and users face. The researcher also focused on objects in the Telecentre. Under this, the focus was on the equipment within the Telecentre to find out whether they were functional, old, new or worn out. This helped to answer why some services are used frequently than others. For example, if the materials were worn out, definitely they would not be used. This also helped to make a follow up during interviews with staff to find out why some equipment was not working. For example, telephones were seen to be just staying idle and the researcher asked the Telecentre Manager the reason why. The researcher also looked at the signage.

The researcher also observed the users of the Telecentre. The most important aspect under this is to observe the characteristics of people in the setting (Bailey 1996:67; Neuman 2007:288) such as age and gender.

The researcher paid attention to the interaction between the users and between users and the Telecentre staff. For example, the researcher observed whether users get assistance from the staff and or their fellow users. The researcher also focused on the services that the users frequently used and problems that they faced when accessing the Telecentre and its services to confirm the information collected in the questionnaire survey. In addition, this information helped to give clues for the follow-up interviews with staff. For example, on the services frequently used, the researcher noticed that non-ICTs were used more than ICTs. The researcher then asked the key informants about their views on the reasons why. The researcher also paid attention to nonverbal communication like gestures and facial expressions because people often express feelings, attitude and social information through nonverbal communication (Neuman 2007:288). The researcher believed that facial expressions for example, would help to reveal the problems that Telecentre users face.

All in all, the information collected using observation techniques was important in two ways: it helped to confirm information from the user questionnaire survey and led into interviews with the key informants on aspects like: underuse of the Telecentre; the gender inequalities among the users; the low usage of the ICTs; and the lack of any request for the phone services. This data collection technique helped to partly answer research questions 1 and 4.

The researcher had a checklist in which she listed the items to be observed. The checklist is provided as Appendix K. This provides the details of the aspects covered through observation data-gathering instrument.

Table 1 below links the data collection instruments to each question.

Table 1: Research question and data gathering instruments/methods

Research question	Data gathering instruments
1. What are the access and usage patterns of the telecentres and their services?	Observation within the Telecentre, questionnaires to users, interviews key informants, records analysis
2. How relevant are the services offered at the telecentres to community members?	Questionnaire to users, interviews with key informants
3. What factors affect the usage of telecentres?	Questionnaire to users, interviews with key informants
4. What challenges do telecentres and their users face?	Questionnaire to users, interview with key informants, observation within the Telecentre.

3.6. Data analysis

The questionnaire's quantitative data were processed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel. Qualitative data analysis involved categorisation and interpretation of data in terms of common themes and meaning. The information was read through repeatedly to extract meaning, give interpretation and identify codes so that they are mapped by the emerging themes.

The qualitative thematic analysis, as outlined by Braun and Clarke (2006), served to guide the researcher. However, considering the fact that "analysis is not a linear process of simply moving from one phase to the next" (Braun & Clarke 2006:86), the researcher was flexible so that the analysis involved her frequently moving back and forward throughout. The first stage

involved researcher's familiarisation with the data. This involved transcribing the data. This produced a 93-paged interview transcript. In this first stage, the researcher also had to immerse herself in reading and rereading of data so as to search and extract meaning, patterns and also noting ideas. The second phase involved the researcher generating codes and organising data relevant to each code so that they are mapped on the themes. This was followed by searching for themes. In this stage, the researcher organised various codes into possible themes as well as organising the pertinent extracted data within these possible themes. Then the researcher had to review the themes so as to refine them. This involved reviewing the themes so as to identify the candidates which were not real themes and those that collapsed into each that ended up forming one theme. The idea behind reviewing the themes was to make sure that there is a relationship between the coded extracts and the entire data set; and that the theme should be clearly distinguished. The final stage involved defining and further refining of the themes to see the essence of what each theme is about and looking at the kind of data captured in each theme.

The data are presented in form of tables and figures in Chapter Four and Chapter Five. It has to be noted that for interview themes, Chapter Four only provides the analysis of each theme and the table containing the themes is attached as Appendix L.

3.7. Conclusion

This chapter has described the design and methodology used to examine the factors influencing the use and acceptance of telecentres in Malawi by means of a case study of Lupaso Community Telecentre. The chapter has provided a detailed description on how the research project was conducted. The main aspects covered include: the case study site and methodology; research questions; research design; the four data-gathering instruments: questionnaire survey with users, interviews with key informants, observation; and document and records analysis; pilot study; target population and sampling; and data analysis. The following chapters summarise and analyse the data that were gathered.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION. CASE STUDY PART I: DOCUMENT, RECORDS, OBSERVATION AND INTERVIEWS

4.1. Introduction

This chapter presents data collected through document and records analysis, observation, and interviews with key informants. As discussed in Chapter Three, the researcher followed the standard techniques of qualitative data collection and analysis as outlined by Braun and Clarke (2006); thus, for example, the interviews were transcribed and they were analyzed and tabulated by themes that emerged across the interview questions. In most sections of the Chapter, the researcher triangulates different kinds of data across the above mentioned case study methods to look for gaps, contradictions and confirmations.

Firstly, the Chapter gives some background information on Lupaso Telecentre as regards to its location and catchment area, other information service providers in the community, equipment in the Telecentre, services it offers to the community and the staff and their duties. These data were collected through observation and interviews. Then, the Chapter presents data collected through document analysis, followed by data collected through records analysis and observation together, then data obtained through interviews.

4.2. Overview of Lupaso Telecentre

Lupaso Community Telecentre is found in Malawi, a country whose socio-economic status has been described in Chapter One. It is located in Karonga District in the Northern part of Malawi. The Telecentre was purposively chosen for the reasons given in Chapter Three.

4.2.1. Lupaso Telecentre catchment area

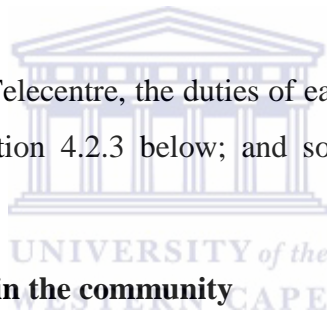
The Telecentre is situated in Mwambanya Village Traditional Authority Kyungu, approximately 22 kilometres from Karonga Town. The total population is 7880. Most people in this area are farmers mainly involved in growing rice and cassava and in fishing. It has poor road networks so that, during the rainy season, the roads are muddy and slippery. The only means of transport to places like Karonga Town is bicycles. Since there are no rest houses in this area, during the case study data collection period, the researcher used to hire a

bicycle from Karonga Town to the Telecentre in the morning and back to town in the afternoon each day. One way takes at least one hour cycling.

The Telecentre started operating in May 2012. It currently serves nine villages surrounding it: Sefu, Mwandosya, Peter Mwangalaba, Donald, Simon, Mwakwana, Mwambanya, Lasha, Mwentaga. However, only seven villages contributed towards the construction of the Telecentre and these seven villages, in return, enjoy the benefits of being part of the LTLMC.

The Telecentre has eight members of staff: three security guards, the manager, one responsible for customer caring, the librarian, and two cleaners (Mwandosya 2013). Interviews with the LTLMC Chairman and Telecentre Manager indicated that these staff are recruited by the LTLMC together with MACRA. The staff are paid by MACRA though the agreement was that they would be getting money from MACRA for the first year only. Interviews revealed that the money that the Telecentre makes so far cannot fully support the payment of staff.

The internal arrangement of the Telecentre, the duties of each of the staff and more details of the Telecentre are given in Section 4.2.3 below; and some photos of the Telecentre are provided as Appendix M.



4.2.2. Other service providers in the community

There are 12 primary schools, two secondary schools, one health centre, two under-five clinics, four community based organisations and three youths groups in the catchment area of this Telecentre.

Interviews and observations show that Lupaso Telecentre is the only facility providing public ICT and library services in the area. The only other facility offering some ICT services is Nkhando Teachers Development Centre which is about seven to 10 kilometres from Lupaso Telecentre. This was established by the British Council and has 10 computers not connected to the Internet. This centre offers basic ICT skills training in a course of 10 days at K2500 for those living within Kalambo area in which the facility is located and K3500 for those outside Kalambo. The day the researcher visited this there was nobody using it and she found that computers were just covered with some cloths. A photo of these computers is provided in Appendix M. On hearing that there was a school close by with a library, the researcher paid it a visit and discovered that this library is only open to the teachers and pupils of this school.

The nearest public library to this area is Karonga National Library found in Karonga Town, 22 kilometres away from the area. The library stocks books, newspapers, magazines, dolls and toys for children. The day the researcher visited this library she found that it was crowded with school leavers, who have completed secondary school education. These were mainly reading newspapers probably looking for jobs. Another information centre is the National Initiative for Civic Education also located in Karonga Town. This mainly stocks some newspapers and a few books which are used within. It also has three computers and offers some basic computer skills training to groups, taught by staff or volunteers. All these are free of charge. On the day the researcher visited it, most people were there to read newspapers and to hold meetings for Malawi Tripartite elections as it was in May when Malawians were about to exercise their right to vote.

4.2.3. Services offered, equipment, staff and their duties and internal arrangement of Lupaso Telecentre

Table 2, Table 3 and Table 4 summarise the services that the Telecentre provides to the community, equipment available in the Telecentre and duties of the staff respectively. Figure 2 depicts the internal arrangement of the Telecentre.

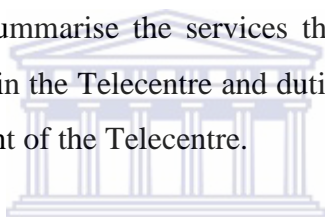


Table 2 below shows the services that the Telecentre offers to the community in general. The Table also shows service charges. However, during the case study data collection period, it was observed that printing and photocopying were not being offered because the Telecentre had run out of toner.

Table 2: Services offered at Lupaso Telecentre

Service	Coverage	Charges (Malawi Kwacha)
Binding		K200
Computer tutorials	<ul style="list-style-type: none"> ○ Microsoft Word ○ Microsoft PowerPoint ○ Microsoft Excel ○ Internet searching skills 	K4,500 per package for 10 days; Internet searching skills for free
Faxing		K200
Hall hiring		K5,000 per day
Internet	<ul style="list-style-type: none"> ○ Facebook and other social 	K5 per minute

services	<ul style="list-style-type: none"> networking ○ Emailing ○ Information searching 	
Lamination		K200
Library services	<ul style="list-style-type: none"> ○ Books (e.g. primary secondary school textbooks, fiction) ○ Newspapers ○ Magazines ○ Information service (e.g. HIV pamphlets, pamphlets on family planning and career information) ○ Constitution 	Free of charge
Photocopying		K15 per page and K20 per paper
Scanning		K200
Typing and printing		K100 per page
Television		Free of charge (charges when there is a game only, K50 per game)
Telephones		The charges not yet decided
Tuckshop	Grocery items like sugar, minerals and biscuits, soap, eggs	Depends on the grocery item

Note: ZARI=MK40

Note: Computer tutorials are usually offered in groups. The Telecentre advertises and people apply. However, if there is only one person who wants to attend these tutorials before the Telecentre advertises, then the Telecentre offers to him or her at the same duration and costs.

Table 3: Equipment available in Lupaso Telecentre

Binding machine	1
Computers	17 all connected to the Internet: 3 in the Internet room, 11 in the computer lab, 1 in the Librarian's office, 1 in the Telecentre Manager's office and 1 in the Customer Care Manager's office
Printers	2: 1 colour and 1 black and white
Laminator	1
Card printer	1
Fax machine	1
Scanner	1
Video camera	1
Television screen	1
Fixed telephones	4
Air conditioners	5
Chairs	56
Desks	9
Radio	1
File shelves	4

- *Note: all the equipment is new.*

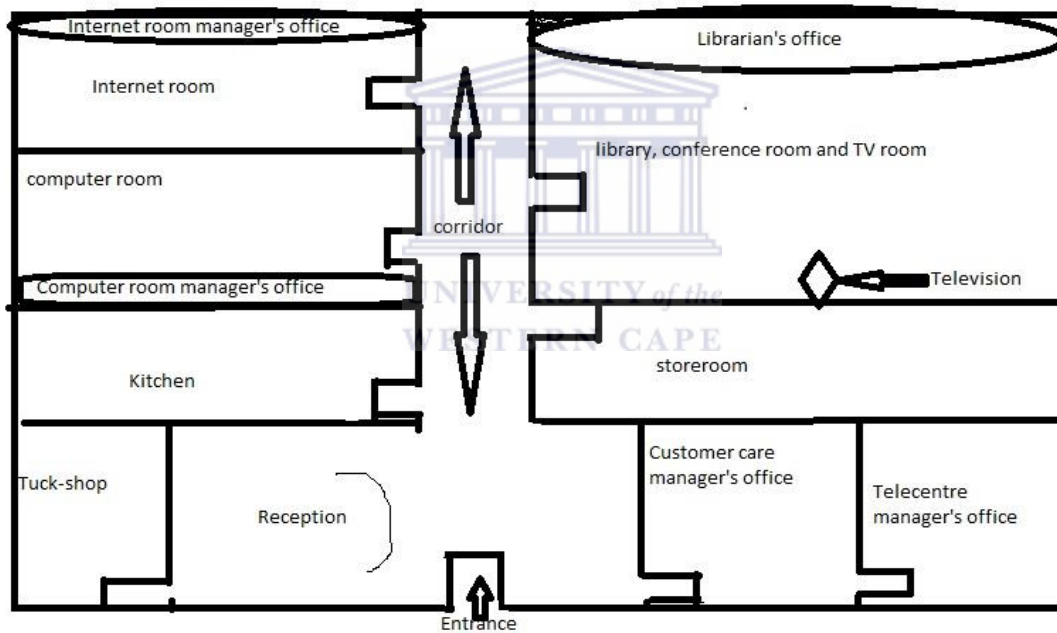
Table 4: Lupaso Telecentre staff and their duties

Job title	Duties
Manager	<ul style="list-style-type: none"> ○ Overseer of the Telecentre ○ Teaching users on Internet explorer, Internet searching skills and Microsoft PowerPoint
Customer Care Manager	<ul style="list-style-type: none"> ○ Welcoming customers ○ Directing them to where they can get the needed services e.g. library; teaching them how to use computers; ○ Photocopying and printing documents for customers ○ Teaching.
Librarian	<ul style="list-style-type: none"> ○ Providing library services

	<ul style="list-style-type: none"> ○ Teaching users Microsoft Excel
Cleaners	<ul style="list-style-type: none"> ○ Cleaning the Telecentre premises
Security guards	<ul style="list-style-type: none"> ○ Guarding the Telecentre

Figure 2 below provides a map of the layout of Lupaso Telecentre. Every section has an office for the manager of that section. Though computer room and Internet room managers' posts do not currently exist, the idea is that these rooms will be occupied by managers of these sections in future. The big room serves as TV room, hall and has a library with four shelves of books. Appendix M provides photos of some of these rooms.

Figure 2: Map of Lupaso Telecentre



4.3. Document analysis: Telecentre stakeholders and mission

As mentioned in the previous chapter, the documents that were analysed included: the Telecentre Constitution; the MOU between the Telecentre, MACRA and the Karonga District Council; and the guidelines for the LTLMC document. The purpose in analysing these documents was to identify the role of different stakeholders and the objectives of the Telecentre. The information obtained from these documents also helped to identify some key informants and to formulate some questions for the interviews with some key informants.

The Constitution stipulates that the Telecentre access is available to all groups of people in the community, regardless of gender, age, religion, or occupation. Some of the main objectives of the Telecentre, as laid out in the constitution, include:

- Provision and accessibility of communication facilities to the community members to necessitate communication with people all over the world;
- Establishment of a recreation centre to enhance proper utilisation of leisure time so as to minimise contraction of HIV/AIDS and other sexually transmitted diseases;
- To promote the generation of funds for development project works in the rural area for people's upliftment economically, socially and spiritually;
- Creation of job opportunities; and
- Acquisition of knowledge and some technical skills in various disciplines.

These objectives suggest that the Telecentre has the potential of transforming the lives of rural Lupaso community through improvement of income, human and social capitals, as well as playing a role in bridging the digital divide, just as telecentres all over the world are expected to do.

As stated earlier, the constitution helped the researcher to formulate some questions for some key informants. For example, with reference to the Telecentre's objectives of creating job opportunities and improving skills of community members, the Telecentre Manager and the Chairman of the LTLMC were asked about how the Telecentre achieves these. In addition, the information from the constitution was compared to what the researcher was observing at the Telecentre and also formulated questions from these wherever there were some disparities. For example, with reference to membership, the constitution says that it is open to all categories of people; yet the researcher observed that only a few women were using the Telecentre. Therefore, the researcher asked these key informants what could be the contributing factors to low usage by women. Their answers will be covered in a later section.

The MOU was analysed to understand the role of the three different stakeholders: the Telecentre, MACRA and Karonga District Council. The Telecentre's role is to deliver services to the community; the main role of MACRA is to provide the Telecentre with equipment; and the Karonga District Council is supposed to be the "eyes" of MACRA and attend LTLMC meetings. However, during interviews with the Telecentre staff and LTLMC Chairman, the researcher learnt that the Council has never attended any meeting. Information

from the MOU also helped to identify key informants and to formulate some interview questions for them. For example, in the MOU it is written that the Telecentre will be getting financial assistance from MACRA for the first year only. Yet, during the case study data collection period, the researcher discovered that the Telecentre still gets assistance from MACRA. So, the researcher asked both the LTLMC Chairman and MACRA staff why this was the case. The answers have been covered in 4.2.1 above.

The LTLMC guidelines document mainly lists the stakeholders to be represented in the committee and its duties and responsibilities. Some of the duties include: appointing new staff, advising the management staff on operation issues, and seeking new directions for the Telecentre. Though the document mainly gave background information, it also helped the researcher to formulate a question for the Chairman of the LTLMC on the committee's role in appointing staff. The answer to this question has been covered above (4.2.1.).

4.4. Observation and records analysis: access and usage

This section presents data obtained through records analysis together with observation. As mentioned in the previous chapter, the main records that were analysed were receipt books and the attendance book. Observation was conducted throughout the case study data collection period. Through these, the researcher obtained data on various aspects that fall under: access and usage patterns; and challenges that the Telecentre and its users face.

4.4.1. Access and usage patterns of the Telecentre

In examining access and usage patterns, the researcher focused on the types of people visiting the Telecentre, the number of people visiting the Telecentre and the services frequently used. In general, the Telecentre was mostly used on Mondays. The researcher also observed that the busiest time was the morning hours. Only a few people visited the Telecentre during afternoon hours and the Telecentre was mostly quiet during lunch times.

The Telecentre keeps formal government working hours; thus, the facility is not open late, at night, on Saturdays and Sundays, or during public holidays. This clearly limits the time during which the facilities are open to the public.

Types of people visiting the Telecentre

Mainly, the researcher focused on the age and gender of Telecentre users and she observed that the Telecentre was mostly being visited by youths mostly in their 20s. Only a few older

than 40 years visited the Telecentre and these mostly visited the Telecentre whenever there were meetings, for example, a meeting on people with disabilities. On gender, the researcher noticed that more males than females used the Telecentre on a daily basis.

Number of people visiting the Telecentre

The section aimed at finding out the number of people visiting the Telecentre each day through both observation and records analysis. Through records analysis, the researcher counted the number of users who visited the Telecentre for some selected months: from January to April 2014, as indicated in the attendance book which all visitors are supposed to sign. However, the challenge was that most users do not sign when they visit the Telecentre and the information in the receipt book might be misleading. For example, on 5 May 2014, only 5 people signed in the attendance book but, through counting everyone who visited the Telecentre, as indicated in Table 5 below, 33 visited the Telecentre on this day.

Table 5 below presents the number of users of the Telecentre on a daily basis during the case study period. This included the number of those answering the questionnaire, those who refused to take part in the study, and those who had already answered the questionnaire in some previous days. Table 5 shows the busiest day to be the two Mondays when 34 and 33 visited the Telecentre. The least number of users visited the Telecentre on Fridays. An average of 20 (19.5) visited the Telecentre per day. It was observed however that some people were frequent users as they visited the Telecentre more than once a day and that some visited the Telecentre daily during the case study data collection period. The general observation is that the number varies according to the type of service being accessed. For example, when there are meetings in the hall as on 5 May 2014 when there was a meeting for people living with disabilities, the number could reach up to 30.

Table 5: Number of people on daily basis for a selected period

Date	Number of people visiting the Telecentre
03/05/2014	7
05/05/2014	33
06/05/2014	25
07/05/2014	20

08/05/2014	20
09/05/2014	12
12/05/2014	34
13/05/2014	15
15/04/2014	17
16/05/2014	17
17/05/2014	15

Frequently used services

Data on frequently used services were collected through both records analysis and observation. Through observation, the researcher noticed that the ICTs were not the chief attraction. For example, not more than three people could be seen using computers at once. However, when there were meetings, 20 people could be seen using the hall; when there were football matches, at least 10 people could be seen watching television at once. A number of people also came to buy grocery items (for example, eggs, soap and sugar) in the tuck-shop because they are cheaper than other groceries in the community. The researcher noticed that most users came to the Telecentre for leisure and entertainment purposes during the case study period: to play games on computers and watch soccer on television. Many users also visited the Telecentre to conduct meetings in the conference hall and to meet their friends coming to or working at the Telecentre. Since it was during the campaign period as Malawi was approaching 2014 Malawi tripartite elections, many users also came to the Telecentre to watch campaign meetings on television.

Observation throughout the case study period concluded that the library room is mostly used by students. Sometimes 10 or more people visit the library a day. Since there are no specific chairs for library users, these users use the same chairs as those used for meetings in the hall or when watching television. Library users are allowed to borrow a maximum of two books for a period of seven days. It was noted that there was only one person attending computer tutorials throughout the two-week data collection period. And less than 10 people were seen accessing other ICT services like Facebook and sending emails. Some of those who found problems were seen being helped by some staff. Nobody asked for telephone services during the whole case study data collection period.

The researcher looked into the receipt books of the Telecentre in order to count the number of users for each service on a daily basis. However, it was difficult to obtain the exact number of users for each service because the Telecentre does not keep clear statistics of the receipts. The Telecentre staff just record the amount of money that a service has generated on that day and a single receipt is written capturing the amount of money a service has generated on a particular day. Therefore, the data presented in this section is based on the money that the services generate for selected months: from January to May 2014 whose data were readily available. The researcher assumes that by looking at the amount of income each service generates, it will give insights into the most used services. The results are presented in Table 6 below. The dates that appear in the Table include those in which at least one service was accessed.

The Table shows that photocopying is the heaviest used service, when it comes to generating income. This is followed by hall hiring. The Table confirms the impression from observation that ICTs (for example, Facebook, email and computer tutorials) are only used by a few people.

Table 6: Frequently used services based on the amount of money each service generates

Date	Binding	Faxing	Hall hiring	Internet	Lamination	Photocopy	Printing	Scanning	Computer lesson
09/01/14	-	-	-	-	-	K1,400	-	-	
10/01/14	-	-	-	-	-	K300	-	-	
13/01/14	-	-	-	-	-	K700.00	-	-	
03/02/14	-	-	-	-	-	K2,900.00	-	-	
06/02/14	-	-	-	-	-	K3,000.00	-	-	
11/02/14	-	-	-	-	-	K700.00	-	-	
14/02/14	-	-	-	-	-	K1,500.00	-	-	
19/02/14	-	-	K15,000.00	-	-	-	-	-	
24/02/14	-	-	K2,000.00	-	-	-	-	-	
25/02/14	-	-	-	-	-	K4,000.00	-	-	
17/02/14	-	-	-	-	-	K800.00	-	-	
28/02/14	K200.00	-	-	-	-	K1,000.00	-	-	
07/03/14	-	-	-	-	-	K1,100.00	-	-	
12/03/14	-	-	K10,000.00	-	-	-	-	-	

14/03/14	-	-	-	-	-	K285,000.00	K15,000.00	-	
07/04/14	-	-	-	-	-	-	-	-	K4,000.00
05/05/14	-	-	-	-	-	-	-	-	K10,000.00
15/05/14	K8,000.00	-	-	-	-	K2,000.00	K200.00	-	-

Source: Lupaso Telecentre Receipt books 2014

Note: ZAR1=MK40

4.4.2. Observations on challenges facing Lupaso Telecentre and its users

The researcher observed that the Telecentre faces management and infrastructural challenges. She noticed that some staff report late for duties and sometimes are just absent. She also observed that when consumables run out, it takes long to replace them because the Telecentre staff have to report to the LTLMC first, which then calls for a meeting and makes a decision. During the case study data collection period, the researcher discovered that toner had been absent for at least two months and was bought only three days before the end of the case study data collection period. This was after the LTLMC held the meeting and authorised the staff to buy it. This absence of toner affected delivery of printing and photocopying services. The Telecentre experiences frequent blackouts since there is no alternative to electricity supplied by the Electricity Supply Corporation of Malawi (ESCOM). On four days of the two weeks she stayed there, the Telecentre experienced black outs for at least four hours. The researcher also recorded that from their facial expressions some users were frustrated by the slow Internet access.

4.5. Interview summary

As described in the previous chapter, the researcher conducted interviews with four key informants. These included the Telecentre Manager, the Customer Care Manager, the Chairman of the LTLMC and one MACRA staff member. The interview protocols are given in Appendices E to I. Some questions were different according to the individual. But certain themes emerged across the interviews as presented in Appendix L. The researcher identified these themes by following the data analysis techniques described by Braun and Clarke (2006). As discussed in Chapter Three, the interviews were firstly transcribed and then coded. Thereafter, the themes were identified, reviewed and defined.

There were two interview sessions with the Telecentre Manager. The second one was a follow up to the first interview and some questions for this interview session were formulated based on observation, records and document analysis and some data from the questionnaires that the researcher had analysed. Thus, she asked him for his views on the following issues that cropped up in the course of the two weeks on site:

- The observed underuse of the centre and how it might attract more customers;
- The gender imbalances among the users;
- The relative low use of the ICTs; and
- The lack of any request for the phone services.

The second interview also sought clarity on some of the Manager's responses in the first interview. For example, in the first interview, he said that whenever the Telecentre uses chiefs to communicate about the Telecentre in the community, the Telecentre management "sees a change". In the second Interview he was asked to clarify on what he meant by this. This follow up question helped because he explained that this change meant increasing the user base of some services.

The themes that emerged in the interview transcripts were analysed and tabulated. To save space in this chapter, the resulting table is given as Appendix L. The table gives the themes and subthemes with supporting quotations from the interview transcriptions.

The qualitative analysis of the interviews identifies six main themes. These have sub themes and supporting quotations as listed in the table provided in Appendix L. These relate to interviewees' perspectives on: access and usage patterns of the Telecentre, relevance of the Telecentre to the community, factors that influence the use and non-use of the Telecentre and challenges that the Telecentre faces. The researcher analyses each of these in the following sections.

Acknowledgement that the Telecentre is underused, access is uneven, and that ICTs are not the chief attraction

The Telecentre Manager and the Customer Care Manager acknowledged that the Telecentre is underused. This lends support to the researcher's field notes during the case study period which indicate that the Telecentre is accessed by a few people. The Telecentre Manager blamed the community for not coming to the Telecentre. Perhaps a question for future

research might ask how aware the surrounding community is of the existence of the Telecentre.

Interviews with key informants lend support to the researcher's observation on uneven access. Key informants indicated that the Telecentre usage varies across gender, occupation, income levels and age such that frequent users are males; farmers and students; with low and middle income levels as it is located in a rural area where farming is an economic activity for majority of people; and youths some of which are students and school leavers. Furthermore, the key informants attributed youth dominance to sight problems, lack of skills and appreciation of the value of using the ICTs among the elderly.

Interviews with the Telecentre Manager, the LTLMC Chairman and the Customer Care Manager also lend support to the researcher's observation and records analysis that Non-ICTs: hall, photocopying and television are the chief attraction to the Telecentre. On the contrary to the observation and records analysis, the Telecentre Manager and Customer Care Manager claimed that computer tutorials are also used frequently. However, the Customer Care Manager said that the computer tutorials are mostly accessed when schools are on vacation.

Assertions that the Telecentre is relevant to the community

- Although they agree that the Telecentre is underused, key informants perceive it as a useful project in the community because it has helped individuals, more especially users in the following ways:
- The Telecentre has strengthened the social life of the community: The Telecentre Manager and the Customer Care Manager believe that the Telecentre has led to stronger social cohesion among the people in the community. The Telecentre is allowing people to form bonds and friendships. This lends support to field notes which indicate that a good number of people came to the Telecentre to visit friends.
- The Telecentre has led to increased income of people in the community: Key informants believe that the Telecentre is increasing the incomes of some community members in two folds. Firstly, it is employing people who were initially jobless which is the case of all staff members. Secondly, after acquiring computer knowledge, people are able to find job. The Customer Care Manager said that he is one of those whom, after attending computer tutorials at the Telecentre, got employed in the

Telecentre: These perceptions are logical due to high rates of unemployment in rural areas of Malawi.

- Developing human capital – for example in the computer tutorials: The Telecentre Manager and the Customer Care Manager claimed that the presence of the Telecentre has reduced computer illiteracy levels in the community such that there is increased confidence in using computers and browsing the Internet. The Telecentre Manager further claimed that so far, 120 people have benefited from the program.
- Bringing services closer to people: The Telecentre Manager, Customer Care Manager and the LTLMC Chairman believe that the Telecentre is useful because it has brought ICTs which used to be as far as 22 kilometres away from the area closer to them. Reduction of travelling distance and costs saves users' time, money and energy.
- Telecentre brought electricity and related facilities to the community: The electricity has developed the community in several ways like having maize mills closer, having electrical appliances like fridges in people's homes and that the community accesses good water at the Telecentre. It was observed that there is no good water within the community apart from at the Telecentre itself where people access tap water.

Views on the factors influencing Telecentre usage

As mentioned above, interviews confirmed the researcher's observation that the Telecentre is underused. The interviews suggested the following as factors that influence the Telecentre usage and nonusage.

- Affordability: The Telecentre provides ICTs and grocery items in the tuck shop at lower costs as compared to other ICT service providers in town and other groceries within the community respectively. The provision of cheaper services attracts people from as far as Karonga Town.
- Convenience: Other ICT service providers are in town.
- Communication strategy: The key informants stressed the importance of using people valued as important to potential adopters to raise awareness of the Telecentre. They claimed that the use of chiefs for example, helped to increase patronage of computer tutorials at one.
- Compatibility of telecentre services with potential adopters' circumstances is essential: The Telecentre Manager and MACRA staff member stressed that without

matching Telecentre services to the needs and cultural values of potential adopters, only a few people use telecentres and that some services remain unused.

- Location influences telecentre usage: A telecentre which is located where there are many activities taking place (for example, near market and schools) attracts many users. However, one can argue that in many rural areas, only a few activities happen. Therefore, this idea may compromise one of objectives of telecentres which is bringing the benefits of ICTs to rural as discussed in Chapter One.
- Lack of local content and government services online affects telecentre usage: Interviews lend support to researcher observation that there are no documents in local languages. Furthermore the Malawi Government does not provide services online that would make rural community members flock to telecentres as it would help them reduce travelling costs incurred in searching the services in town. This comment makes one question whether the Malawi Government sees telecentres as means of delivering their services to people in rural areas.
- Low literacy rates and lack of skills lead to low usage: Interviews confirmed the researcher's observation that ICTs are underused. Key informants believed that people who are illiterate like women and lack skills of using the ICTs find it difficult to use the Telecentre and ICTs, and sometimes stop using the ICTs. This perhaps calls the Telecentre to start offering literacy classes as it was observed that the Telecentre does not offer them.

Comments on the challenges facing the Telecentre

Interviews with key informants explored their views on the challenges that need to be addressed. Some of these are the following:

- Bureaucratic delays. The Telecentre Manager and the LTLMC Chairman complained that the Telecentre is faced with bureaucratic delays at both local and national levels. At local level, whenever the Telecentre runs out of something, the Telecentre staff have to consult the management committee which makes the final decision after sometime. As mentioned above, observation during case study period recorded the local level bureaucratic delays when the Telecentre had run out of toner. At national level, MACRA, which is supposed to be supporting the Telecentre, sometimes delays this support when the Telecentre is in need of it.

- Lack of expertise: The Telecentre Manager raised concerns over lack of expertise within the Telecentre. He explained that whenever equipment has a fault, they report to MACRA which sends a technician to repair it after some time. Perhaps there is need for the Telecentre to employ a technician or else the staff should be equipped with skills.
- Infrastructural problems: Interviews with key informants lend support to observation during the case study period that the Telecentre experiences poor Internet connectivity and frequent blackouts because it only relies on the power supplied by ESCOM. On power problems, interview with the MACRA staff member suggests that this is common problem in all telecentres in Malawi. Perhaps all telecentres should buy generators as suggested by the Lupaso Telecentre Manager.

4.6. Conclusion

The main aim of this chapter was to present an analysis and summary of the case study data obtained through observation, records and document analysis, and the interviews with key informants. The Chapter started with presenting background information of the Telecentre as regards to its location and catchment area, equipment in the Telecentre, services, staff and their duties and other service providers in the community. Then the Chapter presented data collected through document analysis, records analysis and observation together followed by data collected through interviews.

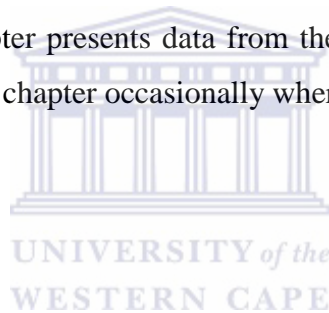
The themes that emerge from the various sections of this chapter can be summarised as follows:

- It seems that the Telecentre and the ICTs are underused and that access is not even.
- The major purposes for using the Telecentre appear to be leisure and entertainment, conducting meetings, meeting friends, and watching news and campaign meetings on the television. Agreement that Telecentre access is not available to all
- Age affects the Telecentre usage
- Nonetheless, the informants perceive the Telecentre to be relevant to the community it serves
- Agreement that communication of an innovation is important and that word from “important others” influences usage positively

- Acceptance that Telecentre services should be compatible with potential needs and cultural values
- Complexity of ICTs affects their usage negatively and that
- The Telecentre faces a lot of challenges.

The data presented in this chapter begin to support the value of Rogers's DoI Theory in this case study. For example, just as DoI predicts, the data show that important others in the social system influence the use of an innovation positively; people adopt an innovation when they perceive it to be providing benefits as compared to alternatives; the more complex the ICTs are, the fewer the number of people using them; and that compatibility of an innovation with a potential adopter's circumstances has positive correlation with the innovation's adoption.

This chapter has uncovered some questions that the questionnaire might help answer. For example, there is a contradiction between the belief that the Telecentre is relevant and its obvious underuse. The next chapter presents data from the questionnaire survey of users. It will refer to the discussion in this chapter occasionally where appropriate.



CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION. CASE STUDY PART II: USER QUESTIONNAIRE SURVEY

5.1. Introduction

The aim of this chapter is to present findings of the study which was undertaken to investigate the factors that influence the use of telecentres and their services in Malawi targeting Lupaso Telecentre. It presents and summarises data collected through the user survey. The data were analysed using SPSS and Microsoft Excel. However, in some sections, the researcher triangulates with data collected through document analysis and observation within the Telecentre as presented in the previous chapter. The Chapter also presents some cross tabulation of data across different sections of the questionnaire where this is deemed to be of interest.

The Chapter is organised according to the structure of the questionnaire which is provided in Appendix D.

5.2. Characteristics of user respondents

As discussed in Chapter Three, the questionnaire survey study targeted every user who visited the Telecentre during the case study data collection period. A total of 130 users completed the questionnaires. This section presents the characteristics of these 130 user respondents based on: age, gender, their highest level of education, whether they are studying at the moment, income levels, their occupation/economic activity, and home language.

Age and gender of respondents

User respondents were asked to indicate their age in Question 1. The age range was wide as it ranged from 13 to 70 years. The average age was found to be 27.59 years; the mode which represents the number of the most frequent occurrence was 22; and the median age which represents the middle number in a sorted list of numbers was 24. Though the age ranged between 13 and 70 years, it is important to note that the bulk of respondents (80.3%) fell within 13 to 35 years. So, one can perhaps assume that the Telecentre is mostly used by young people in their twenties.

Through observation, the researcher confirmed this pattern of use. As mentioned in the previous chapter, fieldnotes over the two weeks observation period record that those who were above 40 mostly came to the Telecentre for meetings, which are conducted maybe once a week, and not for the ICTs. The Customer Care Manager confirmed the dominance of youth. In the extract from an interview transcript below he links the use of ICTs to forward-thinking vision and he claims that the older people in the community have no desire to change their way of life:

“For the age. More school goes are the youths. You find that the elderly are married they don’t have that vision of going somewhere else they are just around. So, they are just saying where can I go with knowledge because I am already older and I will not go anywhere I will just be cultivating, farming here and having life goes on with my family. It’s only the youths have the vision and living with new technologies and willing to catch up with changes.”

Of the 126 people who answered Question 2 on gender, significantly more, 92 (73%) were males while only 34 (27%) were females. The researcher’s fieldnotes throughout the two week period confirmed the trend.

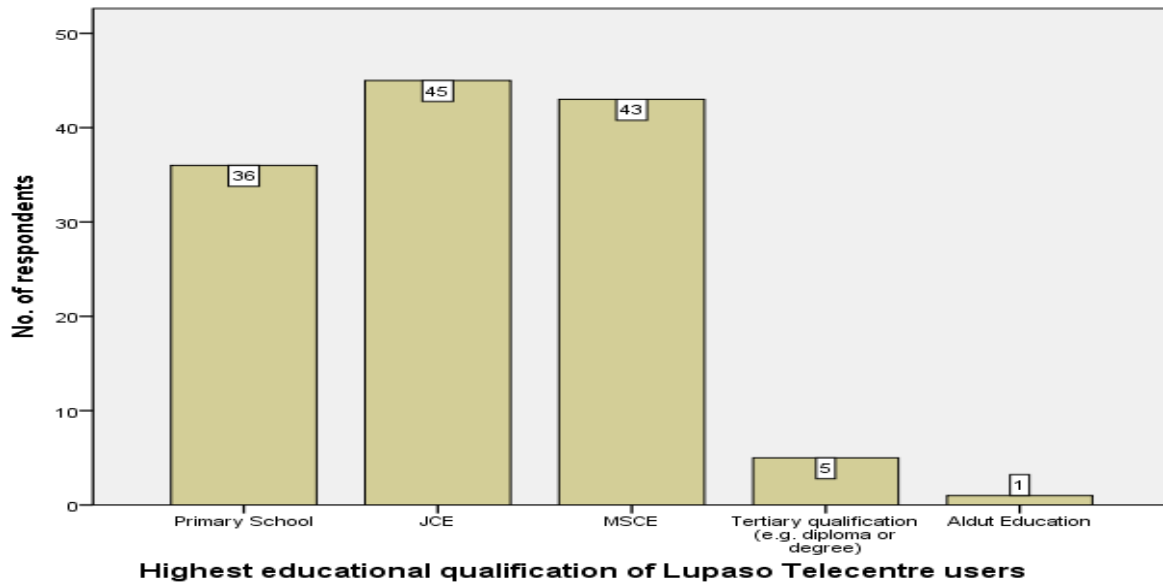
This low usage of the Telecentre by female members of the community might be connected to the low educational levels of females in Malawi. As mentioned in Chapter One, according to Malawi (2012:21), only 57% are literate as compared to their male counterparts (74%). A comment by the Chairman of LTLMC on the low number of women users lends support to this possible explanation:

“Eeh, it goes back to my first point, literacy rate. For women, eeh, munomo (here) eeh, the majority of women eeh, are those who haven’t gone to school. And young girls we are trying to come up, another factor is that young girls who are at school, these school kids drop out from school because of early marriages and such nature it’s also a hindrance.”

Highest educational qualification of users

The Telecentre users were asked to indicate their highest educational qualification because there is evidence in the literature that telecentres are used by the highly educated (Etta & Parvyn-Wamahi 2003; Kumar & Best 2007; Prado, Câmara & Figueiredo 2011). Results are presented in Figure 3 below.

Figure 3: Highest educational qualification of Lupaso Telecentre users N=130 (Question 3)



Note: Adult Education refers to literacy classes adults attend for them to know how to read and write but it is not a formal qualification.

The results on education qualification give an impression that the Telecentre is being used by people with low educational qualifications. From Figure 3 above, it is evident that the majority 45(34.6%) of the respondents have Junior Certificate of Education (JCE) (equivalent to South Africa’s grade 10) obtained at junior secondary level to proceed to senior secondary. This is followed by 43 (33.1%) with Malawi School Certificate of Education (MSCE) obtained after completing secondary school level (equivalent to South Africa’s grade 12- Matric qualification). The Figure also shows that a good number of respondents (36, 27.7%) have primary school qualification. This also entails that the Telecentre is mostly used by the less educated.

The Figure also indicates that 5 (3.8%), have a tertiary qualification which includes diplomas or degrees. The small number of respondents with tertiary educational qualifications might be attributed to the fact that Lupaso Telecentre is located in a rural area and that most of the people who have tertiary qualifications are found in urban areas where jobs are more plentiful.

Table 7 below presents the cross tabulation of gender and level of education which is of interest given the above comment on relatively low levels of education among women in

Malawi. The Table lends support to the comment that the low usage of the Telecentre by female members of the community might be attributed to low educational levels. For example, there is not much difference between male and female respondents who have primary school educational qualification. However, there is a marked difference between male and female respondents at JCE, MSCE and tertiary levels.

Table 7: Highest educational qualification of Lupaso Telecentre users * Gender of Lupaso Telecentre users cross tabulation

Highest educational qualification of Lupaso Telecentre users	Gender of Lupaso Telecentre users		Total
	Male	Female	
Primary school	18(52.9%)	16(47.1%)	34
JCE	33(76.7%)	23.4%)	43
MSCE	36(83.7%)	7(16.3%)	43
Tertiary qualification (e.g. diploma or degree)	4(80.0%)	1(20%)	43
Adult Education	1(100%)	0	1
Total	92(73.0%)	34(27.0%)	126(100.0%)

Whether user respondents are studying or not

Users were asked to indicate whether they are studying or not because this might indicate an educational role for the Telecentre to the community. Table 8 below shows that 81 (62%) indicated that they are not studying.

Table 8: Whether user respondents are studying or not (N=129)(Question 4)

Yes	48
No	81
Total	129

Those who are studying were asked to mention the qualification they are studying for and only 40 responded. Table 9 below shows that 27 studying are at MSCE level. This might be attributed to the fact that, as indicated in Figure 3 above, majority of users have JCE qualification who have to proceed to MSCE level. Also included in this category are those

who already have JCE qualification but are repeating Form 4 to have better grades. JCE level becomes second with 7.

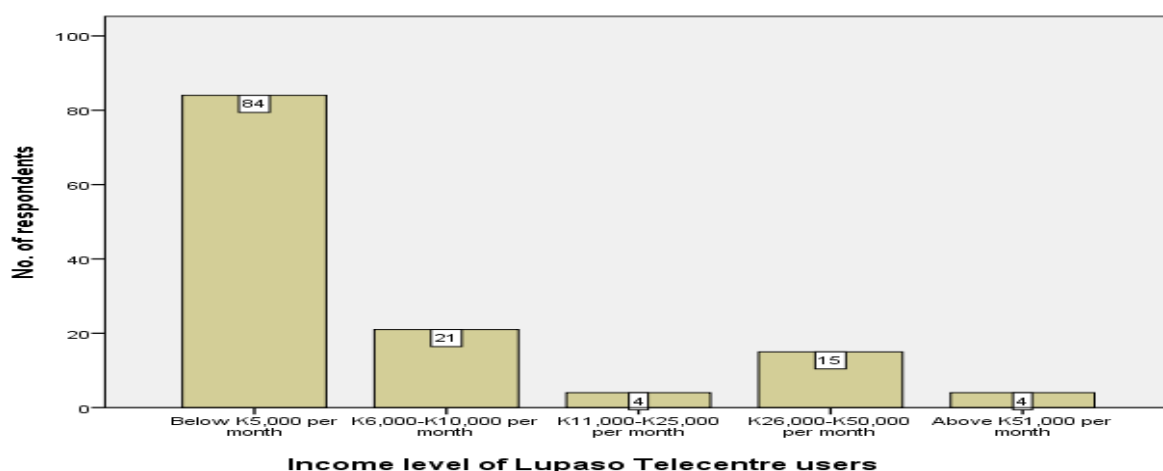
Table 9: Level of studying N=40 (Question 4.1)

Level of studying	No. of respondents
Primary school	3
JCE	7
MSCE	27
Tertiary	3
Total	40

Income level of respondents

Five categories (presented in Figure 4 below) were used to determine the income level of respondents. From Figure 4 below, it is evident that a majority of users, 84 (65.6%) earn below K5,000 (R125) per month followed by 21(16.4%) who earn of K6,000-K10,000 (R150 –R250) per month. The Figure also shows that only minority, 4(3.1%) earn above K51, 000 (R1, 275). One can perhaps assume that the Telecentre is used by people with low income levels. This might be attributed to the fact that most users are farmers (as shown in Figure 5 below) who do not earn money on monthly basis but rather their income is seasonal; and that, as described in Chapter One, at least half (50.7%) of the population lives below the poverty line (Malawi 2012: 204; Isaacs 2007:2).

Figure 4: Income level of Lupaso Telecentre users N=128 (Question 5)

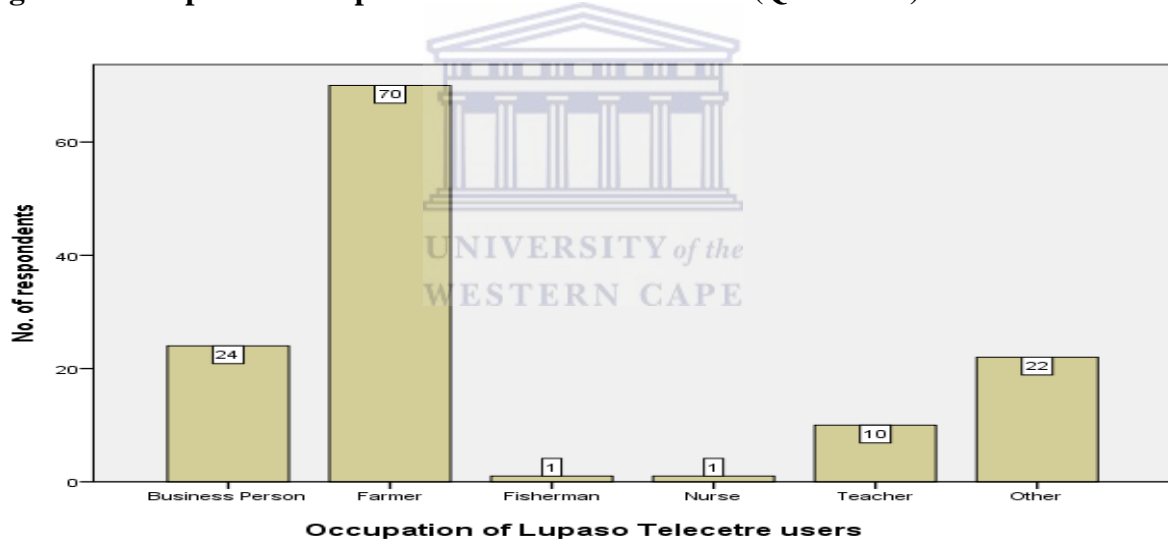


Occupation of Lupaso Telecentre users

Figure 5 summarises respondents' occupations. The Figure shows that the majority of respondents 70 (54.7%) are farmers, followed by business people 24 (18.8%). This can be attributed to the fact that this is a rural area where many people engage in farming as well as small scale business as their economic activities. The 'other' category becomes third with 22 (17.2) respondents: 18 of these mentioned their occupations which includes: 11 students, 2 Agricultural Extension Development Officer, 2 carpenters, 2 security guards, 1 child protection worker and 1 a priest.

The small number of nurses may be due to the fact that there is only one health centre in the catchment area of Lupaso Telecentre as explained in the previous chapter. The researcher does not have any idea as to why there is a small number of fishermen as users.

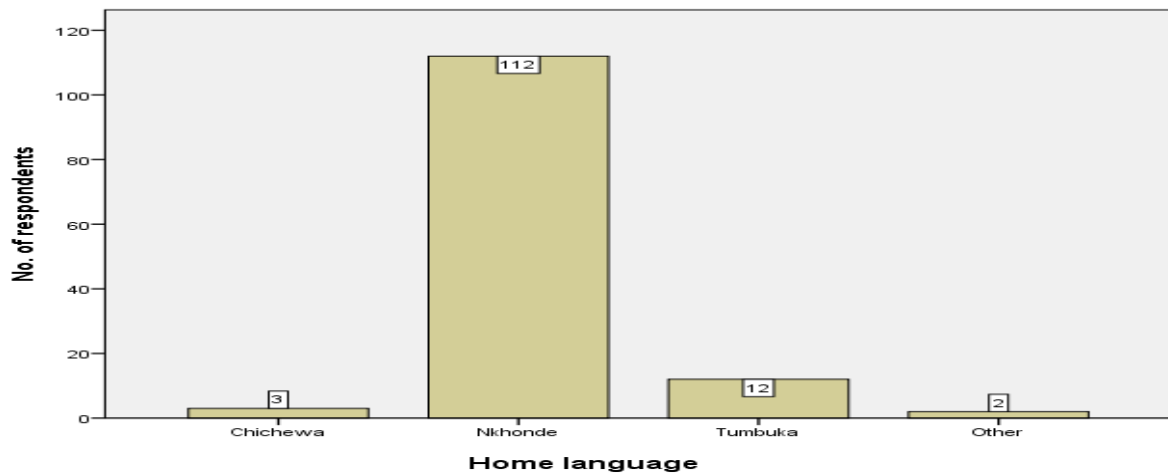
Figure 5: Occupation of Lupaso Telecentre users N=128 (Question 6)



Language used at home

Figure 6 below summarises the respondents' home languages. The majority of respondents 112 (86.8%) speak Nkhonde –which is indeed the language spoken in Karonga District where the Telecentre is located.

Figure 6: Home language N=129 (Question 7)



5.3. Access and Telecentre usage patterns

Section B of the questionnaire aimed at finding out the access and usage patterns of the Telecentre. This was determined by services they are using, how long they have been using the Telecentre, what made them start using the Telecentre, and how often they use the Telecentre.

Frequently used services

Users were asked to indicate the services that they had used for the past month so as to determine the frequently used services since the literature shows that the frequently used services tend to be those offered for free; those only offered by a telecentre in community; and or those that cannot be accessed at home (Kirkman *et al.* 2002). Table 10 below shows that the top three used services include photocopying 84 (64.6%); borrowing books in the library 61 (46.9%); and printing 49 (37.7). As reported in the previous chapter, information from the receipt books also shows that that photocopying is the mostly used service at the Telecentre when it comes to generating income. This might be attributed to the fact that there are many schools in the catchment area which go there and print and photocopy exam papers and that the Telecentre is the only service provider of this service in the community. Library was also observed to be widely used as reported in the previous chapter. The library might be widely used because the service is offered for free and that many people are studying, as indicated in above sections.

However, the difference is that through receipt books, hall hiring becomes second and the researcher also observed that the hall is widely used as many people came to conduct

meetings there. The contradiction here can be understood on the basis that a hall is not hired by an individual but an organisation. So, through user survey, it would be difficult for users to indicate that they hire the hall.

Table 10: The services accessed in the last month N=130 (Question 8)

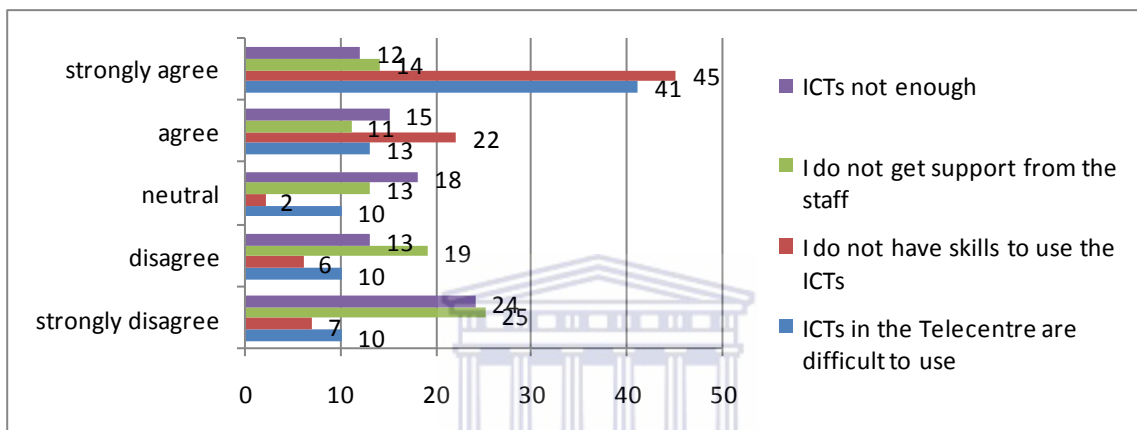
Service	No. of respondents	Percentage
Binding	41	31.5
Borrowing books in the library	61	46.9
Computer and information tutorials	28	21.5
Email	18	13.8
Facebook and other social networking	20	15.4
Faxing	11	8.5
Finding information on the Internet	21	16.2
Lamination	23	17.7
Photocopying	84	64.6
Printing	49	37.7
Reading newspapers and magazines in the library	48	36.9
Scanning	9	6.9
Other services	29	22.3

Results in the Table also show that ICT services for example, Facebook and other social networking (20, 15.4%); and email (18, 13.8%) are only used by a small number of people. This trend was confirmed through document analysis and observation as indicated in the previous chapter.

Four Likert scale statements were used in Question 9 to explore the possible factors that contribute to the low usage of ICT services which were commented on in Chapter Four Section 4.4.1. Figure 7 presents the responses to the statements, each deemed important to influencing the use and non-use of the ICTs in a telecentre. It seems that Lupaso Telecentre stocks enough ICTs and its staff provides support for their use. This was confirmed by the researcher's observations that the ICTs lie idle without people using them.

However, Figure 7 also suggests that the reasons for not using the ICTs available are to do with lack of skills. Many respondents claim to find the ICTs difficult to use. Two questions arise: the first has to do with the lack of computers and computer literacy in schools and the second is to do with the meaning of “support”. Could it be that the respondents who claim to be happy with the support of the staff in the Telecentre do not see the staff as educators? This perhaps reflects some of the comments in the literature (Chigona & Licker 2008:70; Prado, Câmara & Figueiredo 2011:4).

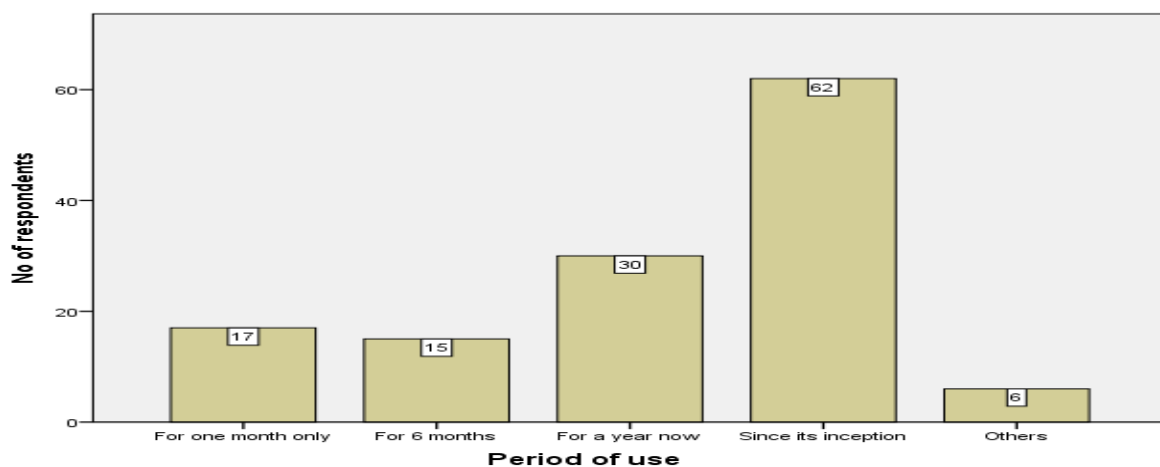
Figure 7: Reasons why in ICTs Lupaso Telecentre are not widely used (Question 9)



Period that users have been using Lupaso Telecentre

Figure 8 below presents the findings on the period in which users have been using the Telecentre.

Figure 8: Period that users have been using the Lupaso Telecentre N=130 (Question 10)



The Figure above shows that almost half of the respondents 62 (47.7%) have used the Telecentre since its inception. This is followed by 30 (23.1%) who have used the Telecentre for a year now. Though the finding gives an impression that the Telecentre is being used by the same people, it is perhaps encouraging for the management as it seems that they have had 17 (13.1%) new users in the last month.

Reasons for first visit to the Telecentre

Table 11 below summarises the reasons that made users to start using the Telecentre. Respondents could choose more than one reason. It is clear from the Table that visibility of the benefits of using the Telecentre 68 (52.9%); provision of cheaper services 67 (51.9%); and friends of the potential adopters 53(41.1) influence the usage of the Telecentre. The small number indicating that they started using the Telecentre because leaders recommended it questions the role of leaders in influencing the Telecentre usage.

Table 11: What made users start using Lupaso Telecentre N=130 (Question 11)

Reason	No. of people	Percentage
Friends recommended it	53	41.1
The leaders in my community recommended it	38	29.5
I saw the benefits of using the Telecentre in other people	68	52.7
It is convenient and cheaper than going to Karonga Town	67	51.9
I needed some information	46	35.7
Other (specify)	3	2.3

Frequency of Lupaso Telecentre visits/use

A scale of seven was used to determine how often users visit the Telecentre since telecentres are seen to only being used by a few people on daily basis and that telecentre daily users sometimes include some users who visit twice or more (Etta & Parvyn-Wamahiu 2003; Mtega & Malekani 2009). Figure 9 below reveals that 77 (59.23%) visit the Telecentre at least once a week; followed by 60 (46.15%) who visit the Telecentre twice a week. The information in this section confirms the information obtained through observation as it was discovered that some people were frequent users. This gives the impression that the Telecentre is used by the same people and the management must extend the usage. The

Figure also reveals that a good number of users 37 (28.5%) visit the Telecentre rarely. Those who visit the Telecentre rarely were asked to give reasons. The most common reason given, as indicated in Table 12 below, was difficulty in using some ICTs.

Though this section is about how often users visit the Telecentre, it also gives some insights as to how many visit the Telecentre on daily basis. From the Figure below, it can be said that of the 130, 34 people visit the Telecentre everyday i.e. combination 6 and 28 who visit the Telecentre twice or more a day and those visiting the Telecentre once a day respectively. This is a good percentage of total number of people who use the Telecentre as it represents 26.2% of users. Just as in some section above, the results in this section also give an impression that the Telecentre is being used by the same people. This raises questions on the management on its role to reach many reach many people in the community. This also confirms the information obtained through observation as reported in the previous chapter that the Telecentre receives few new members.

Figure 9: Frequency of visit N=130 (Question 12)

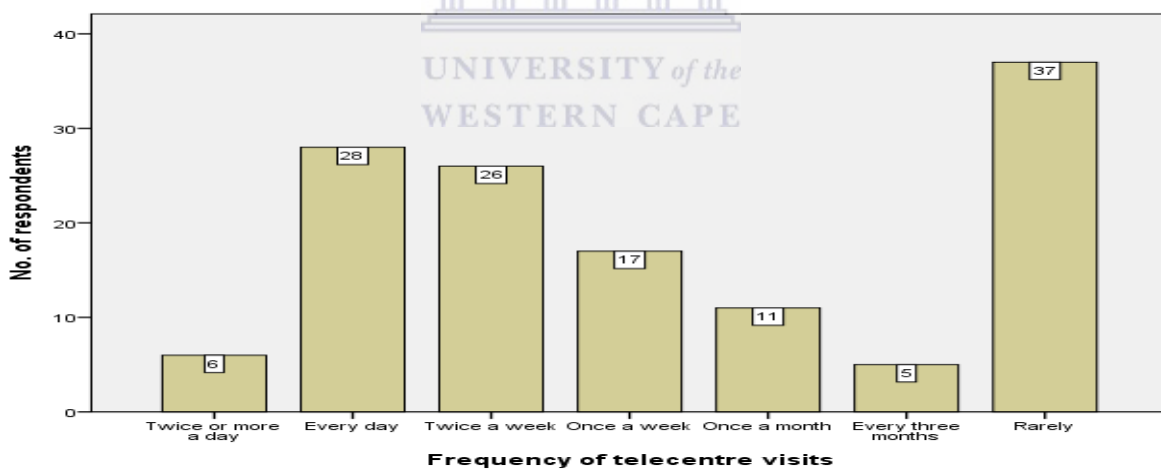


Table 12 below summarizes the findings on the reasons why some people visit the Telecentre “rarerly”. Users could choose more than one reason. From the Table, the most common reason given is finding it difficult to use some services 27 (71.1%). Though the respondents were not asked as to which services they were referring to, a possible suggestion is that users were referring to ICT services. These figures suggest a follow up question to the Telecentre management for example, is enough support of using the ICTs being given to all users? The 11 people who ticked “other” gave reasons such as: lack of income; always busy with

farming; busy with school; lack of time; having nothing to do at the telecentre; visiting the telecentre when called.

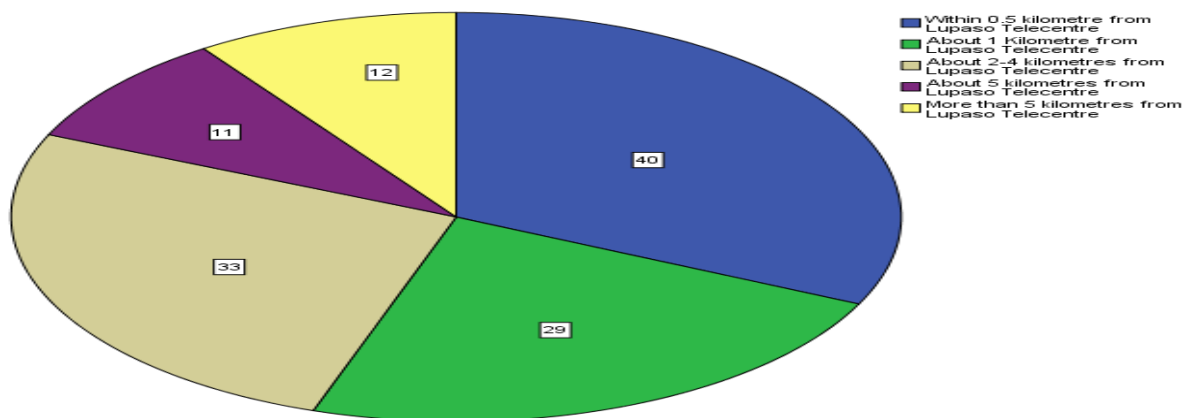
Table 12: Why some people visit Lupaso Telecentre “rarely” N=38 (Question 12.1)

Reason	No. People	Percentage
I find it difficult to use some services	27	71.1
I get the same services at a different place at lower cost	9	23.7
The services at the Telecentre are not good	4	10.5
The Telecentre does not satisfy my information needs	7	18.4
The Telecentre is too far from home	7	18.4
Other (specify)	11	28.9

Distance of Lupaso Telecentre user homes from the Telecentre

Figure 10 summarizes distance of Lupaso Telecentre users from the Telecentre. It indicates that the majority, 102 (81.6%) stay within 4 kilometers. It seems thus that the Telecentre is mostly used by those close to it.

Figure 10: Distance from the Telecentre N=125 (Question 13)



5.4. Relevance of Lupaso Telecentre its community

Section C of the questionnaire aimed at finding out the relevance of Lupaso Telecentre to the communities it serves. This was determined by purposes for using the Telecentre; importance and benefits of the Telecentre to the community; and the users’ satisfaction with the Telecentre services.

Purposes of using Lupaso Telecentre services

Table 13 below shows the responses on what users use Lupaso Telecentre for. Users could choose more than one purpose. From the Table below, it is clear that the top three purposes of using the Lupaso Telecentre services include: leisure and entertainment purposes for example watching videos and playing games (68,52.3%); Meeting friends coming to the Telecentre (55, 42.3%); and looking for jobs in newspapers in the library 47(36.2%). Through observation the researcher confirmed this pattern of use. As indicated in the previous chapter, fieldnotes over the two weeks observation period record that many people were seen coming to the telecentre for entertainment like watching soccer of television and also to meet friends at the telecentre. Photos showing users using the telecentre for leisure and entertainment have been attached in Appendix M.

A small number selecting engaging with leaders in my village 20(15.4%) and engaging with the government leaders at national level 16(12.3%) questions the role of the Telecentre in promoting active citizenship and participative democracy as telecentres are expected to be promote these (GCIS 2013; Hunt 2001:1).

Table 13: Purposes for accessing Lupaso Telecentre services N=130 (Question 14)

Purpose	No. of people	Percentage
Accessing government services online	38	29.2
Banking services online	7	5.4
Choosing a place to study (e.g. colleges or universities)	29	22.2
Communicating with relatives, colleagues and friends online	37	28.5
Conducing discussions and debates with people in my community	39	30
Engaging with leaders in my village	20	15.4
Engaging with the government leaders at national level	16	12.3
Finding health information (e.g. Malaria prevention)	24	18.5
Finding Information on Marketing Techniques	30	23.1
Finding information on prices of farm produce (e.g. rice and maize)	21	16.2
Leisure and entertainment (e.g. watching videos and playing games)	68	52.3

Looking for jobs online	29	22.3
Looking for jobs in newspaper in the library	47	36.2
Meeting friends coming to the telecentre	55	42.3
Meeting People (e.g. friends) Online	32	24.6
Other purposes	9	6.9

Those who indicated that they use the Telecentre to find information were asked whether they are able to find that information in the Telecentre in Question 15. A large number of user respondents 84 indicated that they find the information. One can assume that the Telecentre is doing a commendable job on providing information that users need.

Benefits of Lupaso Telecentre

Question 16 asked respondents to mention whether the Telecentre is important part of their life or not. The aim was to find out if the Telecentre is beneficial to the community. Results show that a majority 123 (94.6) of users view the Telecentre as an important part of their lives and only 7 (5.4%) said that the Telecentre is not important part of their lives.

Those who said that the Telecentre is important part of their lives were asked in an open ended to mention the benefits. Table 14 below lists some of the comments and their corresponding units of meaning some of them interlinked. Most of the responses lend support to the analysis of Likert scale statements below on the role of the Telecentre on improving rural livelihoods. From the Table, it seems the Telecentre is perceived as playing a big role in contributing to socio economic development of the communities it serves and that it is addressing the needs of the communities it is serving.

Table 14: Benefits of Lupaso Telecentre (Question 16.1)

Units of meaning	Examples of responses
Improving human capital	<p>“Acquiring skills, I have been taught computer lessons e.g. using Internet” QR2</p> <p>“I have knowledge of computers because I studied ICT packages” QR17</p> <p>“I am learning a lot of things” QR20</p> <p>“Increasing knowledge when reading books” QR38</p>

	“Lupaso Telecentre has increased my knowledge by learning about computers and the Internet” QR71
Relative advantage	“I save time and money” QR 13 “Cheaper services like printing and photocopying than going to town” “Saving time because it’s convenient” QR23 “We buy things from the tuck-shop at cheaper price” QR93 “The services are cheaper in the telecentre” QR98
Improving financial capital	“Expanded business” QR 27 “Finding employment” QR46 “My friends are getting jobs here” QR92 “It has employed my relatives” QR129
Compatibility with needs	“I am able to find information needed in my life” QR24 “It is important because I find all what I need to assist me in my daily lives” QR67
Strengthening social life	“Getting in touch with that are not within reach physically” QR 10 “Strengthens communication with relatives on the Internet” QR98

Benefits of Lupaso Telecentre to the community in relation to improving livelihoods

The information in this section complements the information obtained from open ended question on benefits of the Telecentre. The researcher formulated these guided by the rural livelihoods theory briefly explained in Chapter Two. The information in this section was obtained through Likert scale statements. This used a scale of five: strongly agree (5); agree (4); neutral (3); disagree (2); and strongly disagree (1).

Strengthening social life

The Likert scale statement in this section aimed at determining whether the Telecentre strengthens social life from users’ point of view. Figure 11 depicts the results. It seems that the Telecentre is strengthening the social life of the community members as there is higher level of agreement majority (104 81.9%) to this among users and that statistics show that Mode is 5, Median 5 and Mean is 4.20. It appears that the Telecentre is achieving this by enabling users to develop friendships at the Telecentre and through provision of space in the

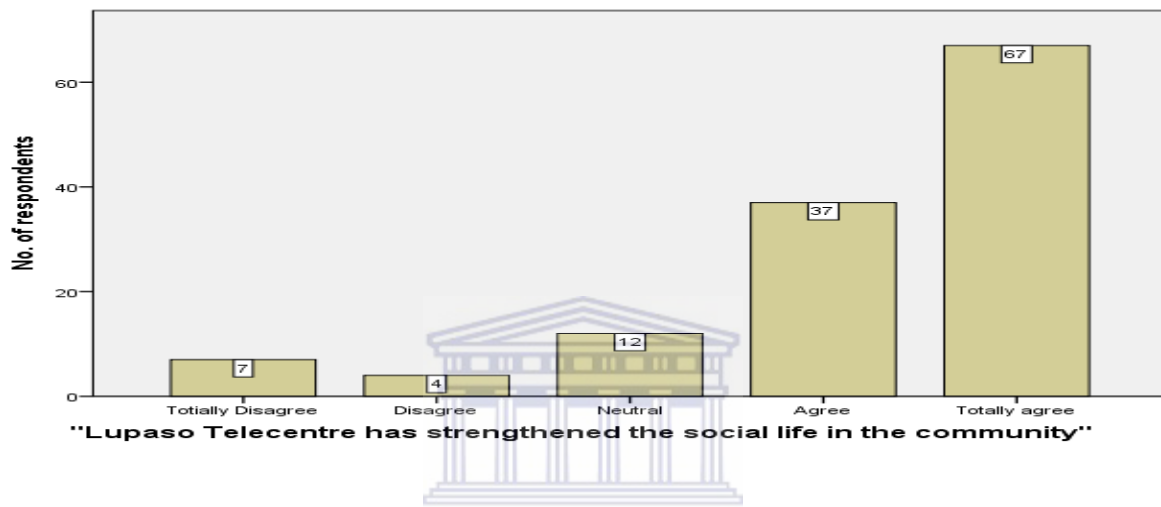
Telecentre for debates and discussions. The following comments by some users lend support to this:

“Because I meet my friends here” QR5

“Yes, because community people conduct discussions and debates at this Telecentre” QR90

“It develops competence in people” QR18

Figure 11: Lupaso Telecentre has strengthened the social life in the community N=127 (Question 17.1)



Increasing income capital

The question in this section asked users to indicate their level of agreement with the Likert statement which stated that *Lupaso Telecentre has increased the incomes of the people in the community* with the aim of determining the role of the Telecentre in increasing the incomes of the communities since telecentres in developing countries are seen as important tools for socio-economic developments (Soriano 2007; Bailey 2009:9). Results in Figure 12 below indicate that the Telecentre is increasing the income capital of the communities it serves as the majority 88 (70.4%) agree with the statement. This is being achieved through creation of job opportunities within the Telecentre; enabling people find jobs when they acquire computer skills; and through provision of information on markets. The following are some of the comments given by those who totally agree and agree:

“It is helping people to find jobs” QR32

“Because some people have found employment at those telecentre and we were spending more transport expenses going to town but not here” QR 31

“People are gaining because of the source of information and easy communication with the buyers” QR 18.

The Telecentre Manager in the extract below confirms that the Telecentre is increasing the incomes of people in the community. He says that this is being done in two folds: through employing people and helping people get employed when they acquire computer skills from the Telecentre:

“And some of us, we were not working but this time we are working, we are employed just because of this telecentre.....And there were some who could not get employed because of lack of computer skills but after they were trained here, they go employed.”

Figure 12: Lupaso Telecentre has increased the incomes of people in this community N=125 (Question 17.2.)



Improving human capital

The purpose of the Likert statement: *“Lupaso Telecentre has improved skills and knowledge”* in this section was to get the views of the respondents on the role of the Telecentre in improving human capital. Figure 13 below shows that of the 126 who responded, the majority, 121 (96%) agree. One can perhaps assume that the Telecentre seems to be playing a great role in improving human capital in the community through various services it provides. Some of the comments from these respondents as the reasons to their responses include:

“Lupaso Telecentre has improved the above stated to gain knowledge through leading books and learning computers” QR21.

”Because some people now are able to operate computers and now people know the cheapest and fastest way of sending Information” QR 31

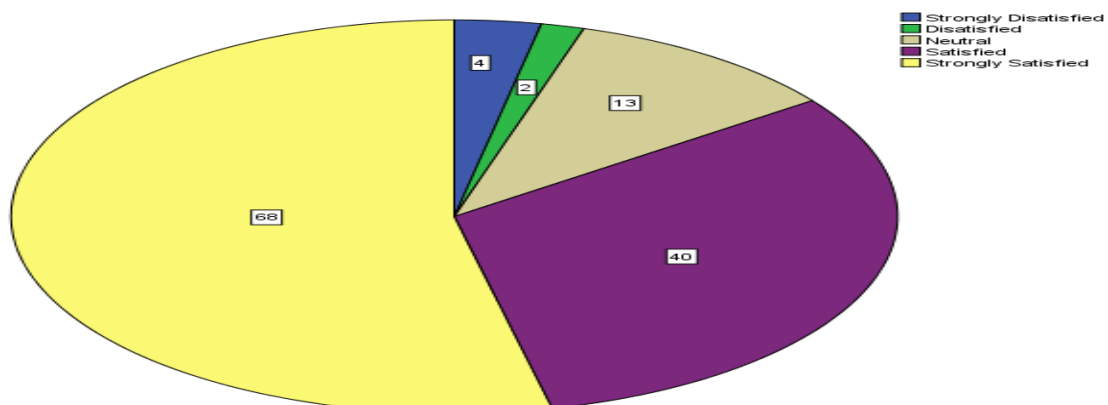
Figure 13: “Lupaso Telecentre has improved skills and knowledge” N=126 (Question 17.3)



User satisfaction with telecentre services

Users rated their overall satisfaction with Lupaso Telecentre services on a scale of strongly satisfied (5); satisfied (4); neutral (3); dissatisfied (2); or strongly dissatisfied (1). Respondents were also asked to give reason for their answers. Figure 14 depicts the results. There appears to be higher level of satisfaction among users with the Telecentre services as the majority, 108 (85%) are satisfied or strongly satisfied and that the statistics show that mode is 5; median is 5; and mean is 4.31.

Figure 14: Level of satisfaction with Lupaso Telecentre services N=127 (Question 18)



Question 18.1 asked respondents to give reason(s) for their level of satisfaction. Most of the reasons are related to the benefits that the Telecentre is bringing to the community and the

Telecentre's ability to match with user's needs as evident in the following comments made by some users who reported satisfaction with the Telecentre services:

"Getting ICT services near, cheaply and faster" QR 31

"Has brought electricity and many good things" QR 35

"Brings things that used to be in town only" QR 34

"People have gained experience in using technologies" QR 51

"It's convenient and useful" QR 55

"I find all what I need" QR 61

"Has increased our income" QR 67

"Most the services have matched the needs of the community" QR 82

The following is a comment from one of the few who indicated that they are not satisfied with the Telecentre services:

"Because of shortage of some services" QR 42

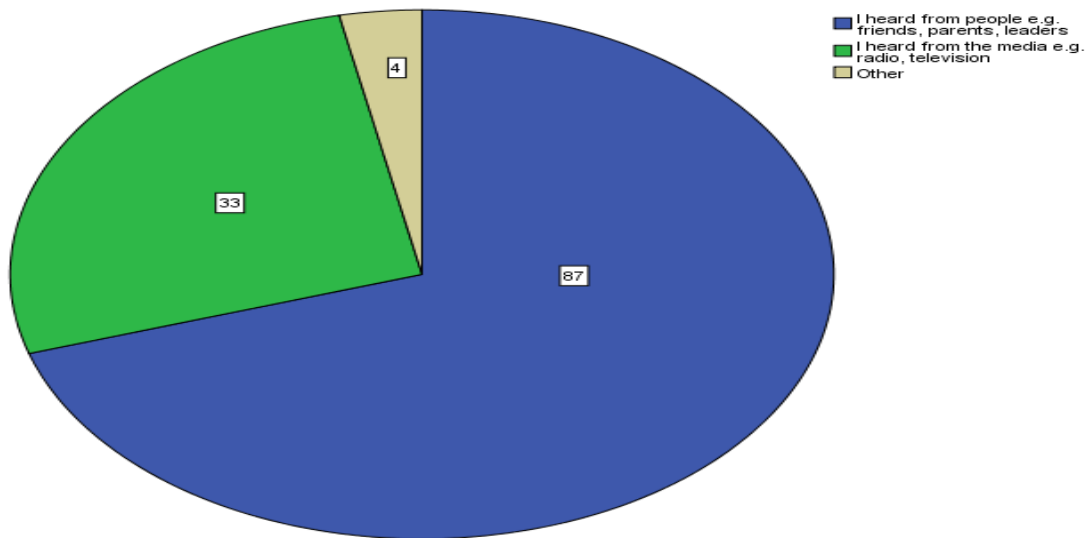
5.5. Factors influencing the use of the Telecentre

Section D of the questionnaire aimed at determining the factors that influence the use of Lupaso Telecentre by getting respondents' views on the factors that influence telecentre usage. Some data in this section were obtained using Likert scale statements. Their analysis serves to corroborate or contradict some of the findings of the earlier questions. The analysis has been categorised in terms of Rogers's DoI Theory elements discussed in previous chapters: communication, social system, views on relative advantage, visibility of the benefits, complexity and views of compatibility of telecentre services with user's information needs.

Communication

Figure 15 below depicts the results on how users heard about the Telecentre. It is clear from the Figure that the majority 87 (70.2%) of respondents heard from people, for example friends, parents and leaders. This finding is in keeping with the responses to Question 11 where people were asked why they first used the Telecentre. There, it was found that a good number of users (53) indicated that their friends recommended them to start using the Telecentre. Therefore, one can perhaps assume that interpersonal channels play a great role in influencing usage of the Telecentre.

Figure 15: How respondents heard about Lupaso Telecentre N=130 (Question 20)



Views on usage of the Telecentre

Opinions were equally divided over Question 21: *Do you think the Telecentre has reached its maximum usage?* Seventy (53.8%) had the opinion that the Telecentre has reached its maximum usage while 60 (46.2) viewed that the Telecentre has not reached its maximum usage.

Those who said that the Telecentre has not reached its maximum usage were asked in the open ended Question 21.1 to give possible reasons why some community members do not use the Telecentre. Some of these are presented in Table 15 below. In line with Rogers’s DoI Theory, most of these relate to the attributes of an innovation for example: compatibility of the services with the needs of the community, relative advantage, complexity of an innovation; and the surrounding social system. Some other factors include lack of money for accessing services, illiteracy levels and poor staff attitudes.

Table 15: Reasons why some community members do not use Lupaso Telecentre (Question 21.1)

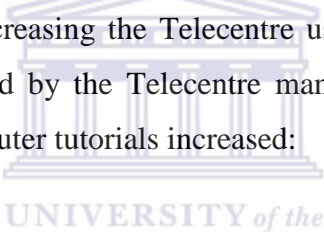
Unit of meaning	Selected quotations
Complexity affects usage of telecentre services negatively	“Lack of skills and knowledge of using ICTs” QR 1 “Lack of knowledge of using computers” QR 46 “People do not know how to find information on the Internet.” QR45

	<p>“People do not know how to use computers” QR 129</p> <p>“Lack of skills to use some services like Internet” QR 130</p> <p>“People think that the services are difficult to use” QR 53</p> <p>“People are socially backward in terms of technology. Hence few people e.g. students are able to use it” QR 66</p>
Lack of education and awareness deters people from using the telecentre	<p>“Most people are illiterate so they think using telecentre needs education. Therefore they need civic education” QR 2</p> <p>“Just because they don’t know the importance of the telecentre and just because of ignorance” QR 16</p> <p>“some people are not using the telecentre because they think its only for those who went to school” QR 60</p>
The less compatible the telecentre services are with the needs, the less people visit i	<p>“other services needed like multipurpose hall are not provided” QR 7</p> <p>“Unavailability of some services like production of ID photos which makes some members to go to Karonga town”</p> <p>“some people do not use Lupaso Telecentre because some other services needed like brick laying, carpentry and joinery, are not offered” QR 109.</p>
Poor staff attitudes affects telecentre usage negatively	<p>“Staff are lazy, they do not work to please people’s needs” QR12</p> <p>“people are now getting bored of what the staff are doing”</p>
the social system, important others play much role in influencing the use of the telecentre	<p>“Others its lack of support from guardians”</p>
Lack of money affects the usage of telecentre services negatively	<p>“Some people cannot afford paying for some services like computer tutorials” QR104</p> <p>“Lack of money because other people cannot afford to pay to use computers. They wish to but have empty pockets” QR 92</p> <p>“low income levels of people”</p>
Telecentre should be close to people	<p>“Some live far from the Telecentre” QR 117</p>

Social System

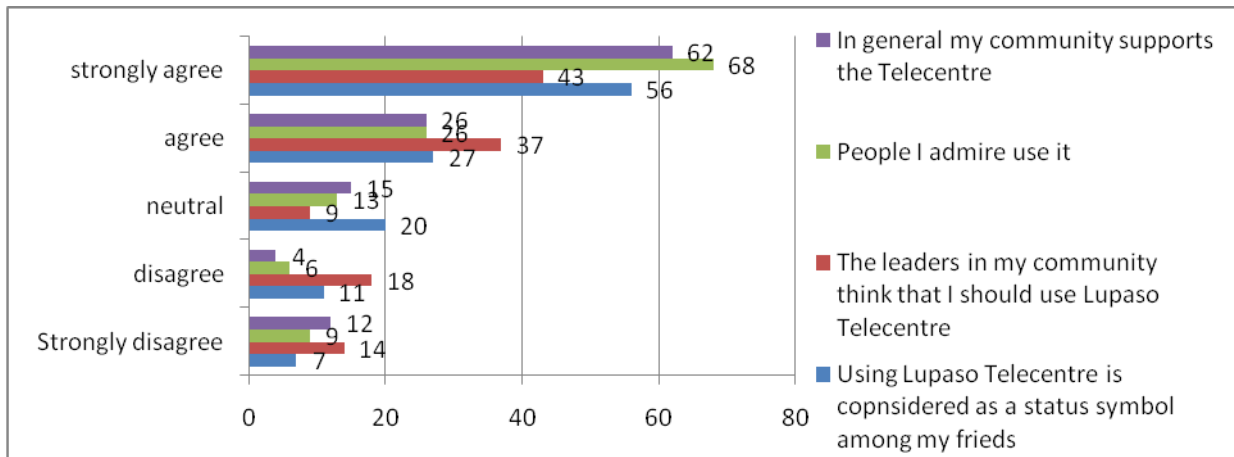
The aim of the section was to determine if the surrounding social system influences the use of Lupaso Telecentre. Figure 16 below depicts responses to four Likert statements, each vital to influencing usage of the Telecentre in relation to the aspects of the surrounding social system of the potential adopters. It appears that the surrounding social system is playing a great role in influencing the usage of the Telecentre usage. The lowest agreement is over leaders influencing users in using the Telecentre and then for using the Telecentre being considered as a status symbol. The findings on the role of leaders lend support to the findings in some section above on the reasons that made users to start using the Telecentre since only a few (29.5%) indicated started using the Leaders because the leaders in their community recommended.

However, interviews with the Telecentre Manager revealed that chiefs are playing a great role in influencing the usage of the Telecentre. In the extract below, the Telecentre Managers stresses the role of leaders in increasing the Telecentre usage and gives an example about how leaders after being consulted by the Telecentre management, helped, to increase the number of people accessing computer tutorials increased:



“It’s important to use chiefs because they are the ones who help us to mobilise aah their subjects. Without them where are we going to find these people? But if we go through them, the chiefs help us to mobilise their subjects. That’s the importance of it. And people, once when the chief say something here, it carries more weight than us... (laughter) They trust the chiefs more than any other.....Like in the past, in the past we were starting, we wouldn’t have many customers on computer tutorials but the time when we went to local chief, aah, to tell local chief the importance of it, and the service on computer tutorials we have seen a change. We receive more customers on computer tutorials.”

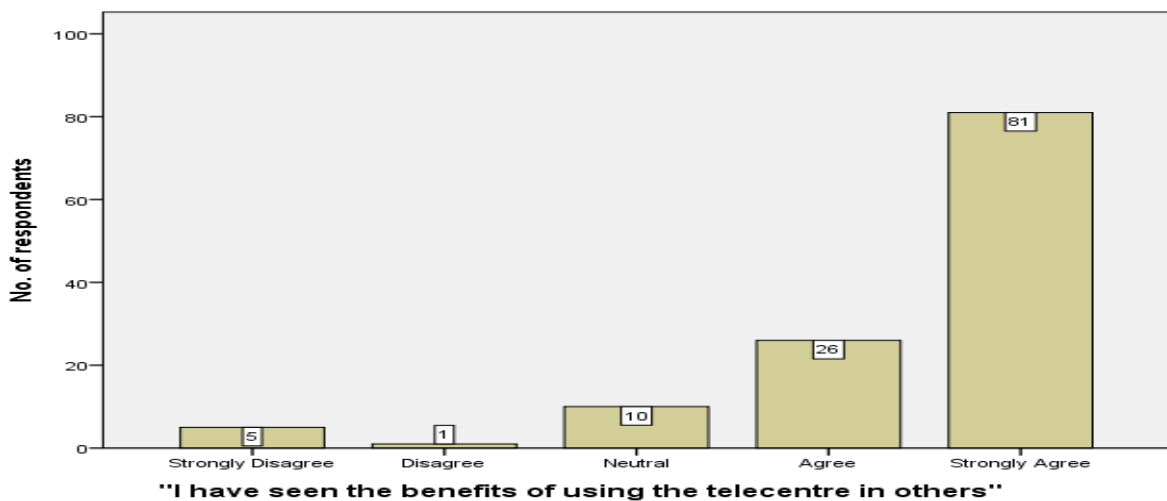
Figure 16: Aspects of the surrounding social system that influence Lupaso Telecentre usage (Question 22.1-22.4)



Observability/visibility of the benefits

Figure 17 depicts results to the Likert scale statement: *I have seen the benefits of using the Telecentre in others*. It is clear from the Figure that there is higher level of agreement (107, 87%) with statement. These results also collaborate with the results presented in some earlier section on reasons of the first visit to the Telecentre which also indicate that many users started using the Telecentre because they saw the benefits of using the telecentre in others. It appears that the benefits of using the Telecentre are visible among community members and that their visibility influence the usage of the Telecentre.

Figure 17: “I have seen the benefits of using Lupaso Telecentre in others” N=123 (Question 22.5)



Relative advantage

Figure 18 presents the findings to two Likert scale statements in relation to the perception of relative advantage among users, each vital in influencing telecentre usage on telecentre usage. It seems that the Telecentre provides useful services to the community and that, through its convenience and provision of cheaper services as compared to its competitors, users are able to save time and money.

The following comments provided by users in an open-ended question on the benefits of using the Telecentre lend support to above results and comment:

“I save time and money” QR 13

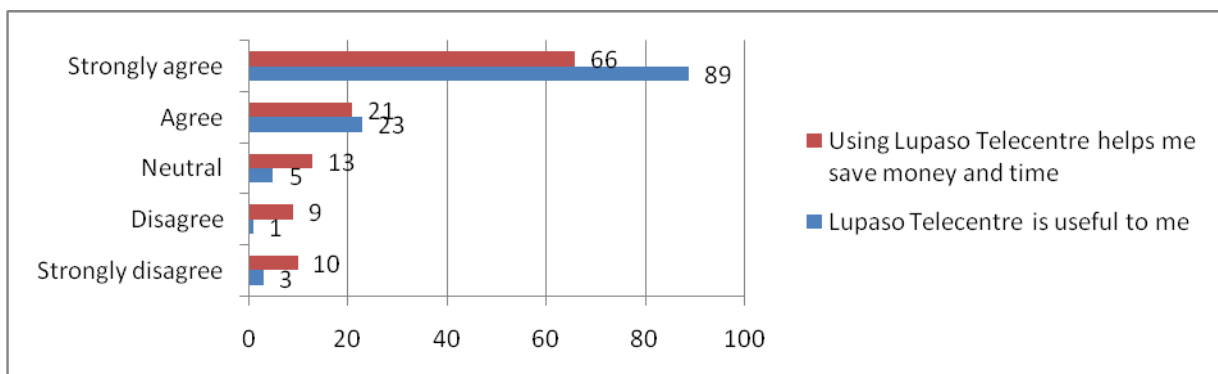
“Cheaper services like printing and photocopying than going to town”

“The services are cheaper in the telecentre” QR98

In the extract below, the Telecentre Manager confirms above results and comments. He says that most of its services are cheaper and that this makes the community members to be using it:

“Even on the hall, we have the TV. We have so many users there who come and watch some TV programmes. And again on, the other thing is computer tutorial...The reason is because on television, most of the times we don’t charge them. We only charge them during football. For instance when Malawi having a game with other nations that when we charge them. But most of the times we don’t charge them. And even if we charge them when they are watching football, we are cheaper than other competitors”

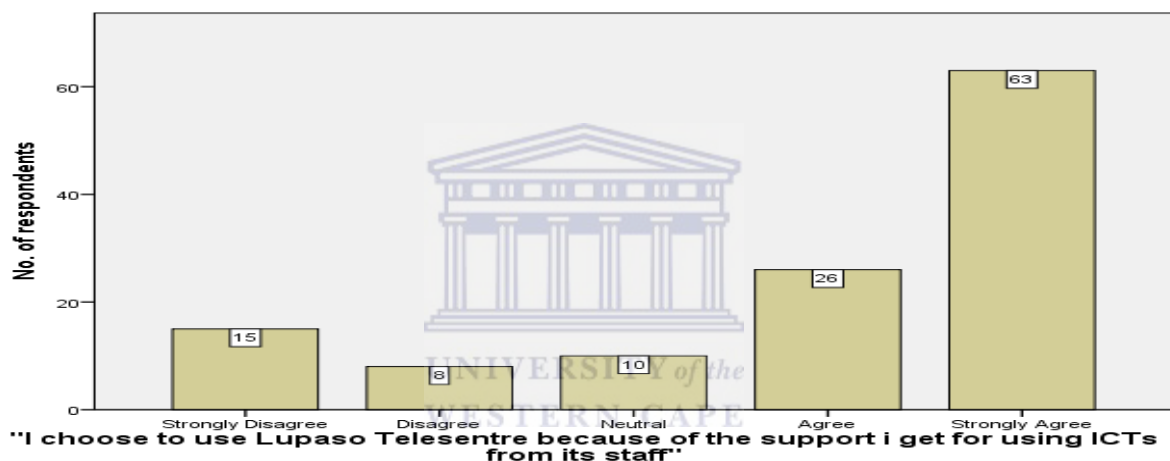
Figure 18: Aspects of relative advantage that influence usage of Lupaso Telecentre N=121 (Question 22.6 and 22.7)



Complexity/ease of use

Figure 19 below presents the findings on a Likert scale statement: “*I choose to use Lupaso because of the support I get for using ICTs from its staff*”. It seems that the Telecentre staff help users when using the ICTs in the Telecentre since there appears to be higher level of agreement with the statement 89 (72.9%). From the observation, the researcher discovered that the staff were helping some users whenever they found problems in using the ICTs e.g. using computers as shown in one of the photos in Appendix M.

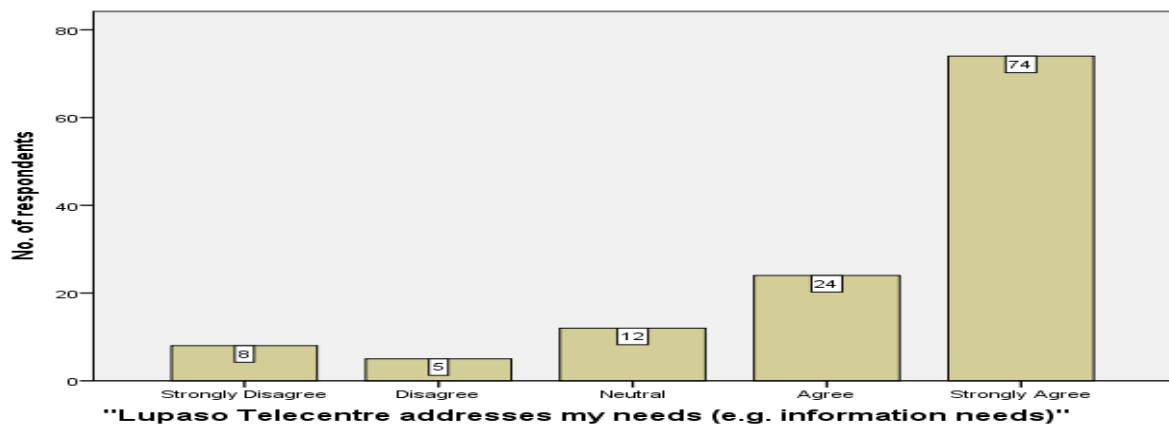
Figure 19: “I choose to use Lupaso Telecentre because of the support I get for using ICTs from its staff” N=122 (Question 22.8)



Compatibility with the needs

Figure 20 below presents results on a Likert statement: *Lupaso Telecentre addresses my needs*. It seems that the Telecentre provides the services that address the needs of its users in the community since the majority, 98 (79.67%), agree with the statement. These results in this section correspond well with results in Question 15 where the majority indicated that they find the information they need in the Telecentre. One can assume that the Telecentre is doing a commendable job on addressing community’s information needs.

Figure 20: “Lupaso Telecentre addresses my needs (e.g. information needs)” N=123 (Question 22.9)



5.6. Challenges that Lupaso Telecentre users face

This section aimed at finding out the problems that telecentre users face. Users were asked to select on the list the problems that they face when accessing telecentre service. Table 16 below presents the results.

Table 16: Challenges that users face when accessing Lupaso Telecentre services N=130 (Question 23)

Problem faced	Number of people	Percentage
High costs of some services	63	48.5
Inadequate physical facilities	55	42.3
It is too crowded	17	13.1
Lack of information in local language	63	48.5
Lack of Internet searching skills	67	51.5
Lack of support when using the telecentre	27	20.8
Lack of privacy when accessing information on the Internet	24	18.5
Shortage of opening hours	20	15.4
Other problems	18	13.8

The Table above shows that the mostly faced problems include: lack of Internet searching skill, 67 (51.5%); lack of information in local languages 63 (48.5); and high costs of some

services 63 (48.5%). Lack of Internet searching skills can be attributed to the educational levels of users since most the users have primary and secondary qualifications. As indicated in Chapter One, in Malawi, there is lack of access of computers and Internet in schools as well as homes where these skills can be obtained. Lack of information in local languages may be attributed to the fact that most of the materials on the Internet are in foreign languages like English. In addition, the researcher observed that the information available in the library is in English and Chewa yet the mostly spoken language in users' homes is Nkhonde as evident in Figure 6 above. Though people in this community also understand Tumbuka, it was observed that only one document, the constitution is written in Tumbuka. High costs of some services might be due to the fact that the income levels of most of these users are very low such that it is difficult for them to affording paying a service costing K4500 for 10 days (computer training tutorials) yet the majority of users get below K5000 per month as indicated in Figure 3 above.

The Table also shows that a minority of people indicated that it is too crowded. This can also be understood basing on the fact that only a few people visit the Telecentre on daily basis. The most common problem given by those who ticked the 'Other' option was frequent blackouts. The researcher's field notes also indicate that the Telecentre experiences frequent black outs.

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As indicated in the previous chapter, the researcher noticed the following challenges that affect users' telecentre access:

- Frequent blackouts: during the two-week period that the researcher spent there, there were four days for blackouts. This made some services inaccessible;
- Some members of telecentre staff come at their own time such that users could not access some services for example, buying groceries from the tuck-shop; and
- Unavailability some services at times. For example, photocopying and printing services were not there during the data collection period because there was no toner.

The last question (Question 24) asked respondents to add any comment they deemed relevant. Table 17 below presents the responses.

Table 17: Themes identified from comments in the questionnaire (Question 24)

Units of meaning	Selected quotations
Expensive services	<p>“Some services are not highly used because of the costs demanded from poor Malawians” QR24</p> <p>“Some services are not highly used in the Telecentre because of the costs which are demanded to the poor people (Malawians)” QR25</p> <p>“We need more support on the computer learning to be free to people because some are failing to use because of lack of money” QR 19</p> <p>“Decrease amount we pay per package so that many can afford to pay” QR92</p> <p>“I would love if the telecentre reduced prices for some services like Internet and computer tutorials” QR104</p>
Some more services needed	<p>“I would rather want Passport size/ID photos production to be done” QR31</p> <p>“There has to be multipurpose hall which would help Lupaso telecentre to be finding more money” QR34</p> <p>“There are lack of books. So we scramble for books”</p>
Poor staff attitude	<p>“Some of the staff are not handling us properly, too much shouting at us” QR3</p> <p>“Some staff members are extremely harsh. They take the telecentre as if it is a family property. I beg them to change for the best.” QR49</p> <p>“People who work here ar</p>
Telecentre is useful to the community	<p>“The tuck-shop is very important in our community” QR4</p> <p>“This has helped our learners (students) to achieve different skills in using Lupaso Telecentre”QR80</p> <p>“We are enjoying the services and people in this community are happy” QR115</p> <p>The introduction of a telecentre is an eye opener because it offers services that we were not accessing” QR 58</p>
Local content needed	<p>“The Telecentre should be stocking books in Nkhonde or Tumbuka languages” QR37</p>

From Table 17 above, five key themes emerged:

- Telecentre services are expensive: it seems a good number of users are not comfortable with the charges of some telecentre services especially computer tutorials. This also confirms results in question 23.
- The Telecentre is relevant: users seem to be grateful with the presence of Lupaso Telecentre in their community because it has helped them in many ways like bringing services closer and developing skills.
- More services required: Though users are grateful with the current services, some more services are needed.
- Poor staff attitude: some user comments indicate that some Telecentre staff lack customer care skills.
- There is need for local content materials in the Telecentre.

5.7. Conclusion

The main aim of this chapter was to present an analysis and summary of the data obtained through the user questionnaire survey. However, throughout the chapter, the researcher has referred to the data she obtained through interviews, document analysis and records review, which were covered in Chapter 4. The analysis has been based on the research questions set in Chapters One and Three. From the results, several key conclusions emerge. Firstly, it can be concluded that Lupaso Telecentre is underused and that it is not accessed by all groups of people in the communities it serves. Despite this, the Telecentre is being viewed as useful by its users because it is providing several benefits to them, they are using it for various purposes and that the majority are satisfied with its. These purposes and satisfaction however, may depend on the services that are being offered in the Telecentre. It can also be concluded that several factors and problems for example, complexity of ICTs; relative advantage of the Telecentre; communication channels used to publicise the existence of the Telecentres; language of the content; and consequences of Telecentre influence the use and non-use of the Telecentre and its services.

The following chapter discusses the major findings of Chapter Four and this chapter relating them to the literature. It also provides conclusions and recommendations for the whole study.

CHAPTER SIX

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

This chapter discusses the major findings presented in Chapter Four and Chapter Five. It brings together the findings of the various components of the study: the observation, document analysis and interviews of Chapter Four and the questionnaire survey of users in Chapter Five. The discussion aims at answering the research questions laid out in Chapters One and Three in order to throw light on the broader research problem, as discussed in Chapter One. The discussion is informed by Rogers's DoI Theory and frequently refers to earlier studies which were surveyed in Chapter Two. The Chapter concludes the dissertation with some conclusions, recommendations, and suggestions for areas for future study.

6.2. Discussion of findings

The discussion is organised around the four research questions which were formulated in Chapters One and Three.

6.2.1. What are the access and usage patterns of the Telecentres and their services?

Access and usage patterns of the Telecentre were determined by the type of people visiting the Telecentre, the number of people visiting the Telecentre on daily basis, the frequency of user visits and what they use when they come to the Telecentre. To achieve this, a combination of user survey, records analysis, observation and interviews with key informants was used.

Types of people visiting the Telecentre

The main finding is that Lupaso Telecentre is not available to all categories of people. Access varies across gender, age, educational levels, income levels, occupation and language. The study has discovered that the users are generally male, young either studying or out of school, less educated and low income levels, farmers and speaking Nkhonde language. The findings on age and gender support the findings of Etta and Parvyn-Wamahiu (2003) in five African countries: Uganda, Mali, Mozambique, Senegal and South Africa and Kumar and Best (2007) in rural India who also found that youths and males are frequent users of telecentres. On the other hand, a study by Soriano (2007) in China found that more females than males used telecentres.

Findings on education of users differ from some studies in some African countries such as the Etta & Parvyn-Wamahiu (2003) and overseas such as Kumar & Best (2007) in India and Prado, Câmara & Figueiredo (2011) in rural Brazil on usage of telecentres that find that telecentres are used by the highly educated, including college students. The findings of this study on income levels education are contrary to Kumar and Best's (2007) study which determined telecentres users have high income levels. The explanation might be that rural areas in Malawi, as pointed out in Chapter One, are characterised by low educational and income levels. Prado, Câmara and Figueiredo (2011:6) emphasize the importance of understanding ICT usage within social contexts. Furthermore, the study has revealed that the Telecentre is mostly used by farmers and only a few are students. A study by Mtega and Malekani's (2009) in Tanzania produced a different outcome. As mentioned in Chapter Two, their study found that telecentres are mostly used by students and farmers are minority users (Mtega & Malekani 2009:78).

This study has further revealed that with reference to language, Lupaso Telecentre is mostly used by Nkhonde people. As mentioned in Chapter Four, Nkhonde language is indeed the language spoken by most people in Karonga where Lupaso Telecentre is located.

Number of people visiting the Telecentre and their frequency of use

In this study of use of one MCT and its services in Malawi, the findings on the number of people visiting Lupaso Telecentre reflect the trend towards usage of telecentres in many countries. Chapter Four concluded that the Telecentre is underused. For example, it was found that an average of only 20 people use the Telecentre on a daily basis. Moreover, some of them visit the Telecentre more than once a day. Almost half, 62 (47.7%) have used the Telecentre since its inception and 30 (23.1%) have used the telecentre for a year. Some other research has found that telecentre uptake is very low (Etta & Parvyn-Wamahiu 2003; Kumar & Best 2007; Soriano 2007; Mtega & Malekani 2009). The implication for the Telecentre operators is that much more ought to be done to expand its user base so that more people benefit from these ICTs.

Frequently used services

Frequently used services were determined by looking at the amount of income each service generates for the selected period in the receipt book, responses from users and staff and

through observation. The fundamental finding is that ICTs (for example, computers and Internet) are underused. The study has revealed that there are three services that are frequently used, namely: photocopying, hall as a meeting venue, and the library services. All three services might be widely used because the Telecentre is the sole provider of these in Lupaso. Furthermore, for photocopying, there are many schools that go there to have their documents photocopied; and the library might also be widely used because the service is offered for free. As mentioned in Chapter Two, according to Kirkman *et al.* (2002), Mtega and Malekani (2009) and Chikumba (2011), services that are frequently used are likely to be those that are offered for free and found nowhere. But the previous studies found that ICTs like computer training and Internet were among the frequently used services; yet in the current study, ICTs are underused.

In common with the findings of Chikumba's study (2011) on utilisation of ICTs in two telecentres in rural Malawi, telephone services are the least used services. The current study has revealed that fixed phones have never been used since the inception of the Telecentre. As mentioned in Chapter Two, according to Walters (1992:38), when a new product is developed, customers are attracted to the product when it offers benefits to them. The non-use of the fixed phones in Lupaso Telecentre might be due to the fact that many people in contemporary society have cellular phones and these people compare the benefits of using fixed phones to those of cellular phones.

6.2.2. How relevant are the services offered at the telecentres to community members?

To determine relevance of the Telecentre, the following aspects were looked at: benefits of the Telecentre to the community; purposes for using the Telecentre; and user satisfaction with the Telecentre services.

Benefits of using the Telecentre

The study has revealed that though Lupaso Telecentre is underused, the Telecentre is benefiting some community members. In an open-ended question, user respondents mentioned that they derive several benefits by using the Telecentre. Most of these matched those given in a closed question. The Telecentre staff and management claim that there are

several benefits the Telecentre is bringing to the community. The main benefits from the Telecentre include increasing financial, social and human capital.

Income capital is being increased in several ways. Firstly, users are saving money by using the Telecentre which is close to them and also providing services at cheaper prices. The researcher observed that alternatives, for example, ICT service providers, are 22 kilometres away from the community. For users to get to these alternatives, it requires them to incur travelling costs. Other previous research for example, Lesame (2006) and Chigona *et al.* (2011) in South Africa and Buhigiro (2012) in Rwanda has made the same comment.

The other economic benefit is associated with the capability of the Telecentre to employ people and support people to find jobs. For example, this is their first job for all the Telecentre staff. This implies that their financial muscles have increased. Enabling people to get jobs is achieved through computer tutorials certificates which users use to find jobs and information on job opportunities found in the newspapers in the library. An example of users who have secured jobs after attaining computer certificate is the Telecentre's Customer Care Manager. Though it was difficult to trace who, after using the Telecentre found jobs, it was evident that a good number of people (47, 36.2%) use the Telecentre to look for jobs in newspaper stocked in the library. It was also evident in some comments by some of those who agree that the Telecentre has increased their incomes. For example:

"Finding employment" QR46

"It is helping people to find jobs" QR32

These findings partly agree with the findings of Chigona *et al.* (2011: 7) in their study of Smart Cape computing facilities in Cape Town. The other economic benefit is provision of market information. This has in turn expanded Lupaso Telecentre users' businesses. This finding is consistent with the literature (Soriano 2007; Chilimo 2008; Attwood *et al.* 2013).

The study has also revealed that another major benefit is that Lupaso Telecentre improves users' knowledge and skills, thereby developing human capital. This is being achieved through services like computer tutorials, Internet searching skills and library services. The findings partly agree with the findings of Soriano (2007) in China and Chilimo (2008) in Tanzania who observed that telecentres improve human capital through computer programs. The present study has further revealed that these human skills also help users to increase other livelihoods aspects for example, finances. For example, knowledge gained through

computer tutorials helps users to secure jobs thereby increasing financial capital. It can therefore be said that Lupaso Telecentre produces what Bozeman and Rogers (2002:770) call “qualitative change results” which means that knowledge gained through the use of ICTs improves the welfare of people in several ways.

The study has also revealed that the Telecentre increases social capital by allowing users to interact and form friendships when they are accessing services and conducting discussions. It is not surprising that meeting friends coming to the Telecentre is one of the major purposes for using the Telecentre. The study echoes the findings of many African and overseas studies in the literature (for example, Chilimo 2008 in Tanzania; Soriano 2007 in China; Attwood *et al.* 2013 in South Africa) who also found that telecentres improve social capital by allowing users to interact and form friendships through the spaces provided in the telecentres. Some user responses indicate that their social life is also being strengthened through ability to communicate with family and friends on the Internet. These findings are consistent with the literature (Lesame 2006:29; Chigona *et al.* 2011:12).

The study has also revealed that the existence of the Telecentre is bringing new things to the community, like electricity. There was no electricity in the community before the existence of the Telecentre. With this electricity, people now have electrical appliances in their homes, maize mills and are able to charge phones within the community. It can be said Lupaso Telecentre has developed Lupaso community as a whole.

The findings in this section give a picture that the Telecentre is being perceived as a useful thing in the community and its usefulness attracts some community members to use it. This echoes the DoI Theory used in this study which says that the perception of benefits influences people to adopt an innovation.

Purposes for using Lupaso Telecentre services

The study has revealed that the Telecentre is used for several purposes. Many respondents (68, 52.3%) use the Telecentre for leisure and entertainment purposes like watching videos and playing games. This trend was also confirmed through observation. A study by Prado, Câmara and Figueiredo (2011:12) on how people use the ICTs within telecentres in rural Brazil highlights entertainment as a major purpose of using telecentres too.

Many people use the Telecentre for social purposes. Many users (55, 42.3%) indicated that they come to the Telecentre to meet friends. Many people were seen coming to the Telecentre to hold meetings in the conference hall and meet their friends coming to or working at the Telecentre. The findings in this section correspond with the findings in the above section on the benefits of Lupaso Telecentre above. The literature also shows that telecentres are used for social purposes since they provide spaces for interaction and debates (Dixit n.d.:55; Hunt 2001:6-9).

Looking for jobs in newspapers is also another major (47, 36.2%) purpose for using Lupaso Telecentre. Similarly, many international studies (for example, Lesame 2006; Soriano 2007; Chilimo 2008; Chigona *et al.* 2011) found that the majority use telecentres as a means to look for jobs. The only difference is that in most of these previous studies, this purpose was associated with the use of computers.

User satisfaction with Telecentre services

The study has revealed that the majority (85%) of user respondents are satisfied with the Telecentre services. Most of the reasons for satisfaction are related to the benefits that the Telecentre is bringing to the community such as providing services at lower costs, and developing human skills; and the Telecentre's ability to address users' information needs. A few who are unsatisfied attribute it to lack of some services. Studies by Etta and Parvyn-Wamahi (2003) in Africa, Mali, Mozambique, South Africa and Senegal and Lesame (2006) in South Africa also found that ability to offer benefits and services that match with user's needs determine user satisfaction with telecentres. The implication to the Telecentre management is to continue providing the services that address the needs of the community. This can be enhanced if the management continuously engages in needs assessment program.

6.2.3. What factors affect the usage of telecentres?

The question on factors that affect telecentre usage was guided by the Rogers's DoI Theory. The discussion in this section therefore is based on these elements: properties of an innovation (perception of relative advantage; observability or visibility of the benefits of using the Telecentre; compatibility and complexity); surrounding social system; communication channels and consequences of the Telecentre.

Perception of relative advantage

As DoI predicts, perception of relative advantage in this study influences the use of the Telecentre positively in two dimensions: advantage of having access to Telecentre services as compared to having no access at all; and advantages of the Telecentres as compared to other service providers. On the first dimension, it can be argued that the Telecentre has exposed people in the community to opportunities that otherwise would have not been exposed to. Opportunities like helping users find jobs through the information available in newspapers and computer tutorials, employing people, and developing human skills influenced the use of the Telecentre and its services. This is consistent with Rogers's DoI Theory that people are likely to use an innovation if it brings new good things that were not there in its absence (Rogers 1995:216; Roman 2003: 57; Chigona & Licker 2008: 60).

As compared to alternatives, the Telecentre offers advantages in relation to distance and costs. People use it because it is located nearby, thereby reducing the distance to search for ICT services which are only found in Karonga Town, 22 kilometres away. Locating telecentres close to people is vital (Kumar & Best 2007; Bailey & Ngwenyama 2009; Mtega & Malekani 2009:80). The other advantage of using the Telecentre over alternatives is that the Telecentre offers services at cheaper services. Cost reduction is an important element where unemployment rates are high (Chigona & Licker 2008:66) which is the case in rural areas in Malawi. The literature also shows that an innovation is likely to be adopted if it offers benefits as compared to the alternatives (Kumar & Best 2007; Chigona & Licker 2008).

Complexity

As expected, the results on complexity agree with Rogers's DoI Theory's prediction that complexity has a significant negative influence on using the Telecentre and ICT services. The study has revealed that users who lack ICT skills find them difficult to use and do not adopt them. In Chapter Four key informants relate lack of use of ICTs to lack of skills. The results also indicate that difficulty in using ICTs puts people off visiting the Telecentre. As pointed out in Chapter Five, this raises question on the support that users claimed to be getting from the staff. It also calls for more training of users in using the ICTs. Perhaps the Telecentre should reduce the charges for the computer tutorials because some users complained that they cannot afford the charges. Chigona and Licker's (2008) study in Cape Town also found that

potential adopters who lack skills perceive the technologies to be complex hence did not adopt it. The results of the current study are also consistent with studies by Wang and Shih (2009) in Taiwan which also found that difficulty in using the ICTs affects their usage negatively. However, Abdulwahab and Zulkhairi's (2011) study on determinants of user acceptance of telecentres in Nigeria found that effort expectancy has no impact on telecentre adoption.

Illiteracy can also be linked to the issue of complexity. Key informants and some users think that some people do not use the Telecentre because the Telecentre is perceived as the place for educated. Kumar and Best's study (2007) on the use of kiosks in rural India and Bailey and Ngwenyama (2009) in Jamaica made a similar finding. The educational role of the Telecentre would be enhanced if it offered literacy classes because telecentres are supposed to respond to educational and training needs of the communities they serve (Menou, Poepsel & Stoll 2004:53). This would make the illiterate to join them and consequently use the Telecentre services that need someone who is literate. The operators also need to demystify the Telecentre in the community because not all services require education.

Observability

The results of the study are consistent with Rogers's DoI Theory that visibility of the results of using the Telecentre influences the adoption of an innovation positively. Seeing the benefits of using the Telecentre in others was the main reason why people started using the Telecentre. For example, one respondent who indicated that she started using the Telecentre after seeing the benefits in others mentioned: "*It is helping people to find jobs*". One can assume that this person was motivated to start using the Telecentre because it was beneficial. If someone gets employed because of using telecentres, those close to him or her would be attracted to start using telecentres (Chigona & Licker 2008:68). On the contrary, Chigona and Licker' (2008) study's in Cape Town found that visibility of benefits has no influence on the shared facilities adoption. Observability in their study was mostly associated with the visibility of the facilities to the potential adopters.

Compatibility

The study has revealed that compatibility influences the use of the Telecentre both positively and negatively. Positively, the Telecentre provides services that match with the needs of

users. Though users were not asked about their specific needs, many agree (98, 79.67%) that the Telecentre addresses their information needs. Furthermore, some comments of those who are satisfied with the Telecentre services and the comments on the benefits that users gain from the Telecentre also show that the Telecentre is compatible with users' needs:

"I find all what I need" QR 61

"Most of the services have matched the needs of the community" QR 82.

"I am able to find information needed in my life" QR24;

"It is important because I find all what I need to assist me in my daily lives"
QR67

On the other hand, lack of addressing potential adopters' needs makes some community members not use the Telecentre. One of the respondents gave the following opinion on why some members do not use the Telecentre: *"unavailability of some services like production of ID photos which makes some members to go to Karonga town"*. According to Kumar and Best (2007), compatibility is closely linked to the issue of relevant content.

Compatibility was also linked to cultural values of the community. The study has discovered that only a few women use the Telecentre because the values of the community do not allow women to be in places dominated by men. This perception might be linked to the dominance of male staff. It was observed that out of eight members of staff, only one is female, the cleaner. According to Hudson (2000), presence of female staff within telecentres encourages female community members to use them. The findings on compatibility are consistent with the Rogers's DoI Theory.

Communication channels

The results are consistent with Rogers's DoI Theory's prediction that interpersonal channels are likely to influence many people as compared to mass media. The majority (87, 70.2%) of the user respondents heard about the Telecentre from friends and leaders. The mass media covered only the launch of the Telecentre in 2012. Similarly, Chigona and Licker's (2008) study in Cape Town also observed that homophilous communication is more important than mass media in influencing innovation adoption. However, it should be noted that a study by Kumar and Best (2007) found that there is no link between communication channels and

telecentre adoption. The difference may be understood basing on the fact that, as mentioned in Chapter Two, a study by Kumar and Best (2007) of the uptake of kiosks in rural India did not ask users where they heard about them.

Social system

Just as Rogers's DoI Theory predicts, the study has revealed that the social system has positive influence on the use of the Telecentre. This means that a community member will use the Telecentre if important others to him or her think it's important. The findings show that people are using the Telecentre because friends recommend them to do so. Furthermore, leaders seem to be playing a role in increasing the patronage. Prior studies have found that various aspects of the social system like friendships, family relationships and leaders have positive correlation with adoption of telecentres (Chigona & Licker 2008; Bailey & Ngwenyama 2009; Wanga & Shih 2009; Abdulwahab & Zulkhairi 2011).

The results on the effect of social system can also be linked to the purposes for using the Telecentre. As mentioned above (Section 6.2.2), many people use visit the Telecentre to meet friends accessing services. To attract more users, the management should take advantage of peer groups. Perhaps it should ask every user to encourage their friends. The management should also continue using leaders because they have shown potential of influencing adoption of the Telecentre.

Consequences of an innovation

Consequences of an innovation are best measured over a long period of time (Rogers 2003). As such, this factor was difficult to measure in this study because Lupaso Telecentre had been in operation for only two years during the data collection period. However, it can be argued that there are both expected and unexpected outcomes of the existence of the Telecentre. Examples of intended outcomes include creation of job opportunities within and enabling people to get jobs elsewhere through computer tutorials; and offering services at lower costs which. These two are pertinent to rural communities where unemployment rates are high. One of the unintended outcomes is the potential of maintaining the skills divide. For example, it seems only those who have skills already use the ICTs in the Telecentre. A study by Chigona and Licker (2008) in Cape Town also made a similar observation.

6.2.4. What challenges do telecentres and users face?

Challenges facing telecentres

The interviews and observation have revealed that Lupaso Telecentre faces infrastructural challenges which include: slow Internet connectivity and frequent blackouts which in turn affect service delivery negatively. With Internet connectivity, users spend a lot of money as pages take time to load. This finding is consistent with literature (Huerta & Sandoval-Almazán 2007:225; Mtega & Malekani 2009: 82). Frequent blackouts are due to the fact that the Telecentre only relies on power supplied by ESCOM. These findings are in line with the findings of many scholars in the literature (for example Etta & Parveny-Wamahiu 2003:160; Mtega & Malekani 2009:83) who also found that unreliability of power supplies in developing is the major problem facing telecentres.

The Telecentre also faces management problems. There are bureaucratic delays at both local and national levels. Whenever consumables run out, the Telecentre waits for LTLMC's consent to replace them. Sometimes they have to report to MACRA which buys them. At both levels, it sometimes takes weeks and even months to act. During the case study data collection period, the researcher learnt that it took more than two months for LTLMC to authorise the buying of toner. Photocopying and printing services were unavailable for the period. These findings echo the findings of Etta & Parveny-Wamahiu's study (2003) in Mali, Mozambique, Uganda, Senegal and South Africa.

Lack of expertise within the Telecentre is another management problem that the Telecentre faces. Whenever equipment fails, Telecentre staff report to MACRA to send someone to repair it. In their study in Mali, Mozambique, Uganda, Senegal and South Africa, Etta & Parveny-Wamahiu (2003) also found that equipment in telecentres does not work for long due to bureaucratic delays and unavailability of technical expertise within vicinity. Availability of spare parts and technical expertise within the Telecentre is imperative (Chigalu 2006).

Challenges that users face

Lack of Internet searching skill is a problem faced by many users (67, 51.5%). A study by Huerta and Sandoval-Almaza (2007) also identified a major problem facing telecentre users in Mexico. However, the difference in these two studies is that in Mexico, many telecentres

did not offer training on Internet searching skills while Lupaso Telecentre offers it for free. Perhaps this problem in the current study may be attributed to low educational levels of the user respondents.

Lack of information in local languages is another problem faced by many users (63, 48.5). It was observed that the Telecentre only stocks materials in English and English is the only language used on the computers. Lack of local content in telecentres has also been identified by many scholars as a barrier to use (for example, Etta & Parvyn-Wamahiu 2003: 160; Huerta Sandoval-Almazán 2007:224; Coward, Gomez & Ambikar 2008: 9; Mtega & Malekani 2009:83).

Many users (63, 48.5%) complained of the high costs of some services and the key informants acknowledge the problem. Though the Telecentre offers services at lower costs than alternatives, some service charges are viewed expensive given the low income levels of the community not. For example, computer tutorials are offered at K4500 per package for 10 days yet more than half of users (84, 56.6%) earn less than K5000 (R125) a month. Affordability of telecentre services is considered as an important factor among users and probably vital in the adoption of an innovation (Kumar & Best 2007; Mtega & Malekani 2009:81).

The Telecentre opening hours are limited. The Telecentre keeps formal government working hours thus; the facility is not open late, at night, on Saturdays and Sundays, or during public holidays. This limits the time during which the facilities are open to the public. These findings echo the findings of Etta and Parvyn-Wamahiu's (2003) study in Mali, Mozambique, Uganda, Senegal and South Africa.

Many users also complained of poor staff attitude. It seems some staff shout at users. This may have a negative effect on user base because some may stop using the Telecentre.

6.3. Conclusions

This study aimed at investigating the factors influencing the use of multipurpose telecentres and their services in Malawi targeting one telecentre, Lupaso Telecentre. The main themes looked at in this study include: access and telecentre usage patterns; relevance of telecentres to communities; factors influencing adoption of telecentres; and challenges facing telecentres and users.

It can be concluded that Lupaso Telecentre, despite the low usage and that access is not available to all categories of people, has the potential of transforming the lives of the community it serves. The Telecentre offers several benefits like improving human capital, financial capital, social capital, and bringing new developments in the rural Lupaso community; it is being used for various; and that many users are satisfied with Telecentre services. The satisfaction however is dependent on the services that the Telecentre provides such that unavailability of some services made some users not to be satisfied with it.

It can also be concluded that there are several factors that lead to use and non use of Lupaso Telecentre. On this, the findings to a large extent provide support the importance of Rogers' DoI Theory in studies of telecentres. The study has shown that Rogers' DoI Theory provides a useful framework for increasing user acceptance of innovations as the Theory has been able to explain most of Lupaso Telecentre adoption decisions thus, relative advantage, compatibility, complexity and observability influence adoption decisions. The study has also shown that social system and the type of communication channels have an impact on using the Telecentre. Though the Telecentre is at a tender age, the study has also shown that the Telecentre has both intended and unintended outcomes.

It can also be concluded that the Telecentre and its users face a lot of challenges which when not dealt with, may also affect the usage of the Telecentre negatively. Some of these challenges include: unreliable power supply, bureaucratic delays, poor staff attitude, lack of local content and lack of internet searching skills.

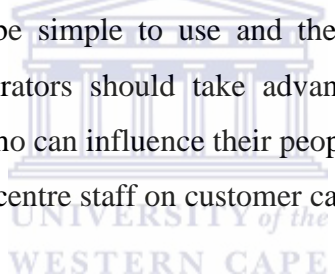
Based on these conclusions, the study offers some recommendations in the following section.

6.4. Recommendations

The findings of the study lead to some recommendations for Lupaso Telecentre staff, LTLMC and MACRA. Hopefully, these will also be applicable to all other telecentres in Malawi and other developing countries.

- In order to incorporate all groups in the community, telecentre managers and operators should be providing various programmes targeting different groups of people. For example, provision of radio programmes on farming would influence elderly people to be coming to the Telecentre. The concept of telecentres is about convergence of different services each targeting different groups of people (Sharma 2008).

- It is important that telecentre services and the programmes should be linked to what people need from the Telecentre. Conducting needs assessments regularly can help to achieve this.
- Education is needed to remove misconception that telecentres are only meant for educated. However, literacy classes should also be introduced because many services indeed need people who are able to read and write.
- MACRA and the Telecentre management should buy an alternative power supply e.g. a generator.
- Telecentre management should collaborate with organisations such as academic institutions in order to create localised content. This would partly solve the problem of lack of local content in the Telecentre which many users complained about and perhaps in the end attract many new members. Technical expertise should be available within the telecentres. This would mean employing another staff member as a technician or capacity building among the already existing staff.
- Telecentre ICTs should be simple to use and the staff support should be readily available. Telecentre operators should take advantage of important others in the community like leaders who can influence their people in the community.
- MACRA should train telecentre staff on customer care services.



6.5. Significance and limitations of the study

This study has provided insights on what determines the acceptance and use of telecentres in rural Malawi. Hopefully, the results will be used to increase patronage of telecentres in the country and many other developing countries. The main limitation of the study is that this study was limited to users, Telecentre staff and management committee of one telecentre. It would be useful to widen the study to the broader community and non-users

6.6. Areas for further study

As stated above, it would be important to do the same study which would include the non-users who were not included in this study. Furthermore, a longitudinal study would be useful to explore the longer-term benefits.

On theoretical implications, some elements of Rogers' DoI Theory were used. Another study could be conducted to incorporate some other elements of the Theory.

One of the major findings of this study is that very few women use the Telecentre. Perhaps a study should be conducted to find out more on the factors that influence the usage of telecentres by women.



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Appendix A: Letter of consent for Lupaso Telecentre users

Private Bag X17, Bellville, 7535

South Africa

Tel: +27 (0) 21 959 2137

Fax: +27 (0) 21 959 3659

FACULTY OF ARTS

Department of Library & Information Science

Dear participants,

My name is Sellina Khumbo Kapondera. I am a Master's student in the Department of Library and Information Science at the University of the Western Cape. I am conducting a study on usage of telecentres and their services in Malawi focusing on Lupaso Telecentre. The objective of the study is to determine the factors that influence acceptance and use of telecentres and their services.

Enclosed with this letter is a brief questionnaire that asks a variety of questions about your acceptance and use of the telecentre and its services. Your assistance will be appreciated. Please take note that confidentiality and anonymity are assured and that the information gathered will only be used for the purposes of the study.

If you have any questions or concerns or wish to know more about the study, you may contact Prof. Genevieve Hart at the University of the Western Cape at genevievehrt@gmail.com.

If you agree to take part in the above research, please tick below:

- I confirm that I have read and understood the information sheet and agree to take part in this research.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and that I do not have to answer every question.

Signature _____



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Appendix B: Letter of consent for key informants

Private Bag X17, Bellville, 7535

South Africa

Tel: +27 (0) 21 959 2137

Fax: +27 (0) 21 959 3659

FACULTY OF ARTS

Department of Library & Information Science

Dear participants,

My name is Sellina Khumbo Kapondera. I am a Master's student in the Department of Library and Information Science at the University of the Western Cape. I am conducting a study on usage of telecentres and their services in Malawi focusing on Lupaso Telecentre. The objective of the study is to determine the factors that influence the acceptance and use of telecentres and their services.

With me is an interview guide that asks a variety of questions about the user acceptance and use of the telecentre and its services. Your assistance will be appreciated. Please be assured and that the information gathered will only be used for the purposes of the study.

If you have any questions or concerns or wish to know more about the study, you may contact the Prof. Genevieve Hart at the University of the Western Cape at genevievehrt@gmail.com.

If you agree to take part in the above research, please tick below:

- I confirm that I have read and understood the information sheet and agree to take part in this research.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and that I do not have to answer every question.

Signature _____



UNIVERSITY of the
WESTERN CAPE

Appendix C: Letter of permission to conduct research at Lupaso Telecentre

From : The Telecentre Manager
Lupaso Community Telecentre
P.O Box 41
Karonga

Email Address : mwandosyastanley@yahoo.com

To : Mrs Sellina Kapondera

Date : 25th March, 2014

Dear Madam,

RE: ADMISSION LETTER

On behalf of the entire Local Management Committee I have been directed to inform you that Lupaso Community Telecentre has accepted your request to conduct a research with the institution on Telecentres.

Furthermore for any information concerning your research do not hesitate ^{to} contact the Telecentre Manager.

Your sincerely,

Stanley Mwandosya



Telecentre Manager

A W S Mwaifongo



Chairperson



Appendix D: User questionnaire

Section A: Your personal details

1. Your age _____

2. Gender

1	Male	
2	Female	

3. Please indicate your highest educational level.

1	Primary School	
2	JCE	
3	MSCE	
4	Tertiary qualification (e.g. diploma or degree)	
5	Adult Education	

4. Are you studying at the moment?

1	Yes	
2	No	

4.1. If your answer in 4 is **yes**, at what level of education are you?

5. Please indicate your income level below:

1	Below K5, 000 per month	
2	K6,000-K10, 000 per month	
3	K11,000- K25,000 per month	
4	K26,000 –K50,000 per month	
5	Above K51000 per month	

6. What do you do/what is your economic activity?

1	Business person	
2	Farmer	
3	Fisherman	
4	Nurse	
5	Teacher	
6	Other (specify)	

7. Please indicate your home language.

1	Chichewa	
2	Nkhonde	
3	Tumbuka	
4	Other (specify)	

Section B: This section asks you how you use the telecentre and its services

8. Which of the following services have you used in the last month? (**You can choose more than one**):

1	Binding	
2	Borrowing books in the library	
3	Computer and information seeking tutorials	
4	Email	
5	Facebook and other social media	
6	Faxing	
7	Finding information on the Internet	
8	Lamination	
9	Photocopy	
10	Printing	
11	Reading newspapers and magazines in the library	
12	Scanning	
13	Other (specify)	

9. If you have **not** used the Information and Communication Technologies (ICTs) in Lupaso Telecentre in the last month, indicate the extent to which you agree with the following statements:

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
		5	4	3	2	1
9.1	The ICTs in Lupaso Telecentre are difficult to use	5	4	3	2	1

9.2	I do not get support from the staff to use the ICTs	5	4	3	2	1
9.3	I do not have skills to use the ICTs	5	4	3	2	1
9.4	ICTs in the Telecentre are not enough	5	4	3	2	1

10. For how long have you been using Lupaso Telecentre? (**Tick the one box that applies to you**).

1	For one month	
2	For 6 months	
3	For a year now	
4	Since its inception	
5	Other (specify)	

11. What made you start using Lupaso Telecentre? (**Tick as many as apply**).

1	Friends recommended it	
2	The leaders in my community recommended it	
3	I saw the benefits of using the telecentre in other people	
4	It is convenient and cheaper than going to Karonga Town	
5	I needed some information	
6	Other (specify)	

12. How frequently do you use the Lupaso Telecentre? (**Tick in one box only**)

Twice or more a day	Every day	Twice a week	Once a week	Once a month	Every three months	Rarely
1	2	3	4	5	6	7

12.1. If you use Lupaso Telecentre only **rarely**, which of the following reasons explain your answer? (**Tick as many as you wish**).

1	I find it difficult to use some services	
2	I get the same services at a different place at lower cost	
3	The services at the telecentre are not good	
4	The telecentre does not satisfy my information needs	
5	The telecentre is too far from home	

6	Other (specify)	
---	-----------------	--

13. How far away do you live from Lupaso Telecentre?

1	Within 0.5 kilometer from Lupaso Telecentre	
2	About 1 kilometre from Lupaso Telecentre	
3	About 2-4 kilometres from Lupaso Telecentre	
4	About 5 kilometres from Lupaso Telecentre	
5	More than 5 kilometres from Lupaso Telecentre	

Section C: This section asks you about the reason why you use Lupaso Telecentre, the benefits of using it and your level of satisfaction with its services

14. What do you use the Lupaso Telecentre services for? **(Tick as many as apply)**

1	Accessing government services online	
2	Banking services online	
3	Choosing a place to study (e.g. colleges and universities)	
4	Communicating with relatives, colleagues and friends online	
5	Conducting discussions and debates with people in my community	
6	Engaging with leaders in my village	
7	Engaging with the government leaders at national level	
8	Finding health information (e.g. Malaria prevention)	
9	Finding information on marketing techniques	
10	Finding information on prices of farm produce (e.g. rice and maize)	
11	Leisure and entertainment (e.g. watching videos and playing games)	
12	Looking for jobs online	
13	Looking for jobs in newspapers in the library	
14	Meeting friends coming to the telecentre	
15	Meeting people (e.g. friends) online	
16	Other (Specify)	

15. If you have used Lupaso Telecentre for purposes of finding information in the last month, have you been able to find the information that you need in the telecentre?

1	Yes	
2	No	

16. Do you agree with the following statement: Lupaso Telecentre is an important part of my life?

1	Yes	
2	No	

16.1. If your answer in **16** is **Yes**, what benefits, if any, do you gain by using Lupaso Telecentre?

17. How well do these statements agree with your expectations of Lupaso Telecentre? (**Tick one number on each line**). **Feel free to comment.**

17.1. Lupaso Telecentre has strengthened the social life of the community.

Totally agree	Agree	Neutral	Disagree	Totally disagree
5	4	3	2	1

Comment _____

17.2. Lupaso Telecentre increased the incomes of the people in this community.

Totally agree	Agree	Neutral	Disagree	Totally disagree
5	4	3	2	1

Comment _____

17.3. Lupaso Telecentre has improved skills and knowledge.

Totally agree	Agree	Neutral	Disagree	Totally disagree
5	4	3	2	1

Comment _____

18. Please tick the level of satisfaction with Lupaso Telecentre services.

Strongly satisfied	Satisfied	Neutral	Dissatisfied	Strongly dissatisfied
5	4	3	2	1

18.1. Please give reason (s) for your answer in **18**.

19. What other services would you like Lupaso Telecentre to offer that are not currently offered?

Section D: This section asks you about factors influencing your use of Lupaso Telecentre

20. How did you hear about Lupaso Telecentre? (**Please tick only one answer applicable to you**).

1	I heard from people e.g. friends, parents, leaders	
2	I heard from the media e.g. radio, television	
3	Other (specify)	

21. Do you think that Lupaso Telecentre has reached its maximum usage?

1	Yes	
2	No	

21.1 If your answer in **21** is **No**, please give possible reasons why some people in the community are not using it.

22. Please tick the most appropriate box in response to the following statements in the table below:

	Statement	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
22.1	Using Lupaso Telecentre is considered a status symbol among my friends	5	4	3	2	1
22.2	The leaders in my community think that I should use Lupaso Telecentre	5	4	3	2	1
22.3	People I admire use it	5	4	3	2	1
22.4	In general, my community supports Lupaso Telecentre	5	4	3	2	1
22.5	I have seen the benefits of using the telecentre in others	5	4	3	2	1
22.6	Lupaso Telecentre is useful to me	5	4	3	2	1
22.7	Using Lupaso Telecentre services helps me save money and time	5	4	3	2	1
22.8	I choose to use Lupaso Telecentre because of the support I get for using ICTs from its staff	5	4	3	2	1
22.9	Lupaso Telecentre addresses my needs (e.g. information needs)	5	4	3	2	1

Section E: Section asks you about challenges that you face when accessing Lupaso Telecentre services.

23. Which of the following problems do you face when accessing Lupaso Telecentre services?
(Tick as many as apply).

1	High costs for some services	
2	Inadequate physical facilities	
3	It is too crowded	
4	Lack of information in local language	
5	Lack of Internet searching skills	
6	Lack of support when using the telecentre	
7	Lack of privacy when accessing information on the Internet	
8	Shortage of opening hours	
9	Other (specify)	

24. Please add any further comment not covered in previous questions.

Thank You for your time.

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Appendix E: Interview protocol for first interview with Lupaso Telecentre Manager

Gender: _____

Date: _____

1. Tell me about your background, where did you work before here?
2. Now let's talk about management. How do you recruit staff?
3. Tell me about your budget. Who pays the staff. Is the budget adequate?
4. What is the most used service(s) in this telecentre? Why?
5. Mention the types of users served by this telecentre (e.g. students, farmers, young).
6. On daily basis, how many users visit the Telecentre?
7. What is the collaboration between this telecentre and other service providers?
8. In your opinion, has the Telecentre reached its maximum usage?
9. If no, in your opinion, what do you think makes some members of the community not to use Lupaso Telecentre?
10. In your opinion and using the experiences you have since the beginning of this project, how has Lupaso Telecentre been useful to the community?
11. In your opinion, what benefits does the Telecentre provide to the community?
12. Are the facilities and services available in Lupaso Telecentre enough to satisfy the needs of your users?
13. If no, what else do your users ask for that is not provided?
14. In your opinion, what are the factors that influence the use of this telecentre?
15. How do you tell people about Lupaso Telecentre?
16. How easy do users find it to familiarise themselves with new technology?
17. Who is responsible for teaching these users?
18. What do you do to help people when they do not know how to use computers?
19. What kind of problems does the Telecentre face if any in its course of operation?
20. What strategies are you employing in order to solve the problems mentioned in the question above?
21. How do you see the future of telecentres in Malawi?

Thank you for your time

Appendix F: Interview protocol for Lupaso Telecentre Customer Care Manager

Gender: _____

Date: _____

1. Tell me about your background, where did you work before here? Is this your first job?
2. Using your experience, what is the most used service in this Lupaso Telecentre? Why?
3. Using your experience, on daily basis, how many users visit the telecentre?
4. Mention the types of users served by the Telecentre for example, students, business people, farmers, young, the elderly. The most frequent users.
5. I have seen that most users are males. Using your opinion, why is it that more males than females come to the Telecentre?
6. In your opinion since the beginning of this project, how has Lupaso Telecentre been useful to the community?
7. Since you are the Customer Care Manager, do you think the facilities and services available in Lupaso Telecentre are enough to satisfy the needs of your users?
8. If no, what else do your users ask for that is not provided?
9. At the beginning of this interview you said that some people do not use the Telecentre. Do you think that the Telecentre has reached its maximum usage?
10. If no. What do you think makes some members of the community not to use Lupaso Telecentre?
11. What do you think should be done in order to attract more people?
12. In your opinion, what are the factors that influence the use of this telecentre because there are still some using it?
13. You talked about sensitisation, how do you tell people about Lupaso Telecentre?
14. How easy do users find it to familiarise themselves with new technology? Do they find problems?
15. How do users react when they find that some ICT services are difficult to use and understand? Do they continue using or it affects their usage?
16. What do you do to help users when they do not know how to use computers?
17. I have seen that only a few people use ICTs (for example computers and Internet) as compared to non ICT services (for example watching television), what do you think might be the contributing factors?

18. Using some questionnaires I have collected so far, on age, I have seen that many youths are using ICTs more as compared old ones. What do you think makes those say in 40s or 50s not to be using the ICT services?
19. I have seen that there are persistent blackouts which affect delivery of services, people are complaining about this, what strategies are you employing in order to solve the problem?
20. What kind of problems does the Telecentre face if any in its operation?
21. What strategies are you employing in order to solve the problems mentioned in the question above?
22. What is the collaboration between the Telecentre and other service providers or the Government?
23. How do you see the future of telecentres in Malawi?
24. Feel free to add any comment.

Thank you for your time



Appendix G: Interview protocol for Chairman of Lupaso Telecentre Local Management Committee

Gender: _____

Date: _____

1. I understand that you are the Chairman of the local management committee. So let's start our conversation by talking about the local management committee. How do you recruit staff because I understand that it is the responsibility of the local management committee to recruit staff? How many staff members does the Telecentre have?
2. I was going through the Telecentre's Constitution and other documents like the guidelines of the local management committee. From these, I understand that one of the objectives of the telecentre is to create job opportunities. Can you tell me more about this? How does the telecentre achieve this?
3. I also understand that one of the objectives of the Telecentre is to improve skills. How do you achieve this improvement of skills of the community?
4. Through reading the Telecentre's Constitution, I understand that one of the responsibilities of the local management committee is to seek new directions where possible from where?
5. Let's talk about budget. How do you finance the services? Where do you get your budget or who funds the Telecentre?
6. I have read in the MOU that MACRA was supposed to be providing you with financial support in the first year of operation only but you are saying that you are still depending on MACRA for some funds. Why is this the case?
7. I have seen in your constitution saying that you will be raising funds from well-wishers e.g. organisations. So far, which organisations have helped you?
8. What is the collaboration between telecentres and other service providers like Lupaso Teacher Development Centre (TDC) and Nkhando TDC?
9. What is the composition of the local management committee? How many members does it have as of now?

10. In your opinion and using the experiences you have had as a chairperson the local management committee and being one of the people in this community, since the beginning of this project, how has Lupaso Telecentre been useful to the community?
11. In your opinion, do you think that the Telecentre has reached maximum usage?
12. If no, what do you think makes some community members not to use Lupaso Telecentre?
13. In your opinion, what do you think are the factors that influence the use of the Telecentre?
14. I have observed that only a few people use the Telecentre, what do you think should be done in order to attract more people?
15. On membership your constitution says Lupaso Telecentre is open to all but through observation and also some questionnaires I have managed to go through so far, I have seen that only a few women use the Telecentre as compared to men yet the population of women is higher than that of men, what do you think are the contributing factors to this?
16. What are the cultural values of this community and how do they affect the Telecentre usage?
17. Through observation and also some questionnaires that I managed to distribute, I have seen that only a few people use ICTs as compared to non ICT services. What do you think might be the contributing factors?
18. How do you tell people in the community about Lupaso Telecentre?
19. As a leader, what do you think is your role in attracting community members to the Telecentre?
20. What kind of problems does the Telecentre face if any in its course of operation?
21. What strategies are you employing in order to solve the problems mentioned in the question above?
22. I have seen that there are persistent blackouts which affects delivery of services, people are also complaining about this, what strategies are you employing in order to solve the problem?
23. How do you see the future of telecentres?
24. Please add any further comment not covered in previous questions.

Thank you for your time

Appendix H: Interview protocol for Lupaso Telecentre Manager second interview

Gender: _____

Date: _____

1. I have observed that only a few people use the Telecentre, what do you think should be done in order to attract more people?
2. What do you think are the contributing factors to this low usage?
3. On membership, your constitution stipulates that it is open to all groups of people but I have seen that only a few women use the Telecentre as compared to men yet the population of women is higher than that of men, what do you think are the contributing factors to this?
4. I have seen that some of the facilities are telephones but since my arrival here, I have not seen anyone asking for such services. In your opinion, what would be the cause?
5. In the last interview, I remember you said that some users ask for more services like radio programme on farming and HIV/AIDS, why do you think these people ask for these services?
6. In the last interview you said you go through village headmen to sensitize people and you said that you see that it makes a change:
 - a. What kind of a change does it make?
 - b. Why do you think it is important to go through the headmen?
7. I remember you once said that when users do not know how to use the ICTs services, you (the staff) help them. Using your experience, in case these [users] do not understand, how do users react? Do they continue using the ICTs or stop?
8. I have observed that no one has asked for photocopying services and printing yet in the last interview you said that photocopying generates a lot of money, what is happening?
9. In the last interview you only talked about the services that generate a lot of money, this time tell me the services that users mostly ask for in general regardless of the money. And why do you think these are the services that are frequently used?
10. In the last interview, you said that most users are youths and that those in 40s or 30 come for meetings or buy groceries from the tuckshop, do you agree with the following statement: age affects the use of ICTs negatively?

11. In the last interview, you said there is no collaboration between the Telecentre and any other service providers. In your opinion, what would the Telecentre benefit if it collaborated with these other service providers?
12. I understand the committee members come from the nine villages that contributed towards the construction, is the Telecentre only open to these villages?
13. Through reading the constitution, I understand that one of the objectives of the Telecentre is to create job opportunities, can you tell me more about this?
14. I have read in the constitution that one of the objectives of the Telecentre is to enhance acquisition of knowledge and some technical skills in various disciplines. How does the Telecentre achieve this?
15. I have observed that only a few people use ICTs as compared to non ICT services. The receipt books also indicate that non ICTs do not generate a lot of money. The questionnaires that I have gone through also indicate that ICTs are not widely used. What do you think might be the contributing factors?
16. I have seen in your constitution that you will be raising funds from well-wishers e.g. organisations. So far, which organisations have helped you?
17. I have seen that there are persistent blackouts which affect delivery of services, user are also complaining about this, what strategies are you employing in order to solve the problem?
18. People are saying that some staff shouts at them, how do you make sure that the relationship with the users is good?
19. Most users are complaining of lack of information in local languages, what do you think should be done to solve the problem?
20. Apart from MACRA, what else do you work with? What formal ties do you have with the government, schools, government, schools, internationally?
21. Some users say that they use the Telecentre to access government services, do you have any idea of what these services are?
22. Please add any further comment not covered in previous questions.

Thank you for your time.

**Appendix I: Interview protocol for officer responsible for telecentre projects at
MACRA**

Gender: _____

Date: _____

1. What role is MACRA playing in the implementation of telecentres?
2. Do you think it has been or will it be successful in achieving what it was meant to achieve?
3. It has been observed that across the world telecentres are underused. In your opinion, what do you think are the factors that influence the use and acceptance of telecentres and their services?
4. I believe that you have 3 community managed multipurpose telecentres under your control; do you have any idea that some are more successful than others?
5. In your opinion, what are the factors that make some successful and some not successful?
6. Since you are the ones involved in the establishment of telecentres, how do you communicate the existence of telecentres so that communities become aware of them?
7. Do you think telecentres in the country are used to the full capacity?
8. If your answer is No, why do you think some community members do not use telecentres?
9. I understand that you are planning to establish more telecentres in Malawi:
 - a. Where do you get the funding from? Is it adequate?
 - b. How do you see the future of telecentres in Malawi?
10. During my data collection at Lupaso Telecentre I discovered that the Telecentre still gets financial support from MACRA yet the MOU stipulates that they would just be getting this during the first year of operation. Why is this the case?
11. What problems do telecentres in Malawi face?
12. What strategies do you employ in order to solve these problems?
13. You are free to add any comment.

Thank you for your time

Appendix J: Document and records analysis guide

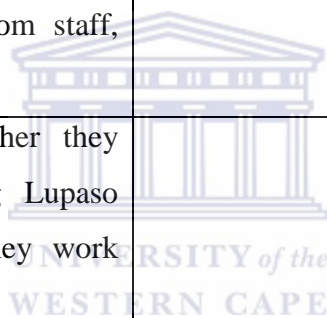
Item	Details
Constitution (mission statements, objectives)	
Memorandum of Understanding	
Guidelines of the Lupaso Telecentre Local Management Committee	
Attendance book (statistics of users)	
Receipt book (services frequently used)	



Appendix K: Observation guide

Items observed	Details
Other ICT services available in the community such as other telecentres or cybercafes (what they offer and their charges)	
The nearest public library and what they offer	
Where else user get similar services	
Condition of the roads	
Economic activities of people (e.g. farming etc)	
Services offered by Lupaso Telecentre in general	
Services currently offered (during data collection period) within the Telecentre	
The charges of the services	
Equipment available in the telecentre and their condition (old, new or worn out)	
Equipment working and equipment not working	
Internal arrangement of the Telecentre	
Speed of Internet connection	
The types of users (the age, gender and physical/handicapped conditions of users)	
Number of users on daily basis	

The frequently used service(s)	
What users use the Telecentre services for	
IK in the Telecentre	
Check if there are documents in local language	
Business days and hours	
Traffic flows (when its busy, when its quiet, peaks)	
Interaction between staff and users (e.g. whether users get assistance from staff, conflict)	
Interaction among users (whether they help one another in accessing Lupaso Telecentre services, whether they work together)	
Who teaches computer and information literacy	
Problems that Lupaso Telecentre users face when accessing the services	
Problems that Lupaso Telecentre faces	



Appendix L: Themes identified in the interview transcripts

Theme	Sub-theme	Selected supporting quotations from the interviews
Beliefs that the Telecentre is underused		<p>For us it is open for everybody. But people are not coming here (Telecentre Manager)</p> <p>Aaah previously we used to have minimum 17 customers and on average we do have 24 customers on daily basis but as of now we can check may be in our attendance book (Telecentre Manager)</p> <p>It's seasonal. It depends. Some days they come in large numbers some days very few. So, approximately it's only 10 to 15.....like this time, rainy season, aah many of them you find that they are busy with cultivation. So, they are not used to come like this time around (Customer Care Manager).</p>
Uneven access	Age	<p>The most users are the youths....Yes the youths generally. Be in school or out of school (Telecentre Manager)</p> <p>So, for students may be I can take from 16 up to 25. For the students. Farmers may be 20 to 35 or 40 (Customer Care Manager)</p> <p>For the age. More school goers are the youths. You find that the elderly are married they don't have that vision of going somewhere else they are just around. So, they are just saying where can I go with knowledge because I am already older and I will not go anywhere I will just be cultivating, farming here and having life life goes on with my family. It's only the youths have the vision and living with new technologies and willing to catch up with changes (Customer Care Manager)</p> <p>Yes I do agree with that one (that age affects the use of ICTs negatively). And on that one, I can support that one. And it's true that age also true that age affects the use of the Telecentre. Most people who are 50s or 60s, if you give them a computer, they are unable to use it. Again, even if they know how to use them, they have complain about sight they say I have a problem with my sight and I cannot use it (Telecentre Manager)</p>
	Gender	On gender male are dominating (Telecentre manager)
	Occupation	<p>They are the farmers. Despite we have some teachers here but no I cannot say eeh, we don't receive much teachers here but farmers are the ones. (Telecentre Manager)</p> <p>Like on school, most of them are secondary students. Like in primary, I don't know the problem (Telecentre Manager)</p> <p>More frequently they are students and young..... aah and even the farmers... Because I have said the students as well as the farmers (Customer Care Manager)</p>
	Income level	My observation is that this telecentre is built in a rural area and most of occupation is farming. So, I cannot say people who are coming here are rich no. I can say they are poor and medium (Telecentre Manager)
Some services used more		Here at Lupaso Telecentre we have so many services that we offer to the people. But the most one aah which we make with a lot of money is photocopying (Telecentre Manager)

than others		<p>Photocopying.....Having students. More number of users are students so they like photocopying their materials (Customer care manager)</p> <p>Even on the hall, we have the TV. We have so many users there who come and watch some TV programmes. And again on, the other thing is computer tutorial (Telecentre Manager)</p> <p>Computer lessons....More especially when they close their form 4. Students close their exams or write their exams. That ample time for computer lesson (Customer Care Manager)</p> <p>The service which tries to cushion us better is the education sector. Thus photocopying (LTLMC Chairman)</p>
Beliefs that the Telecentre is relevant	Strengthened social life in the community	<p>People interact especially when they are watching soccer (Telecentre Manager)</p> <p>People knows each other at telecentres (Customer Care Manager)</p>
	Increasing incomes of the people in the community	<p>One. Aah job creation, all of us, staff here we were unemployed but this time we are employed with this telecentre (Telecentre Manager)</p> <p>Yeah within the Telecentre. Yeah. Like this time around, we have a tuck-shop. For the tuck-shop, MACRA did not create job for sales person. So, we had to sit down to deal with the situation and agree that we find someone as sales person for the tuck-shop to keep the tuck-shop going. ... At first we had to use the same members, same staff, the cleaner to be assisting but this was too much for her. Due to pressure of work we thought the tuck-shop should have a separate person as a sales person, sales lady (LTLMC Chairman)</p> <p>And there were some who could not get employed because of lack of computer skills but after they were trained here, they go employed (Telecentre Manager)</p> <p>But some are active once they have certificate from Lupaso Telecentre. They are a number of them. I am also included in that category of accessibility of being employed (Customer Care Manager)</p>
	Developing human capital	<p>Even the ICT knowledge or computer lesson, they are now able to have that access of using computer while before they didn't even know how to use computers (Customer Care Manager)</p> <p>Yeah. On knowledge I think in the past, people were computer illiterate but this time many people have computer skills. And even others didn't know how to browse on the Internet but this time people have that skills (Telecentre Manager)</p> <p>People have gained computer skills through computer tutorials. So far, we have trained 120 people since its inception (Telecentre manager)</p>
	Telecentre is bringing things closer	<p>The telecentre is useful to people who use it. Like in the past, when we wanted to photocopy, we used 22 kilometres from here to access photocopying services but this time....we don't have to travel long distances to go to town (Telecentre manager)</p>

	to people	Not only that, football matches, these world cup football matches people used to cycle to Boma or Wiwa far from here just to watch these football cup matches. This time for such activities people converge here to watch these matches (LTLMC Chairman LTLMC)
	Telecentre bringing new good things to the community	The other thing is, here we didn't have electricity but because of this telecentre, people now in their homes they have electricity because of this telecentre (Telecentre Manager) It has developed this area by bringing electricity. We see electricity here because of the telecentre. This electricity has brought a number of good things. People now have access to maize mills, having fridges, fans, able to electrify their houses. And people could face water problems but now they come to fetch good water here at the telecentre (Customer Care Manager)
Factors influencing Telecentre usage	Costs	And they could even face expensive charges while here its cheap and nearby to go to town (Customer Care Manager) The reason is because on television, most of the times we don't charge them. We only charge them during football. For instance when Malawi having a game with other nations that when we charge them. But most of the times we don't charge them. And even if we charge them when they are watching football, we are cheaper than other competitors..... The other thing is we are cheaper than any other competitors in Karonga..... On the tuck-shop most of our groceries are also cheaper and they don't last long time (Telecentre Manager). So what is happening is when, we have computer tutorials, we use to have may students or many customers nowadays from the town which is very far from here you can see its about 22 kilometres but we do have some students from the town because we are the cheapest in Karonga (Telecentre Manager).
	Convenience	Yeah. People they don't travel long distances to access ICT services but because we are closer to these people so people just came here and access the services (Telecentre Manager). I have also said about students because at first they could face difficulties, going to town due to the distance itself from here to town so they are able to access here (Customer Care Manager). The first one is distance. Going to Boma this rainy season the road becomes muddy, the river flooding but people had to travel to town to access the services. So, the issue is that the services that were demanding people to go to town are now here being accessed here (LTLMC Chairman) Yes distance, eeh, reduction of expenses to Boma (town) (LTLMC Chairman).
	Communication strategy matters	It's important to use chiefs because they are the ones who help us to mobilise aah their subjects. Without them where are we going to find these people? But if we go through them, the chiefs help us to mobilise their subjects. That's the importance of it. And

		<p>people, once when the chief say something here, it carries more weight than us... (laughter) They trust the chiefs more than any other(Telecentre Manager)</p> <p>Like in the past, in the past we were starting, we wouldn't have many customers on computer tutorials but the time when we went to local chief, aah, to tell local chief the importance of it, and the service on computer tutorials we have seen a change. We receive more customers on computer tutorials (Telecentre Manager)</p>
<p>Compatibility with needs and cultural values is essential</p>		<p>Aaah, the basic line you say you need computers, Internet, photocopying, ok? Now, ok, in some areas, some services may not be needed in some areas may be. Aaah further, you may say you would want fax, but the question is, do you need fax? Ok. Some services may not be needed in some areas while the other.....People in Mwanza are afraid of to go into the eeh, the villagers, despite being there for long time, you interview some people they are afraid to enter into the building because they say ndi status yawo sangalowe (because of their status, they cannot go inside the telecentre). But again if you go to Kasungu, there is the same concept but some services force them to go. Ok. Simple, amagulitsa ma unitsi (they sale airtime).....So the services matter because the use of telecentre is anything. You talk of ma unitsi (airtime). Like Mwanza they don't sale, Kasungu they sale. So, if the services are not for those people, they may not have that courage to go there (MACRA staff member)</p> <p>Yes. That's very true. And indeed since we started here I have never seen a customer coming here asking for them. I think the reason is that nowadays, its almost every house has a phone. Even they van fail to buy an expensive phone but they can buy we call it a Mose wa lero (cheapest) phone. That's why may be they are failing to come here to access phone servise because they have it in their homes (Telecentre Manager)</p> <p>Aah. One of the things [of having more men than women users] is cultural practices. On the culture, here, we are Ngonde people. We do not allow women to move or go to places where many men are found. So, some women they are afraid to come here because of such cultural practices.....Yes because they are afraid that because once a woman is found like here, they mean that that woman is a prostitute (Telecentre Manager)</p>
<p>Telecentres have to be located near people to be used by many</p>		<p>I think there are a lot of factors contributing to this. One is location. Some are well located at a central place with a lot of aah may be activities within the case of Kasungu because of Kamuzu Academy, the trading centre. So it's almost well placed which is quite different from aah Lupaso which is abit far (MACRA staff member)</p> <p>Khudze yeah. But now if you look at these, the factors that make which makes these may be some to be successful some not, there are many. Location as I have put. If you go to ok. Despite that all these are in typical villages, but the surrounding areas they differ. Say Kasungu, there are many activities surrounding. Like trading centre, schools like private schools and even trading centre. And if you go to Mwanza is</p>

		another set up. It's typical in the village. No much activities surrounding like trading centre, schools (MACRA staff member)
Lack of government services online and local content affects telecentre usage negatively		<p>Not much. Not much. Not much. I mean would say almost it's not there. And even I remember when I was in Karonga, aaah, no, in Lupaso when we were launching. Soon after launch people were just coming to say no ndufuna ndione ineyo fodya wanga akuti pa Internet ndikhoza kuoanga check fodya wanga watani? Wagulitsidwa (I want to check on the Internet about my tobacco sales I have just heard that it has been sold). You know that eeh, expectation?..But someone goes, he finds nothing. So, of course it's both the private sector even the government to say why not put things online? Then people will be forced to say instead of travelling to Kasungu or Lilongwe, why not travel pa (to the) telecentre on the Internet and check. So, that's about e-government or may be e-services in Malawi there are not there which can promote, to push people to say let me learn (MACRA staff member)</p> <p>And so (also) another issue is, I think local, lack of local content of aaah, when I say local content, may be content which is online which is needed by the locals in their even language to say whether Tumbuka or whether Chewa (MACRA staff member)</p> <p>Most of the things on the Internet they are in English. So some users don't understand English. So it's very difficult for them to ask for an Internet service while they don't understand the language what is on the internet (Telecentre Manager)</p>
Lack of skills and illiteracy lead to telecentre low usage		<p>Internet is something new.... Lack skills or, tingati (we can say), what language can I use? Eeh, the aah, they are not conversant enough with these modern technologies (LTLMC Chairman)</p> <p>Aaah its illiteracy rate. The telecentre has come with new technologies which requires school goers eeh to deal with this new technologies (LTLMC Chairman)</p> <p>If there is a need, some user continue to use it but other they stop there....Because they don't understand how we operate the machines (Telecentre Manager)</p> <p>Eeh, it goes back to my first point, literacy rate. For women, eeh, munomo (here) eeh, the majority of women eeh, are those who haven't gone to school. And young girls we are trying to come up, another factor is that young girls who are at school, these school kids drop out from school because of early marriages and such nature it's also a hindrance (LTLMC Chairman)</p> <p>In Malawi you know literacy level is very low. Because you know computer issues, I mean if you are not literate, you can't, that the challenge, that the major challenge. People will not have the enthusiasm to learn about the ICTs when they are not literate. It's a major issue (MACRA staff member)</p> <p>As you can see, Lupaso telecentre is built in a very remote area where very few people have gone to school. So, its not simple for uneducated person to some here and access the services. Because the understanding is very low about the ICTs (Telecentre Manager)</p>

Challenges facing the Telecentre	Bureaucratic delays	<p>Yes before we do anything concerning the financial, before we do anything we have to consult the committee because these are the owners of this telecentre. On our own, we cannot do anything without their consent. So, first of all we have to consult these people and they give us the decision” (Telecentre Manager).</p> <p>“The other problem is, MACRA sometimes assists us some stationary and some consumable materials. But once when these materials, we don’t have in stock, when we report to them they take long time before they send us these stationary and these consumables material like toner. Like this time we don’t have a toner, so we have to report to them and they take too long to respond to that” (Telecentre Manager)</p> <p>“But now this time around we have problem of toner. Eeeeh the Blantyre people that’s MACRA they promised us that they would send the toner but this is taking too long. So, I advised the manager last week that we cannot keep waiting. If we can afford, we have the sources can you go out and find, source out the toner so that services are in operational” (LTLMC Chairman).</p>
	Lack of expertise	<p>“One of the major problem is the skills, may be technical skills because here we have computers but almost most of us who are working here we don’t have some basic skills on basic computer maintenance. So once when we have a problem or when a computer is out of use it means it just stays there until we report to MACRA and they send a technician and maintain” (Telecentre Manager).</p>
	Power issues	<p>“Aah the telecentre, its very true that we do have frequent blackouts here. And even the committee, we reported this issue to the committee so the committee said that I think we need a genset..... yes we do need a genset I think” (Telecentre Manager).</p> <p>“Ok. I think in general, I would say power issues. Power because people I mean where there is ICT you need power and you know how power behaves in Malawi. It’s a challenge” (MACRA staff member).</p>
	Poor Internet connectivity	<p>One. Like Internet, our Internet is very slow. So we can’t have many customers. Our computers are very slow comparing with our friends in town (Telecentre Manager).</p>

**Appendix M: Photos of the Lupaso Telecentre and users accessing services within
Lupaso Telecentre**

Figure 21: Lupaso Telecentre and the signage



Figure 22: Reception



Figure 23 : The tuck-shop



Figure 24 : Some equipment available in the Customer Care Manager's office



Figure 25: Part of the Internet room

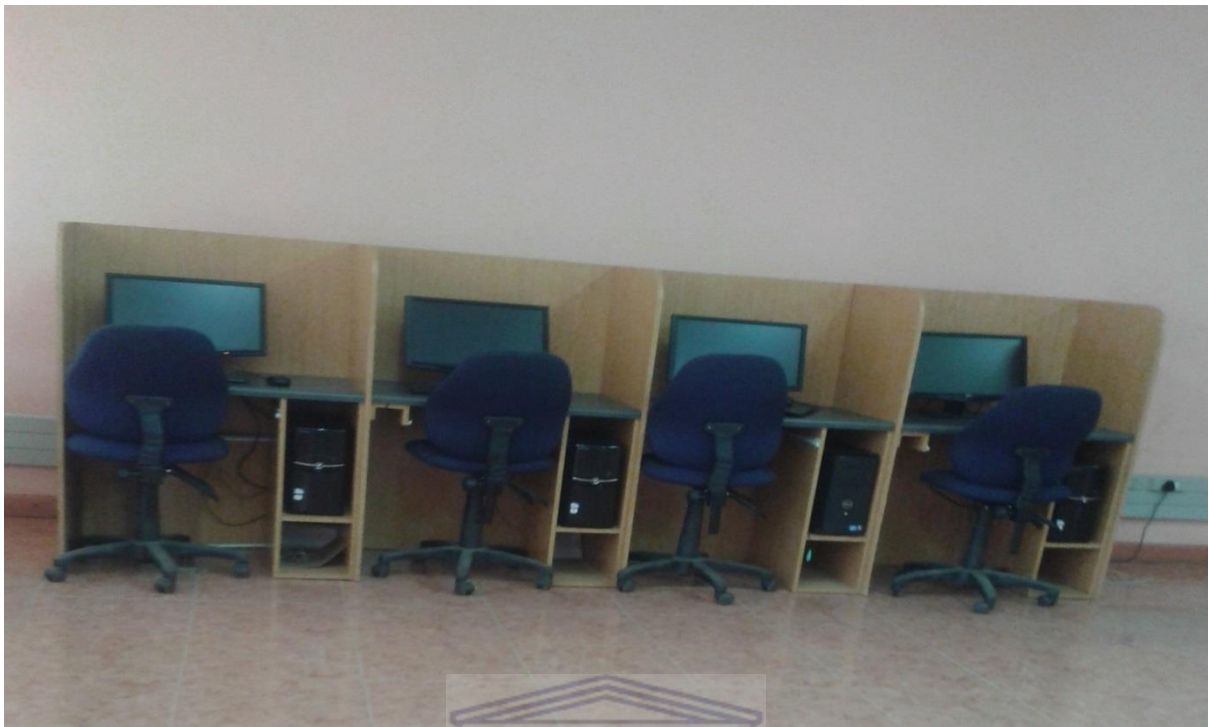


Figure 26: The library



Figure 27: Lupaso Telecentre user receiving support from the Telecentre staff



Figure 28: Lupaso Telecentre users using the Telecentre for leisure and entertainment purposes playing games on the computer (on the left) and watching a football match between Malawi and Chad (on the right)



Figure 29: More people using non-ICT (watching television on the left) services unlike ICT services (computers on the right)



Figure 30: Nkhandu Teachers Development Centre computers covered with cloths

