Factors Affecting Sustainability of ICT4D: A Case Study of Mobile-Cinemas in Rural South Africa

By

Henry Tinashe Manara
14277663

Submitted in partial fulfilment of the requirements for the degree

M Com in Informatics

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

at the

UNIVERSITY OF PRETORIA

Supervisor: Prof J H Gelderblom

31 October 2015

ABSTRACT

The purpose of this research was to investigate if the provision mobile technologies to micro-entrepreneurs can lead to the development of new business models that will support the sustainability of the businesses they develop.

A case study was undertaken focusing on 14 micro-entrepreneurs that were participants in the Mosaic 2B ICT for development research study. Mosaic 2B was a European research project aimed at developing and testing a framework that used cloud-based applications and low-cost internet delivery mechanisms to provide entertainment media to disadvantaged communities. The entrepreneurs were provided with technology referred to as the "Cinema-in-a-backpack" that they could use to download and screen movies in their communities in order to raise an income for themselves. The Cinema-in-a-backpack project was implemented in the Nkangala district in Mpumalanga province of South Africa.

Mixed methods were used to collect data from these MEs over a period of 6 months. The data was analysed to identify the business models they implemented and to determine how sustainable these models are. Positive factors and obstacles were identified and a model was created to indicate how these could influence the proposed business models in terms of their sustainability.

ACKNOWLEDGEMENTS

I express my profound gratitude to the following people and institutions whose tireless commitment and support facilitated the completion of this research. Special mention goes to:

Professor Helene Gelderblom, my research supervisor; your guidance, advice and patience have made this research to be a success.

The University of Pretoria, for giving me the opportunity to undertake this study that has opened my mind and broadened my view of the Informatics world.

My brother Trevor for the emotional and financial support during the research period.

Above all I would like to thank my Lord and Saviour Jesus Christ, for it is through Him that this research is a success.

Table of Contents

i

iii

List of Tables

List of Figures

Chapter 1. Introduction

1.1   Introduction

"The issue of finding ways to leverage micro-enterprises has increasingly become an area of interest for many researchers, particularly in developing countries" (Mutanu, Njuguna, & Wambalaba, 2013, p. 1). Information and communication technology (ICT) has become a major issue which is considered when it comes to developing strategies for development. ICTs such as the internet and mobile phones, amongst other technologies, have become pivotal in addressing socio-economic development problems. This has resulted in numerous projects that implement the use of ICTs being initiated in countries like South Africa (Kwami, 2010).

There has been an increasing number of information and communication technology for development (ICT4D) initiatives undertaken to improve the socio-economic conditions of the people in developing communities and regions (Pitula, 2010; Toyama, 2011). These ICT4D initiatives fall under different categories. Some examples of these initiatives are Universal Access Projects, Human Rights and Social Justice Initiatives, Healthcare Projects, Agro-Economy Projects and E-learning Projects (Joseph & Andrew, 2009) and more recently, with the introduction of mobile technologies, mobile empowerment initiatives.

The ICT4D initiatives themselves will not guarantee socio-economic improvement but significantly impact developing communities in some way (Meera, 2010). Being a developing country, in South Africa, government, non-governmental organisations and corporates have started to implement these new ICT4D initiatives in different areas.

1

1.2 Background of the study

The purpose of this research was to investigate the sustainability of mobile empowerment ICT4D initiatives using a research project named Mosaic 2B as a case study. The case study was a research project undertaken to empower the communities in rural South Africa through mobile technologies to improve the socio-economic livelihoods of micro-entrepreneurs (MEs).

Mosaic 2B was a European research project which aimed at developing and testing a new framework that used cloud-based applications (Mangold, 2012). This framework uses low-cost internet delivery mechanisms and affordable mobile technologies (Mosaic 2B, 2015; Mangold, 2012). This project was an effort to empower disadvantaged communities in developing regions.

The Mosaic 2B mobile empowerment project implemented in South Africa will be referred to as the Cinema-in-a-backpack project in the rest of this dissertation. This initiative was funded by the European Union (EU). Implementing the initiative was a consortium of companies which comprised of Associação CCG/ZGDV – Centro de Computação Gráfica (CCG), The Walt Disney Company (Switzerland) GmbH (DRZ), EPI-USE AFRICA (PTY) LTD (EPI), GMN - GraphicsMedia.net GmbH (GMN), INFUSION KNOWLEDGE HUB (PTY) LTD (INFUSION), UP - University of Pretoria (UP). These companies had different roles and responsibilities which supported the implementation of the ICT4D initiative. These roles will be explained further in Section 4.2.3.

These companies built upon the case of mobile cinemas which they use to run real life experiments. These experiments enable the organisations to look into economic and technological viability of implementing ICT4D projects for socio-economic empowerment (Mosaic 2B, 2015). The Mosaic 2B project built its case on the experience gained from similar projects undertaken by Disney Research Zurich in Nicaragua and in Vietnam.

2

The implementation of this project was guided by the Theory of Change (TOC). TOC is used for mapping the causality and interplay between elements offering an outcomes based approach. This applies critical thinking to the design, implementation and evaluation of initiatives and programmes intended to support change in their contexts (Vogel, 2012).

The Mosaic 2B project sought to find out if implementation of mobile technologies by local entrepreneurs can enable these entrepreneurs to access edutainment films through low cost mechanisms and use these to create successful businesses. By accessing edutainment films, the entrepreneurs could develop sustainable business models which allowed them to screen these in their respective communities. They should reach a point where the businesses would sustain themselves and enable these entrepreneurs to generate income and thereby develop their communities.

The research reported in this dissertation aimed to investigate the sustainability of ICT4D initiatives implemented in the developing communities of rural South Africa. The case study used for the purposes of this research was aimed at using ICTs to improve the livelihoods of micro-entrepreneurs in developing communities. The research analysed factors which need to be considered when looking at sustainable ICT4D projects intended to boost entrepreneurship using a sustainability model.

According to Tang, Musolesi, Mascolo, Latora and Nicosia (2010), mobile technologies have the capacity to reach remote areas at a low cost and they have relatively low physical infrastructure requirements in comparison to other ICTs such as fixed telephone lines. There are areas where the only option is to use mobile technologies rather than fixed ICTs. The barriers to entry for using mobile technologies are very low as most mobile technologies require only basic literacy.

1.3   Statement of the problem

There has been a growing effort in ICT4D research initiatives which have the capacity to promote micro-entrepreneurs (MEs) and boost their business activities,

3

but resources become wasted as little is done in ensuring sustainability of these ICT4D initiatives after the project sponsors stop funding and supporting the initiative.

1.4 Research questions

The main research question for this project is:

How can empowerment of MEs through access to mobile technologies allow for the development of a new business model that will support sustainability of the business?

Using the Mosaic 2B Cinema-in-a-backpack project as a case study, the researcher focused on the following sub-questions to answer the main research question:

- What is the Cinema-in-a-backpack project and how was it implemented?
- How did the participating MEs make use of the mobile technology provided to them?
- What were the positive experience and the challenges relating to the Cinema-in-a-backpack project?
- What were the outcomes of the Cinema-in-a-backpack project in terms of:
  1. Business models that emerged,
  2. Feasibility of low cost mechanisms to deliver multimedia content to MEs,
  3. Sustainability of the businesses that emerged?

1.5 Research objectives

The objectives of this study were:
- To describe how the Cinema-in-a-backpack project was implemented
- To determine what the success factors were, so as to build on those and also determine what the obstacles to success were, so as to counter those when developing future ideas,
- To determine what business models the MEs used to make their businesses a success,

4

- To determine if the low cost mechanisms to deliver multimedia content to MEs are feasible,
- To determine if the businesses developed from the Cinema-in-a-backpack initiative can sustain themselves.

1.6 Research methodology

This research takes the form of a case study. According to Oates (2006), a case study is often associated with the interpretive paradigm as the researcher is trying to gain insight into the nature of the world (ontology) and gain knowledge on why certain outcomes occur (epistemology) which may be unique to that situation.

The researcher used the Cinema-in-a-backpack project as a case study. The researcher used secondary data collected by the project coordinators, INFUSION, to gain knowledge on why certain outcomes occur. Both quantitative and qualitative data were collected over a period of six months through questionnaires and interviews with the MEs and also the community members who attended some of the movie screenings.

A detailed discussion of the methodology appears in Chapter 3.

1.7 Justification and rationale of the study

The researcher seeks to find out the viability of the provision of ICTs to MEs in developing regions when trying to impact the socio-economic livelihoods of developing communities and what factors should be considered when sustainability of the ICT4D initiative needs to be measured. The rationale behind the study is that there are a lot ICT4D research efforts which push for the socio-economic development of developing communities but do not focus on the sustainability of such projects after the sponsors funding the project pull out and there are no more institutions or sponsors monitoring the project.

5

The results of this study will help future ICT4D implementers to look out for factors that affect ICT4D sustainability. There are a lot of ICT4D research efforts which push for the socio-economic development of developing regions but they fail when there is no more external funding.

1.8 Delineations\Limitations

- The researcher focused on 14 MEs of the Nkangala district in Mpumalanga province. These 14 participants were chosen because they had gone through and completed an entrepreneurship course at the Council for Scientific and Industrial Research (CSIR).
- This research project is limited to the Cinema-in-a-backpack project and the documents which will be made available by the project coordinators from INFUSION, the University of Pretoria library resources, internet resources and the Cinema-in-a-backpack project case studies.
- The researcher was forced to keep to the timelines set by the Mosaic 2B project and hence this work needed to be finalised in a relatively short period of time.
- The timelines set resulted in the researcher having to use secondary data collected by INFUSION, therefore the researcher did not have an opportunity to experience the research field.

1.9 Abbreviations

BOP – Bottom of Pyramid

CCG - Associação CCG/ZGDV – Centro de Computação Gráfica

CSIR – Council for Scientific and Industrial Research

DRZ - The Walt Disney Company (Switzerland) GmbH

DTN – Delay Tolerant Networking

EPI - EPI-USE AFRICA (PTY) LTD

GMn - GraphicsMedia.net GmbH

ICT4D – Information Communication Technology for Development

INFUSION - INFUSION KNOWLEDGE HUB (PTY) LTD

MCU – Mosaic 2B Control Unit

MPP – Mosaic 2B Player platform

TOC – Theory of Change

UP - University of Pretoria

UX – User Experience

UI – User Interface

1.10 Definition of terms and concepts

BOP – The poorest socio-economic group that live on less than $2 a day.

DTN – An approach to computer networking that enables devices to connect to the internet and download bits and pieces of information whenever it encounters a connection to the internet until all the information is fully downloaded without restarting the downloads.

Feasibility – the extent to which a business venture can be implemented.

ICT4D – the implementation of information communication technologies in developing communities to improve their socio-economic livelihoods.

Mobile Technologies – Portable technological devices which allow users to communicate through the use of wireless technologies.

Sustainability – long term survival of a business venture, whilst generating enough income to keep itself running and also generating income for the owner to provide for his basic needs.

1.11   Brief chapter overview

A brief summary of the chapter contents in this dissertation follows.

1.11.1 Chapter 2: Literature review

In this chapter the researcher defines what ICT4D is. Past ICT4D projects are discussed looking at their implementation (Section 2.3), factors affecting their implementation (Section 2.4) and their sustainability (Section 2.5). A discussion on the expected outcomes of ICT4D initiatives (Section 2.6) follows. The researcher also discusses entrepreneurial ventures (Section 2.7) and their sustainability. The researcher completes the chapter by providing a review of business models (Section 2.8).

1.11.2 Chapter 3: Research design and methodology

In this chapter the researcher discusses the research paradigm (Section 3.2) used for the purposes of this research. The research paradigm was influenced by the type of study the researcher was carrying out. This is then discussed in the research methodology and design (Section 3.3). The researcher provides a description of the population, sample size and unit of analysis (Section 3.4). This is followed by a discussion on the various research instruments (Section 3.5) used and the data analysis methods (Section 3.6). The researcher ends the chapter by giving a brief description on the ethical issues (Section 3.7) concerning this dissertation.

1.11.3 Chapter 4: Case study description

The researcher discusses the case study description. The researcher discusses the case study (Section 4.2) by explaining the Cinema-in-a-backpack project (Section

4.2.1), the networking model used (Section 4.2.2). The roles and responsibilities of the Mosaic 2B consortium (Section 4.2.3) and the MEs background information (Section 4.2.4).

1.11.4 Chapter 5: Data presentation and analysis

In this chapter, the researcher discusses the data collected from the various research instruments presented in Section 3.5 which are data collected from questionnaires (Section 5.2) and interviews (Section 5.3). These helped the researcher answer the research questions and conclude the research in Chapters 6 and 7.

1.11.5 Chapter 6: Results pertaining to sustainability and business models

The researcher discusses the results pertaining to the business models (Section 6.2) and the sustainability of the businesses developed by the MEs (Section 6.3). The researcher concludes the chapter by explaining his research contribution.

1.11.6 Chapter 7: Summary of findings and conclusion

In this chapter the researcher answers the research questions not addressed in Chapter 6. The researcher then gives a summary of the research study by summarizing the data presented in Chapters 5 and 6, and reconcile this information with the information obtained in the literature review in Chapter 2 to formulate a meaningful contribution to IS research. Recommendations for future studies will then be discussed using the results obtained from this study.

Chapter 2. Review of Related Literature

2.1   Introduction

The aim of this review of the literature is to find out what studies have been done in the past which relate to the researcher's study in order to gain a broader base of knowledge. It is thus necessary to review the existing research relating to information communication technologies for development (ICT4D), sustainability of ICT4D, entrepreneurship, sustainability of entrepreneurship and business models.

2.2   What is ICT4D?

The effort to empower poor or disadvantaged communities or what is termed the bottom-of-the-pyramid (BOP) by giving them access to information and communication technologies, has come to be known as ICT4D (Pitula, 2010; Heeks, 2012; Brewer, Demmer, Du, Kam, Nedevschi, Pal, Patra, Surana & Fall, 2005). This is an effort to improve the socio-economic conditions of people in developing communities (Brewer, et al., 2005).

The components which make up ICT4D are information communication technologies (ICTs) and development. The purpose of ICTs is to facilitate transmission of data between two different points and to enable access to data through the use of various technological devices (Chepken, Mugwanya, Marsden & Blake, 2012; Moraa & Gathege, 2013). The other component of ICT4D, development, describes the development of communities leading to the socio-economic improvement of the livelihoods of the people.

Different technologies have been developed for research in developing countries and have had a significant socio-economic impact on developing communities (Chhachhar, et al., 2014). This has proved beneficial in terms of justifying the use of ICTs for economic development (Brewer, et al., 2005; Meera, 2010). These different technologies vary from water pumps to solar panels amongst other things and have impacted developing regions. However, implementation of ICTs does not guarantee economic growth and poverty eradication (Brewer, et al., 2005; Leye, 2009; Marais,

2011; Meera, 2010). As more research is being done in the field of ICT4D, there have been some pointers which indicate that accessibility to ICTs is not always beneficial to the economy (Brewer, et al., 2005; Chepken, et al., 2012).

Some authors argue that the improvement of the quality of life can be achieved through the implementation of ICTs in developing areas (Edim & Muyingi, 2010; Moraa & Gathege, 2013). Due to reductions in cost, increased portability and ease of use, there has been a rapid growth of ICT adoption in developing countries (Pitula, 2010; Toyama, 2011). This has created an opportunity to design new solutions to address economic disparities which are prevalent in developing regions. ICT4D is being used to close the gap between the less-developed communities and the developed ones, thereby addressing the critical differences in the world's socio-economic conditions (Chepken, et al., 2012; Pitula, 2010; Dittrich, Korpela, Macueve, Bekele, Kassboll & De La Harpe, 2014; Meera, 2010).

The disparities between the wealthy and the poor communities of the world are linked to a "digital divide" (Pitula, 2010; Moraa & Gathege, 2013). This refers to the differences or inequalities in the use of and access to ICTs between the two communities, which lead to only the wealthy communities benefiting from the use of ICTs. Therefore the deployment of ICTs in developing areas must consider that there should be equal access to ICTs in the poor communities so that the poor communities feel empowered (Brewer, et al., 2005).

Moraa, et al*.,* (2013) investigated how the introduction of technologies has contributed to the development of local entrepreneurs' skills and innovation growth so as to improve their socio-economic conditions. They surveyed different ICT hubs spread around seven countries in Africa. The study used various indicators to select the different hubs, such as their sustainability models, how old the hubs were from their day of establishment, and the number of partners supporting the initiative, amongst other things. They revealed that creation of these hubs had a significant impact on the improvement of the livelihoods of the community on the socio-economic front through the following:

1. Job creation. The ICT hubs enabled entrepreneurs to explore new business ventures.
2. Innovation growth. Entrepreneurs came up with more innovative ideas like TorQue - an innovation from kLab in Rwanda which assisted in improving communications between businesses and clients.

In conclusion, ICT4D initiatives can help foster economic growth therefore improving the socio-economic livelihoods of poor communities. ICT4D initiatives help bridge the gap between the digital divide and allow poor communities to access ICTs, and lastly these initiatives lead to job creation and innovation growth. In the next section the researcher will discuss different approaches and categories of ICT4D research initiatives and what motivates an ICT4D initiative implementation.

2.3   Implementing ICT4D initiatives

There has been debate on the use of the word 'development' in the title ICT4D. The debate acknowledges that the cause of ICT4D is noble but questions who decides what has been developed, to what extent it has been developed and what has not been developed (Merritt, 2012). ICT4D research can take different development perspectives with different focal points. One development perspective focuses on economic growth and the other on participation and empowerment, which is a human development approach (Marais, 2011; Unwin, 2009).

Human development approaches can be divided into techno-centric and socio-centric approaches. The provision of ICTs to the communities and giving the community access to these ICTs is called techno-centric. With this kind of approach, those who provide ICTs and access to it disregard the actual needs of the developing community and still expect development to happen. A socio-centric approach focuses on the people and puts their development needs first (Chigona, Pollock & Roode, 2009; Marais, 2011). The end result of the human development approaches is that there should be socio-economic development, whether the approach is people-oriented or not.

12

ICT4D initiatives can also be sub-divided into two categories which are market-led and socially-led ICT4D initiatives. Market-led ICT4D initiatives focus on economic growth and socially-led ICT4D initiatives emphasise equality of access to ICTs (Unwin, 2009).

ICT4D initiatives primarily focus on the BOP. The BOP is made up of 4 billion people, which is over half of the estimated world population that live on $8 or less a day (Hammond, et al., 2007). According to Pitula (2010), almost 3 billion of the BOP live on $2 or less per day. ICT4D aims to improve the livelihoods of these people by improving their socio-economic conditions. Prahalad (2004) also argues that doing business with the BOP could be quite profitable if products and services that are accessible, affordable and relevant to the BOP are developed.

According to Heeks (2008), motivation for implementing ICTs for the poor communities in developing countries and regions includes the following:

1. ICTs can be used to address the world's bigger problems, and the poor communities of the world live on the frontline of these problems. Heeks (2008) firstly looks at the moral argument, namely that most ICT projects tend to serve the wealthy. The reason for this is simply, "that's where the money is". The reason for doing this can easily be justified, because of the financial benefits, therefore turning a blind eye to the poor communities is easy.

2. Enriching the poor will minimise the risk of the wealthier who are at the top of the pyramid and are also being affected by the poor communities' problems. This is purely enlightened self-interest. As the world increasingly becomes a global village, the problems plaguing the poor communities might eventually plague the wealthy. This can be caused by various factors which may include terrorism, migration and disease epidemics. Preventing this is therefore in the best interest of the unaffected communities.

3. It is interesting to come up with a unique solution to a problem affecting a lot of people. We call this personal self-interest. Designing a system for a poor

nation is simply quite interesting and poses more challenges than developing a system for improving an already wealthier nation.

These three reasons mentioned by Heeks highlight the aspect of development of poor communities. Not in complete agreement, Brewer, et al., (2005) point out other factors which contribute to the success of ICT4D projects.

According to Brewer, et al., (2005), the age we are living in is a good time to implement ICTs in developing countries. They focus on three things that make it viable to implement ICTs now:

1. According to Moore's law, there has been a significant decrease of computing costs for users when it comes to shared infrastructure. Independent costs incurred by using personal devices are far greater than the cost of using shared infrastructure.

2. There has been an increase in the amount of wireless communication in the form of Wi-Fi and mobile phones, thereby reducing the cost of using this kind of technology.

3. Ubiquity of technology worldwide and growing access to investment capital have created opportunities for entrepreneurs.

Various development institutions have highlighted the benefits of implementing ICTs for the development of the world economy. These include the World Bank, the Digital Opportunities Task Force of the G8, and the World Summits on the Information Society. Their participation was critical in the establishment of ICT4D policy formations and to help highlight the role ICTs can play in development (Chepken, et al., 2012; Heeks, 2012).

The rise of ICT4D was initially attributed mainly to the International Development Goals in 1996 and then the Millennium Development Goals (MDGs) in 2000. The MDGs were put in place by the United Nations to ensure the reduction of poverty,

while improving the health and education systems (Heeks, 2008; Pitula, 2010; Moraa & Gathege, 2013).

In conclusion, ICT4D initiatives may follow different development perspectives which are economic growth and human development, and both lead to socio-economic development. ICT4D can also be subdivided into two categories which are socially-led ICT4D which focuses on equality of access, and market-led ICT4D which focuses on economic growth. The researcher has also discussed that ICT4D initiatives are primarily targeted at the BOP. They are used to address the world's bigger problems and the world's poor live on the frontline of these problems. Also, they can prevent the problems of the poor communities from affecting the wealthy in the future. Personal self-interest of coming up with a unique solution to a problem affecting a large population has been identified as a third motivating factor. Factors which make it viable to implement ICTs in this age are: Moore's law proving that there are less computing costs when using shared infrastructure; increase in Wi-Fi usage and mobile phones; and lastly the ubiquity of technology worldwide.

2.4 Factors affecting ICT4D implementation

Considering ICT4D as an amplifier for development has brought to light issues which need special attention surrounding the implementation of ICTs in developing communities. This is to ensure a smooth implementation of ICTs in developing communities (Brewer, et al., 2005; Toyama, 2011).

According to Toyama (2011), technology, in as much as it can help develop communities through various ways, will not work if there is no intent for development on the part of the communities receiving access to these technologies. Secondly, there are inequalities between wealthy and poor communities which are amplified by the implementation of ICTs in poorer communities. Thirdly, Toyama highlights that ICT projects have more success when they are implemented in already successful developmental efforts. He argues that ICT4D projects struggle when they try to implement new solutions aimed at fixing a specific problem.

15

Moraa, et al., (2013) concluded that in a bid to implement sustainable ICTs, there should be a combination of entrepreneurs, monitoring and evaluation administrators and partners assisting in various areas such as research, science and development, and human resources. There is also need for skill development for entrepreneurs to be competitive in the business environment and a need to have sustainable programs incorporated into the implementation of various entrepreneurial activities. Research by Moraa, et al., also brought to light the challenges that can be encountered when implementing ICT4D across Africa. Challenges identified were slow internet connectivity and infrastructure problems.

Implementation of ICT4D projects has the following core requirements: connectivity, low-cost devices, suitable user interfaces and electricity (Brewer, et al., 2005). Connectivity in less developed areas is a challenge because there might be no network coverage, or the wireless networks may only have coverage in small parts of the community, or carry a weak signal. This is largely attributed to current networking technologies not being available in some parts of the developing countries. Due to the challenges presented by connectivity, cost effective methods which do not prioritise timeliness, such as Delay Tolerant Networking (DTN), explained in Section 4.2.2 are being implemented so that ICT4D projects become feasible (Galati, Bourchas, Siby, Frey, Olivares & Mangold, 2014; Brewer, et al., 2005).

Communities implementing ICT4Ds are developing communities, therefore the need to run ICT4D projects with low cost devices. These low cost devices should be within the reach of the community and not expensive to maintain such that when they get damaged, the people who are partaking in the project do not struggle to repair or maintain them.

To deal with issues of literacy, the ICTs should not have complex user interfaces. Developing communities do not necessarily have low literacy levels (Heeks, 2008) but to enable ease of use, the ICTs being implemented need to have interfaces which are user friendly.

16

Electricity is required to power up the devices being used for ICT4D projects. Lack of power or power outages in developing regions might hinder implementation of ICT4D projects. Therefore there is the need to have ICTs which can use other forms of power other than electricity, which may be solar or battery powered devices.

In conclusion, when implementing an ICT4D initiative, the following core requirements should be considered: connectivity, low cost devices, user friendly interfaces and electricity. There should also be entrepreneurs running the ICT4D initiatives, monitoring and evaluation partners, and research partners.

2.5   Sustainability of ICT4D initiatives

The literature regarding ICT4D describes five different types of sustainability. According to Pade, Mallinson and Sewry (2006) most research about sustainability is focused on a project's ability to be financially sustainable (Toyama, 2009), meaning that the project should be able to cover its own costs without external support in order to be continuously operative. Sustainability in ICT4D covers many more aspects other than financial or economic sustainability. Four additional types of sustainability which should be considered when implementing ICT4D initiatives are institutional, technological, social and environmental sustainability (Ali & Bailur, 2007; Proenza, 2001; Delgadillo, Gomez & Stoll, 2002; Kumar, 2005). Pade-Khene, Mallinson and Sewry (2011) also describe five sustainability aspects, but they replace environmental sustainability with political sustainability.

For the purposes of this research, we will consider the following five sustainability issues: economic, institutional, social, technological and environmental sustainability. This researcher considered political sustainability as part of institutional sustainability because implementing these ICT4D initiatives is a highly political process (Ali & Bailur, 2007; Kuriyan, Ray & Toyama, 2006).

2.5.1   Social and cultural sustainability

Social and cultural sustainability mainly requires user buy-in and participation. It therefore focuses on how an ICT4D initiative operates within the social and cultural

context of the community in which the project is being implemented and how the project responds to this context (Ali & Bailur, 2007; Pade, et al., 2006; Pade-Khene, et al., 2011). When an ICT4D project is implemented, it is imperative that the social and cultural aspects of the community be taken into consideration. Social sustainability ensures that local traditions are taken into account, marginalized groups are empowered, the ICT4D projects adapts to the evolving needs of the community, and differences within the community are considered (Ali & Bailur, 2007; Delgadillo, et al., 2002). When the community feels empowered by an ICT4D initiative, they start seeking ways in which the project can keep on running (Pade, et al., 2006; Ali & Bailur, 2007). Social unsustainability results when the gap between those benefiting from the project and those who are not, is irreconcilable (Kumar & Best, 2006; Ali & Bailur, 2007). Measuring social sustainability is complex because of the lack of appropriate indicators (Ali & Bailur, 2007; Mansell & Wehn, 1998).

2.5.2 Technological sustainability

Technological sustainability focuses on the technology being used for the ICT4D initiative. The focus is on the possibility of the technology to be used for an extended period of time (Pade, et al., 2006; Ali & Bailur, 2007; Misund & Hoiberg, 2003). The technology which is used in the developing communities for ICT4D projects should be simple to operate, flexible, maintainable and robust, and technical personnel should be readily available for maintenance in case there is need for their services (Ali & Bailur, 2007; Pade, et al., 2006; Kiggundu, 1989). Technological sustainability is tied in with financial sustainability - as there are major shifts in technology, there is a need to update hardware and software and operational costs need to be covered. It is however not really necessary to use the latest technologies used in ICT4D initiatives but to ensure that the technologies used remain sustainable (Ali & Bailur, 2007; Pade, et al., 2006)

2.5.3 Economic sustainability

The greatest challenge for many ICT4D initiatives is financial sustainability as these initiatives are often donor funded for a specific period of time (Kumar & Best, 2006; Ali & Bailur, 2007; Hudson, 1999; Pade, et al., 2006; Pade-Khene, et al., 2011).

Economic sustainability refers to the ability of an ICT4D project to generate enough revenue to be able to meet its maintenance and operational costs (Ali & Bailur, 2007; Pade, et al., 2006; Pade-Khene, et al., 2011). The ICT4D project should be able to cover its expenditure. ICT4D projects are initially funded by external organisations and these organisations meet most of the expenses during the project run, but after the project has ended the project participants should be able to develop cost recovery mechanisms by themselves which enable the project to continue (Pade, et al., 2006; Hudson, 1999).

It is important to note that there are two opposing objectives which become problematic to the implementation of ICT4D projects and ensuring financial sustainability of the initiative. These opposing objectives are generating sufficient income to keep the project running, whilst ensuring that there is also equal access to opportunities for those who cannot pay for access (Kumar, 2005; Kuriyan, et al., 2006; Ali & Bailur, 2007).

2.5.4 Institutional sustainability

Institutional sustainability refers to the buy-in of key institutional actors which could be public or private sector organisations (Ali & Bailur, 2007; Pade, et al., 2006; Kumar & Best, 2006). Implementing an ICT4D initiative is a highly political process that affects the development efforts of a community and a country as a whole, so to implement these projects the ICT artefact needs to become institutionalized and the political actors involved need to accept it so as to maintain its legitimacy (Avgerou, 2000; Avgerou, 2003; Pade, et al., 2006; Ali & Bailur, 2007; Kuriyan, et al., 2006; Pade-Khene, et al., 2011). Once the ICT artefact has been accepted by society as a means to an end, it can then be maintained as a legitimate ICT4D initiative regardless of the results of the ICT4D initiative (Ali & Bailur, 2007; Avgerou, 2003). Therefore sustainability can be achieved by putting structures and laws in place that ensure that livelihoods of the developing communities can be continuously improved through capacity building, and developing relevant local ICT content (Pade, et al., 2006; Pade-Khene, et al., 2011).

19

2.5.5 Environmental sustainability

Environmental sustainability mainly looks at the disposal of the technologies used in the ICT4D projects. An example would be the safe disposal of printer cartridges. It involves planning for the disposal or reuse of ICT equipment when it reaches the end of its effective life (Kumar & Best, 2006)

In conclusion, an ICT4D initiative should be sustainable in all the five different areas of sustainability: environmental, financial, technological, institutional and social sustainability, for it to be considered a sustainable initiative. Ali, et al., (2007), argued that sustainability of ICT4D initiatives is actually achievable when all five factors come together but are hard to operationalize and the majority of ICT4D projects fail (Heeks, 2002; Ali & Bailur, 2007).

2.6 ICT4D initiative outcomes

According to Marais (2011) ICT4D implementers need to learn from each other's mistakes or from their counterparts' good practices. There is a tendency for ICT4D projects to be implemented in a top-down or supply led fashion without considering what could be learnt from previous initiatives (Marais, 2011; Kleine & Unwin, 2009).

There are a number of reasons why an ICT4D project can fail. According to Heeks (2002), the end result of implementing an ICT4D project can only result in one of the following: total failure, partial failure or success. Heeks described total failure as when the project ended up not being implemented at all, or when the project was implemented but was abandoned before there were any results. The project could have spent a whole year in the planning, analysis and design stages, but if it is not implemented, the project is considered to have failed totally.

Partial failure is when the project has been completed but the major goals of the ICT4D project were not achieved. The project could have produced an undesirable outcome or it could have achieved only a sub-set of the stated objectives.

20

A successful ICT4D project is one where the project achieved its goals. In the case of a successful project, no undesirable outcomes were experienced for the duration and after the project. An example of a successful ICT4D initiative implemented is M-PESA, a Kenyan mobile money service that has grown since its launch in March 2007 (Mas & Morawczynski, 2009).

The assessment to determine the success or failure of a project is to a certain extent subjective, because it might be dependent on who set the goals and who experienced the undesirable outcomes (Pade, et al., 2006; Heeks, 2002). The success of a project is usually viewed from two perspectives. One perspective is from the party that is funding the ICT4D project, and the other perspective is from the research participants or beneficiaries of the project (Van Belle & Trusler, 2005).

In conclusion, there are three types of ICT4D initiatives outcomes: total failure, partial failure and a successful outcome. It is important to note that the success or failure of an ICT4D initiative is generally viewed from two different perspectives which are from the funder's perspective and from the beneficiaries of the project.

2.7   Entrepreneurial ventures

There is also a need to study the sustainability of new businesses that entrepreneurs venture into through ICT4D initiatives. In order to fully grasp the concept of sustainability of the business ventures of the entrepreneurs, the researcher has divided this section into three parts. Firstly the focus will be on the entrepreneur, then the sustainability of their new business ventures in an effort to develop the community, and lastly on business failure and the reasons for it.

2.7.1   Entrepreneurs

Entrepreneurship has become the backbone for the growth of economies as they play a major role in ensuring economic stability and growth and creation of employment opportunities (Arasti, Zandi & Bahmani 2014; Hoque, Khan & Mohammad, 2015). Despite small to medium enterprises (SMEs) being flexible and

21

adaptable, they still face a lot of challenges (Arasti, et al., 2014) and entrepreneurs should put much emphasis on increasing their chances of survival.

Entrepreneurs are economy growth drivers because their activities are vital for a country's economic growth (Hoque, et al., 2015). According to Hoque et al. (2015) the process of entrepreneurship helps create economic value by exploiting business opportunities to achieve business success. Entrepreneurship helps alleviate poverty, henceforth the growing interest amongst researchers in the activities of entrepreneurs (Arasti, et al., 2014; Hoque, et al., 2015).

2.7.2 Sustainability of entrepreneurial ventures

For the purposes of this research the term "sustainable" is used when referring to economic and livelihood practices that are carried out for an indefinite period of time and are able to improve the livelihoods of the community in such a way that they do not jeopardise the survival of the communities (Ameyaw, 1992; Ali & Bailur, 2007). Therefore sustainable development refers to ensuring resource conservation and improvement of the livelihoods of the community.

The general meaning of sustainable development was considered only to be part of economic growth but now it encompasses political, legal, cultural, ethical and social dimensions (de Britto, 2011). This provides for long term survival of the development initiative as it brings into consideration all factors which may lead to business failure. In an ICT4D context, the five sustainability factors as discussed before include social, economic, political/institutional, environmental and technological sustainability (Ali & Bailur, 2007; Pade, et al., 2006).

In the context of ICT4D, it is very important that sustainability is understood at a local level more than at a national level as the local populace is the one directly responsible for the sustainability of development initiatives directed at them (Ameyaw, 1992). The local population should be educated on the concept of sustainability as they are the backbone of the development initiative. If the

communities do not understand what sustainability entails and how to achieve it, then this may lead to ICT4D implementation failure.

There are a number of factors which have been identified to be able to develop "qualified" entrepreneurs who will be able to achieve business success. There is need for skill building and monitoring and evaluation (Hoque, et al., 2015; Arasti, et al., 2014). The training of individuals on necessary skills for managing a business is of utmost importance as it has a significant impact on achieving business success. Prior to the running enterprises, training programmes covering necessary entrepreneurial skills which are technical, human and conceptual, should done by the entrepreneurs.

There are also a number of factors that have been directly linked to the entrepreneurs themselves. According to Arasti, et al*., (2014), entrepreneurs need to have the motivation to venture into new business efforts, and have the qualities of a leader. They describe the importance of having a qualified entrepreneur to start up a business venture which would be able to survive in the long term. A qualified entrepreneur is one who has received basic management and financial training. This highlights how the capabilities of the entrepreneur to run the venture are critical for the survival of the newly established business.

In conclusion, the general sustainability definition of entrepreneurial ventures encompasses political, legal, cultural, ethical and social dimensions and this, merged into the ICT4D dimension, becomes specific for ICT4D initiatives. The definition now encompasses institutional/political, social, technological, environmental and financial sustainability. These factors of sustainability should be considered at a local level as the local population is the one directly involved with the project.

2.7.3 Business failure

According to Arasti, et al., (2014), business failure refers to insolvency, bankruptcy, dissolution, and entrepreneurial exit among other things which then lead to the discontinuation of the venture. Entrepreneurs need to be educated about such

23

events in order to counter such failures. Entrepreneurs may prepare for challenges which affect their businesses but they also need to be aware that there are business challenges which cannot be predicted completely and may lead to failure (Arasti, et al., 2014). In order to ensure that business start-ups remain viable, the factors which may lead to failure need to be studied so that entrepreneurs are prepared in the event that the business is threatened by discontinuation.

Business growth is influenced by both internal and external factors and it is usually a combination of these factors which lead to business failure. Internal factors are things which mostly involve the entrepreneurs themselves such as the lack of skills to develop a business venture. The most common external factors are unfavourable economic conditions and inadequate infrastructure (Arasti, et al., 2014).

The failure rate of new start-ups is very high because of increased competition and lack of preparation for unforeseen events (Arasti, et al., 2014). The most common cause of failure for entrepreneurial ventures is discontinuance of the venture effort before it reaches its peak. Entrepreneurs eventually give up on their efforts if it takes time to reap benefits. Arasti, et al., (2014) go on to point out that the hindrance to survival and development of entrepreneurs is inadequate institutional support, followed by issues such as liquidity constraints and lack of innovation.

2.8   Business models

The notion of a business model is rather conceptual and it has no established theoretical grounding in economics or business studies (Teece, 2010). After the establishment of a business enterprise, it either explicitly or implicitly employs a business model. The business model describes the value creation architecture the business venture employs (Teece, 2010; Amit & Zott, 2001). The essence of a business model is in defining the manner by which the enterprise delivers value to customers and makes them pay for that value and then converts those payments to profits (Teece, 2010). It mainly focuses on what the customer wants, how they want it, how the business is best able to handle the customer's needs, getting paid for meeting the customer's needs and making a profit (Teece, 2010).

24

Teece (2010) makes implicit assumptions about customers' needs, customer responses, the revenue and costs associated with the product and competitor responses.

A business model can be developed by following the following steps:

1. Selecting a product - selecting a product and the features that come with it.
2. Determine customer benefits - the business needs to determine how a customer benefits from using the product.
3. Identify market segments - the business needs to identify market segments it wishes to target.
4. Confirm revenue streams - confirm how the enterprise is going to earn revenue from the product.
5. Design mechanisms to capture value - now the organisation has to design a mechanism in which it creates and delivers value to its customers, therefore they get paid via the revenue streams and convert those payments to profits.

Figure 2.1 illustrates Teece's (2010) business model.
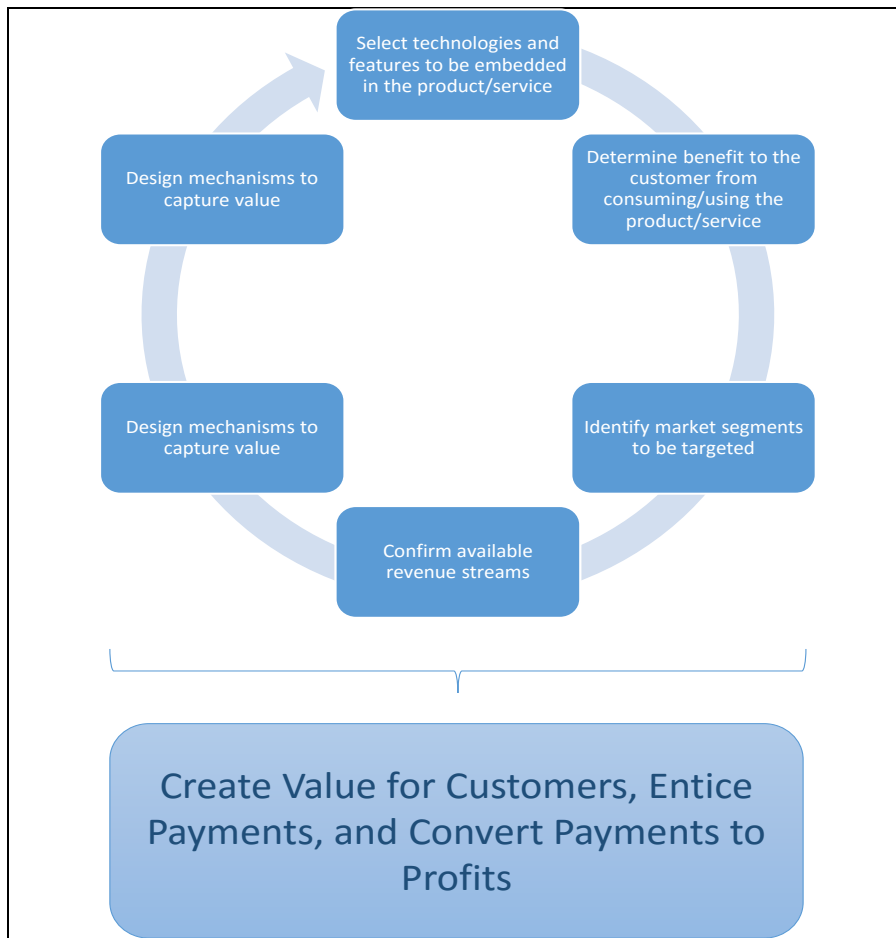
Source: (Teece, 2010)

Figure 1: Elements of business model design

2.9   Summary

Through this literature survey, the researcher found out that ICT4D initiatives can help foster economic growth, therefore improving the socio-economic livelihoods of poor communities. These initiatives help bridge the gap between the digital divide and enable poor communities to access ICTs and lastly these initiatives lead to job creation and innovation growth. Different development perspectives can be taken, namely an economic growth approach or a human development approach, but they both seek to accomplish one goal: socio-economic development. ICT4D can also be subdivided into two categories which are socially-led ICT4D which focuses on equality of access and market-led ICT4D which focuses on economic growth. ICT4D initiatives are primarily targeted at the BOP. They are used to address the world's bigger problems and the world's poor live on the frontline of these problems. They

26

are used to prevent the problems of the poor communities affecting the wealthy in the future and there is personal self-interest of coming up with a unique solution to a problem affecting a large population.

There are various factors which make it viable to implement ICTs in this age: Moore's law proving that there are less computing costs when using shared infrastructure, increase in Wi-Fi usage and mobile phones, and lastly the ubiquity of technology worldwide. When implementing an ICT4D initiative, the following core requirements should be considered: connectivity, low cost devices, user friendly interfaces and electricity. There should also be entrepreneurs running the ICT4D initiatives, monitoring and evaluation partners, and research partners.

A sustainable ICT4D initiative should be able to sustain five different areas of sustainability. It should be environmentally, financially, technologically, institutionally and socially sustainable for it to be considered a sustainable initiative. The general sustainability definition of entrepreneurial ventures encompasses political, legal, cultural, ethical and social dimensions and this, merged into the ICT4D dimension, becomes specific for ICT4D initiatives and the definition now encompasses institutional/political, social, technological, environmental and financial sustainability. These factors of sustainability should be considered at a local level as the local population is the one directly involved with the project.

There are three types of ICT4D initiative outcomes: total failure, partial failure and a successful outcome. It is important to note that the success or failure of an ICT4D initiative is generally viewed from two different perspectives, namely the funder's perspective and from the beneficiaries of the project's perspective. The challenges entrepreneurs may face which may lead to liquidity are a lack of innovation on the part of the entrepreneur, a lack of managerial skills, liquidity constraints and a lack of institutional support.

In the following section, the researcher is going to discuss the research design and methodology.

Chapter 3. Research Design and Methodology

3.1   Introduction

In this chapter, the researcher discusses the research paradigm used for this study. The research paradigm helps the researcher understand the world in a certain way and how the world can be studied from that different viewpoint. The researcher will go on to explain the research design and methodology as well as the different methods of data generation and how the data will be analysed.

3.2   Research paradigm

The most prominent philosophical paradigms are positivism, interpretivism and critical research. A paradigm is a set of shared assumptions about certain phenomena. These paradigms each have a different view on the nature of the world (ontology) and they support different ways to gain insight and knowledge (epistemology) about the nature of the world (Oates, 2006).

The positivist paradigm uses scientific methods to study the world. It is based on the following two assumptions: firstly, that the world is set in a specific structure, and secondly, that the world can be researched objectively. The positivist paradigm is usually concerned with testing hypotheses (Oates, 2006).

The interpretivist paradigm is based on understanding the social context and social processes by which a certain outcome occurs. The interpretivist paradigm is not used for disproving or proving a hypothesis, but it is used to help the researcher identify, explore and explain aspects of a particular social setting and how these are related and interdependent. The difference between the interpretivist paradigm and the positivist paradigm is that the interpretivists look at the nature of the world subjectively and positivists look at the world objectively (TerreBlanche & Durrheim, 1999).

28

According to Oates (2006) the critical research paradigm is used when the researcher wants to identify power relations, conflicts and contradictions, and to empower the society to eliminate these as a source of domination and alienation.

For the purposes of this research, the researcher followed the interpretivist paradigm. This is justified accordingly as the researcher sought to gain insight into the nature of the world (in this case the world of the micro-entrepreneur (ME)) and gain knowledge on why certain outcomes occur (i.e. why their businesses fail or succeed). The researcher assumes that people's subjective experience in the world is real and therefore should be taken seriously and these experiences can be best understood if the researcher interacts with the people and listens to what they have to say about particular occurrences (TerreBlanche & Kelly, 1999). This paradigm heavily relies on first-hand accounts of occurrences (TerreBlanche & Kelly, 1999). This is reflected in the methods described below.

3.3 Research design and information gathering methodology

This research takes the form of a case study. According to Oates (2006), a case study is often associated with the interpretive paradigm as the researcher is trying to gain insight into the nature of the world (ontology) and gain knowledge on why certain outcomes occur (epistemology) which may be unique to that situation.

"A case study focuses on one instance of the 'thing' that is to be investigated: an organization, a department…" (Oates, 2006, p. 141). This is done through a variety of data collection methods. Case studies are best suited when a researcher wants to obtain a rich and detailed analysis of a particular case by studying the complex relationships and the processes involved.

The researcher is going to use the Mosaic 2B Cinema-in-a-backpack project as a case study. The Cinema-in-a-backpack project builds its case upon mobile cinemas whilst running real life experiments which seek to look at the technological and economic viability of running ICT4D projects for socio-economic development of

29

developing regions. The Cinema-in-a-backpack project was implemented in the Nkangala district in Mpumalanga province of South Africa.

For this research, in a bid to find out the factors affecting the sustainability of ICT4D initiatives, a case study was found most suitable as it helps the researcher find out how and why a certain outcome occurs for a given situation. There is no hypothesis being tested for this study, but instead, there is knowledge gained from studying an instance of a situation.

According to Oates (2006), a case study is characterised by the following:
- It focuses more on depth than breadth. It is good for gaining insight of phenomena,
- The study is conducted in its natural setting,
- The study is holistic, it does not isolate individual factors thereby looking at complex relationships and processes and how they are inter-twined,
- Multiple data generation methods can be used to obtain information regarding the research.

The Cinema-in-a-backpack project case study is a descriptive study. This helps in describing the characteristics about the population being studied (Oates, 2006). The reason for doing a descriptive study is because it helps the researcher to gain insight and knowledge as it involves a rich and detailed analysis of phenomena. This case focuses on one main aspect of what is being studied. This aspect is the sustainability of an ICT4D initiative which is the Cinema-in-a-backpack project. The reason why the researcher chose this ICT4D initiative is because it is a typical ICT4D project undertaken to improve the socio-economic livelihoods of people in developing communities.

3.4   Population, sample size and unit of analysis

A group of individuals considered to be useful in the collection of required information for the purposes of research is referred to as a population (Borg & Gall,

30

1989). The population for this study consists of all the potential MEs using ICTs in an ICT4D initiative in developing regions.

3.4.1 Sample size

According to Oates (2006), the sample size for a research study should adequately represent the whole population. INFUSION KNOWLEDGE HUB (PTY) LTD (INFUSION) an organisation which has been working on the Cinema-in-a-backpack project since its inception, identified, screened and selected 14 MEs that would be representative of this population.

3.4.2 Unit of analysis

The unit of analysis are the MEs and the businesses they developed in the context of the Cinema-in-a-backpack project.

3.5 Research instruments

Research instruments are the different methods used for data collection. The researcher used data collected by INFUSION. There were different research instruments used to provide both sufficient data and a wide variety of data types (Mosaic 2B, 2014).

The instruments discussed below were developed and administered by INFUSION.

3.5.1 Questionnaire

A questionnaire is a document containing a predefined set of questions which have been listed in a specific order (Oates, 2006). This set of questions usually starts with very simple questions building up to much harder questions which guide the respondent in answering the questionnaire.

When analysing the data collected by the project coordinators, the researcher considered the following benefits of questionnaires according to Oates (2006):

31

- Respondents have time to carefully consider their responses before they write down their answers.

- Questionnaires allow for anonymous input therefore giving respondents a degree of freedom when responding which allows for the production of precise information.

- They are very economical to administer and allow the researcher to save time.

- Participants can easily administer questionnaires and researchers are able to analyse questionnaires easily (Oates, 2006).

- If the questionnaires are anonymous, the research participants are able to express their opinions without fear of having their responses traced back to them (Olivier, 2004).

The researcher also had to consider the disadvantages questionnaires have according to Oates (2006).

Disadvantages
- The questionnaire would not be easy to administer to a group of respondents with poor literacy skills (Oates, 2006).

- Lack of personal communication between the researcher and the respondent could result in the variation of interpretations of questions which can then compromise the validity of the information which has been provided by the respondents (Oates, 2006).

- There could be lack of cooperation from some respondents who do not respond to all of the questions or who do not return the questionnaires provided to them.

- The research participants are limited to the questions on the questionnaire, therefore they might not have their views expressed in full (Oates, 2006).

The questionnaires for the Cinema-in-a-backpack project were distributed prior to project commencement (baseline) and at the end of the project (endline) (Mosaic 2B, 2014). A "baseline" refers to a study done at the beginning of a project to establish the current status of a population prior to project commencement (Mosaic 2B, 2014).

For the purposes of this dissertation, the questionnaire distributed by INFUSION at the beginning of the project is referred to as the baseline questionnaire, whilst the same questionnaire distributed at the end of the project is referred to as the endline questionnaire.

The questionnaires distributed by INFUSION to the MEs contained semi-structured and structured questions. The questionnaires appear in Appendix B and Appendix C. All questionnaires collected quantitative and qualitative data. Each one is described below:

Socio-economic baseline and endline survey
These questionnaires were used to obtain information on the socio-economic status of the MEs prior to project commencement and at the end of the project. They provided a demographic profile of the ME and household and current circumstances (Mosaic 2B, 2014). The researcher used the data collected from the MEs to answer some of the research questions and fulfil some of the research objectives related to the MEs' socio-economic status.

Technology baseline and endline survey
These questionnaires were used to obtain information on particular aspects of technology in relation to the MEs prior to project commencement and at the end of the project. Firstly the questionnaires explored each ME's level of technology exposure and usage as the nature of the project is facilitating the success of a technology-based ME. Secondly the technology baseline had a sub-questionnaire called the technology acceptance survey. This explored the ME's engagements with the cinema-in-a-backpack and all the other technology components (Mosaic 2B, 2014). The researcher used the data collected from the MEs to answer some of the research questions and fulfil some of the research objectives related to technology.

Employment baseline and endline survey

These questionnaires were used to obtain information on particular aspects of the MEs' employment status and information regarding their entrepreneurial activities. It offered insight into previous work experience and future aspirations for both employment as well as entrepreneurship (Mosaic 2B, 2014). The researcher used the data collected from the MEs to answer some of the research questions and fulfil some of the research objectives related to the MEs' employment status and entrepreneurship.

In-field monitoring: Audience satisfaction survey

These questionnaires explored customer satisfaction with the Cinema-in-a-backpack experience.

3.5.2 Interviews

Interviews enable the researcher to know the research participants intimately rather than the participants just filling in the questionnaires and returning them to the researcher (TerreBlanche & Kelly, 1999). Interviews were used as part of the data collection by INFUSION for the Cinema-in-a-backpack project.

According to Oates (2006), interviews offer the following benefits:
- They enable the researcher to obtain information which is rich in detail,
- They are relatively cheap as it they are mostly dependent on the researcher's social skills,
- They are flexible as researchers are able to adjust their line of inquiry,
- Respondents find it easier to talk to someone than jotting down answers.

Interviews also have their own disadvantages which are:
- They could mislead the researcher as respondents say things which are not really the case on the ground,
- They could lead to bias as the respondents might be influenced by the fact that their answer are being put on record,

- They require good social skills on the part of the interviewer (TerreBlanche & Kelly, 1999). If the researcher lacks good social skills, it could become a tiresome process for both parties.

The researcher used the information obtained from the one-on-one entry and exit interviews (see Appendix A) which were conducted by INFUSION. There were also questions asked during a focus group interview around the middle of the project timeline. The information obtained from both the focus group interviews and one-on-one interviews is qualitative and was analysed using qualitative methods. These different interview approaches are further discussed below:

Entry interviews

These interviews explored each ME's goals for their intended cinema ventures, the way they expected to spend money earned from the venture and also the greatest risks and opportunities they anticipated when carrying out the Cinema-in-a-backpack project.

Exit interviews

The exit interviews explored each ME's experience with the cinema-in-a-backpack, the profits/losses they made, their successes and failures, lessons learnt, and the business models they employed. The MEs were video-recorded for the exit interviews.

Focus group interviews

These interviews explored the challenges and positive outcomes the MEs faced when implementing the Cinema-in-a-backpack project. The MEs were divided into three groups and had a discussion based on their results. This discussion was video-recorded and the MEs' feedback is attached in Appendix L.

These interviews gathered information on the progress of each ME as the project was running. These interviews gathered information on the MEs' overall assessment of their businesses, their marketing tactics and ideas, the content that was working and not working in their environment and the performance of the technology they were using.

3.6   Data analysis

The data analysis was done by the researcher so as to place real life events into perspective (TerreBlanche & Kelly, 1999). Data analysis enables the researcher to study the complexity of relationships and the processes involved (Oates, 2006). The researcher carried out two types of data analysis. The data collected by INFUSION for the Cinema-in-a-backpack project contains both quantitative data and qualitative data. This data was analysed through the use of quantitative analysis methods and qualitative analysis methods.

3.6.1   Quantitative analysis

Quantitative data analysis is used when the researcher has to draw conclusions upon well-established mathematical and statistical procedures (Oates, 2006). The quantitative data analysis method used by the researcher on the Cinema-in-a-backpack project was descriptive statistics so as to describe the characteristics of the population (Olivier, 2004). This data is presented in Chapter 5 through the use of tables, bar graphs and pie charts. Pie charts are used for describing how a total has been divided over a number of sections and a bar graph shows the comparison of the values of some variable (Olivier, 2004).

3.6.2   Qualitative data

Qualitative data analysis was done so as to analyse the data that is non-numeric. Non-numeric data includes among other things words, images and sounds (Oates, 2006). Qualitative data analysis methods were used for data collected through the

use of both questionnaires and interviews. This data was found in the baseline and endline questionnaires were there were semi-structured questions and also the interviews carried out.

Data generated by a case study is mostly qualitative (Oates, 2006). Analysing this data will help the researcher abstract the verbal, visual or aural themes and patterns that will be important for this research (Oates, 2006).

3.6.2.1 Analysis of qualitative textual data

Qualitative data collected from questionnaires by INFUSION was provided to the researcher in Excel spreadsheets. Copies of these were made before analysis. To ensure that the original data was kept intact the researcher worked on the duplicate documents, thereby ensuring that the original information is not altered in anyway. The duplicate copies were then used as transcripts for data coding.

The researcher then looked at key themes for data analysis (TerreBlanche & Kelly, 1999; Oates, 2006). According to Oates (2006), these were divided into three segments:
1. Data that bears no relation at all to the overall research purpose.
2. General information which helps describe the context of the project.
3. Most relevant data to the research questions.

The responses from the questionnaires were then organised into their various categories allocated to them. On the transcripts, the left hand margin was used for writing down location codes and the right hand margin was used for the researcher's own notes describing themes abstracted from the transcripts. The researcher then refined these categories so as to ensure that the data coded remained neat, readable and understandable for purposes of presentation (TerreBlanche & Kelly, 1999; Oates, 2006).

37

3.6.2.2 Analysis of non-textual qualitative data

This research study also involved data collected from focus group interviews and one-on-one interviews. According to Oates (2006), qualitative data analysis in the field of social sciences mostly involves the use of textual data, however in the field of IS and computing, the use of non-textual data also plays a central role in the analysis of data.

For the purposes of this research, non-textual data was used to bring into context data collected during the focus group interviews and exit interviews. The focus group interviews and exit interviews were video recorded and the researcher had to abstract the verbal themes and patterns important for this research.

According to Oates (2006), qualitative data analysis has the following advantages:

- Rich and detailed data can be produced from qualitative analysis as this data cannot be reduced to numbers.
- As there are a number of different responses produced by the research participants. The researcher is exposed to alternative explanations of a question rather than assuming that there is only one explanation that can be provided for a specific question; this enables different researchers to come to the same conclusion whilst looking at different viewpoints which are equally valid.

Qualitative data analysis also has its own disadvantages according to Oates (2006):

- There could be a lot of data to analyse and researchers might feel overwhelmed and miss out on important themes whilst analysing the data.
- Unlike quantitative data, the interpretation of qualitative data could be influenced by the researchers' personal factors such as their backgrounds or beliefs.
- Non-textual data might not easily fit onto pieces of paper for analysis, which might influence the researcher to change the data collection method and choose a less suitable one.

Interview analysis steps:

The researcher used coding to analyse the interview data. The researcher the repeatedly listened to recordings of the interview and coded the data into different themes (TerreBlanche & Kelly, 1999) to pick up the different themes the MEs mentioned. The focus group interview data was supplemented by posters created by the groups during the interview.

3.7 Ethics

For the purpose of this research study, the researcher used secondary data collected by the project coordinators INFUSION, therefore there was no need to apply for ethical clearance from the University of Pretoria.

As INFUSION was responsible for ethical clearance for the data collection and dealing with the project respondents, they handled ethical issues as attached in Appendix I.

3.8 Summary

The researcher discussed the interpretive research paradigm which is used for this research. This was then followed by the research design where the researcher discusses the form of this research. A discussion on the population, sample size and unit of analysis follows, where the population are all the potential MEs using ICTs in ICT4D initiatives, the sample size chosen and the unit of analysis which is the MEs and the businesses they developed.

The research instruments used for this research are questionnaires and interviews. The questionnaires used were the socio-economic, technology, employment and in-field monitoring baseline and endline questionnaires. The interviews done for this research were the entry, exit, focus group and in-field monitoring interviews. Quantitative and qualitative analysis methods used in this research were discussed in detail.

39

Chapter 4. Case Description

4.1 Introduction

The purpose of this section is to give a clear description of what the Cinema-in-a-backpack project is and how it was implemented. This section will also answer the following research question:

- What is the Cinema-in-a-backpack project and how was it implemented?

4.2 Case study

The Mosaic 2B, Cinema-in-a-backpack project is a mobile empowerment initiative to improve the socio-economic livelihoods of developing regions in South Africa. The researcher is going to discuss the components of the backpack (Section 4.2.1), delay tolerant networks (DTN) (Section 4.2.2), institutions supporting the initiative (Section 4.2.3) and the participating micro-entrepreneurs (MEs) (Section 4.2.4).

4.2.1 Cinema-in-a-backpack

The Cinema-in-a-backpack project earned its name because all components needed to screen a movie could fit in a backpack. These components are pictured in Figure 4.1: two speakers, cables and adapters, one seven inch tablet, one battery, one projector, and the backpack.

Source: (Mosaic 2B, 2015).

Figure 4.1: Cinema-in-a-backpack equipment

These components where given to the MEs to start a cinema business in their respective areas. The following section describes how the MEs had to connect their tablets to the Mosaic 2B server.

4.2.1.1 Mosaic 2B architecture

Figure 4.2 illustrates how the different components of the Mosaic 2B architecture work together. An explanation follows.
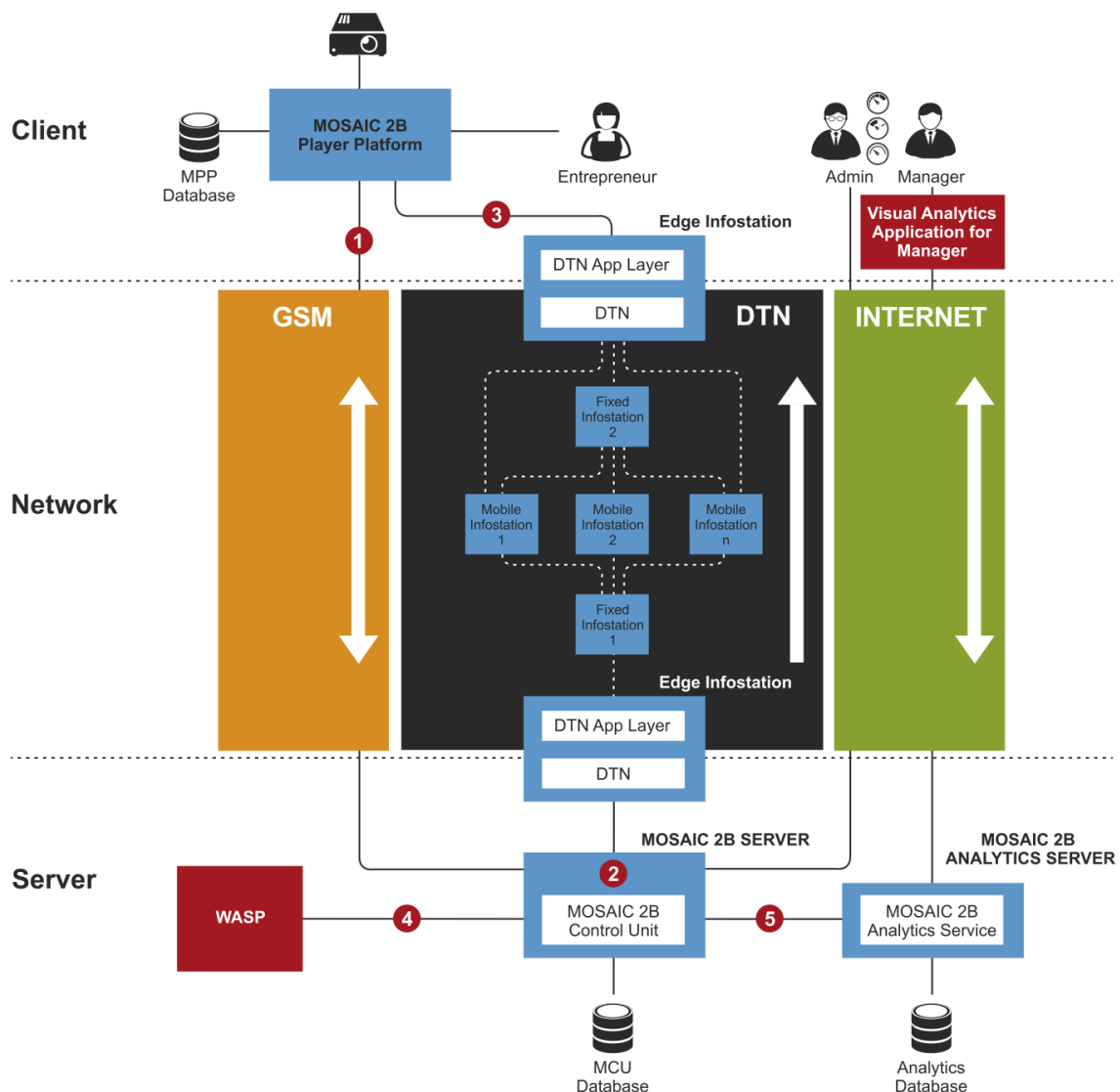
Source: (Mosaic 2B, 2015).

Figure 4.2: Mosaic 2B architecture

The MEs were provided with a tablet device and the Mosaic Player Platform (MPP) ran on the tablet device. This is an application which allowed the MEs to communicate with the Mosaic 2B system. The MEs used the MPP application to browse the Mosaic 2B media catalogue, order and receive movies, pay for the movies, carry out accounting tasks, browse visual analytics results and upload screening information.

The Mosaic 2B player platform (MPP) (client-side) and the Mosaic 2B Control Unit (MCU) (server side) connect through a direct internet connection using the GSM network which is a low cost network. The MCU provides a link to the MPP which provides, the services described in 4.2.1.2. WASP is used to connect the MCU to external interfaces, such as banking portals. The MCU connects to the DTN through a fixed infostation which connects to the MPP and the same process for the MPP connecting to DTN. The MCU database connects to the Mosaic 2B analytics server via the internet.

4.2.2 Networking model

Due to the high costs or unavailability of high speed internet access (3G and beyond) in rural areas, Mosaic 2B employed a viable low cost alternative to cellular communication systems. They employed delay tolerant networks (DTN), where data is delivered from sender to receiver through mobile intermediate nodes. With DTN networks there is no need for an end-to-end continuous link between sender and receiver. DTN move data in a store-carry-forward fashion, from one wireless node to the other. This type of network was suitable for carrying data with a low degree of interactivity. The MEs only had to order a movie and then download the movie, they did not have to interact with the networking system during the time in-between requesting for a movie and downloading it.

To establish key network nodes, a model had to be used in which data was communicated between the MEs and the Mosaic 2B servers. A low cost approach

was used which enabled communication between the servers and MEs. This is illustrated in Figure 4.3.
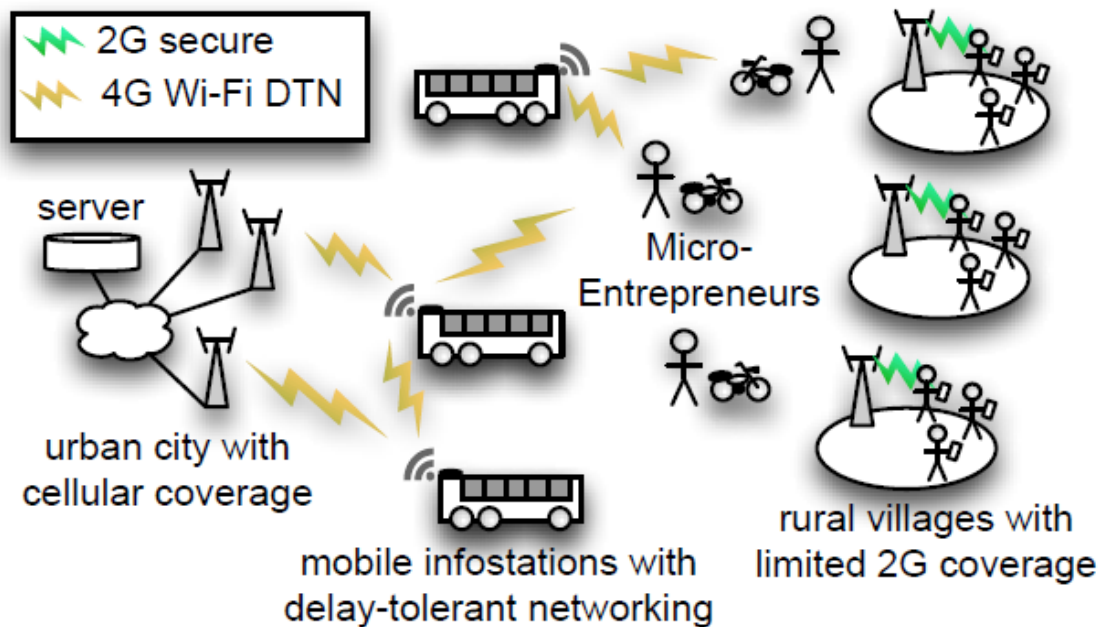
Source: (Mosaic 2B, 2013).

Figure 4.3: DTN description

The nodes used to deliver data were installed on public buses. The MEs connected to an infostation located at a local bus depot. They connected to the infostation using their tablets. From that infostation, data was relayed to the nodes installed on the buses. When these buses where in close proximity with the 4G network connecting to the servers, they would download bits of the movie till the bus was out of reach of the 4G network. When the bus went to the depot, it would dump the files on the infostation at the depot. This process would carry on till a movie is completely downloaded and a notification is sent to the ME to come download the movie.

4.2.3 Contributing institutions

The Cinema-in-a-backpack project was a European Union funded initiative and was implemented through six institutions, GraphicsMedia.net (GMn), Disney Research Zurich (DRZ), Associação CCG/zgdv – Centro de Computação Gráfica, University of

43

Pretoria (UP), EPI-USE Africa (EPI) and Infusion (INFUSION) who had different roles and responsibilities.

GMn was the overall project coordinator. GMn was responsible for developing the interactive Visualisation Technology capable of providing visual analytic features for intelligent complexity reduction and maximum context awareness. DRZ helped to design and run various socio-economic studies. CCG actively participated in the specification of solutions and applications to be developed. UP assisted in different work areas and their main contribution was testing and demonstrating the Mosaic 2B experiment. EPI provided software solutions and related services. INFUSION provided insight into the context in which the experiment was conducted ensuring that all parties are able to accommodate the requirements of the actual community in which the project was implemented.

4.2.4 Micro-Entrepreneurs and the Cinema-in-a-backpack project

There were 14 MEs chosen to take part in the Cinema-in-a-backpack project and they were identified by INFUSION. The MEs were chosen from the Nkangala district of Mpumalanga province in South Africa. They were nine males and five females. Thirteen of the MEs' ages ranged from 20 to 35 years old and one ME was between 36 and 50 years old. Thirteen MEs had been living in their communities for more than ten years and one ME for four to ten years.

The MEs received basic entrepreneurship training from the University of Pretoria and were taught how to use the equipment by EPI. This training was done prior to project commencement.

The MEs established their new business ventures beginning of March 2015 and ended the project August 2015. During this period the MEs were able to establish their cinema screening businesses and venture into other profitable enterprises discussed in Section 6.2.

One of the MEs left the project prematurely during the project run, leaving only 13 MEs to complete the ICT4D initiative. This ME left the project because of non-participation which forced the project coordinators to release him from the Cinema-in-a-backpack project.

4.2.5 Summary

This chapter described the case study for this dissertation. The researcher discussed the Cinema-in-a-backpack project, the contents of the backpack, the Mosaic 2B architecture, the networking model used for this project, the Mosaic 2B consortium and the MEs who took part in the case study.

In the next section the researcher presents the data collected from the various data collection methods. This data will be analysed and answer the research questions for this dissertation.

Chapter 5. Data Presentation and Analysis

5.1 Introduction

The purpose of this chapter is to present the data collected through the different data collection methods. The Cinema-in-a-backpack project, an ICT4D initiative which ran for six months from the beginning of March 2015 to the end of August 2015, started with 14 micro-entrepreneurs (MEs) in February, where nine were male and five were female MEs. During the project run, one male ME dropped out, leaving 13 MEs to finish the project. The following data was collected from the MEs and the audience who attended the screenings.

The data presented in this chapter helped the researcher focus on the research objectives described in Chapter 1, namely:

- To describe how the Cinema-in-a-backpack project was implemented,
- To determine what the success factors were so as to build on those and also determine what the obstacles to success were so as to counter those when developing future ideas,
- To determine what business models the entrepreneurs can use to make their businesses a success,
- To determine if the low cost mechanisms to deliver multimedia content to entrepreneurs are feasible,
- To determine if the businesses developed can sustain themselves.

This chapter is structured according to data from the questionnaires (Section 5.2) and then data from interviews (Section 5.3). The researcher firstly discusses the source of data, the research question and the research objective addressed, and then the data collected.

5.2 Results from questionnaires

The following data was collected from the following questionnaires described in Section 3.5.1:

46

- *socio-economic baseline and endline survey,*

- *technology baseline and endline survey,*

- *employment baseline and endline survey,*

- *in-field monitoring: Audience satisfaction survey.*

5.2.1 Demographic profile

The following section describes the demographic profile of each individual ME. The researcher used data collected from the socio-economic baseline and endline survey. This helped the researcher answer the following research question: What is the Cinema-in-a-backpack project and how was it implemented? This led to the following research objective being tackled: To describe how the Cinema-in-a-backpack project was implemented.

5.2.1.1 Profile by age and gender

There were 14 MEs who were part of the Cinema-in-a-backpack project. Figure 5.1 below shows that there were eight males and five females whose ages ranged from 20 to 35 and one male in the age range 36 to 50 years old.

	Male	Female
■ 20 to 35 years old	8	5
■ 36 to 50 years old	1	0
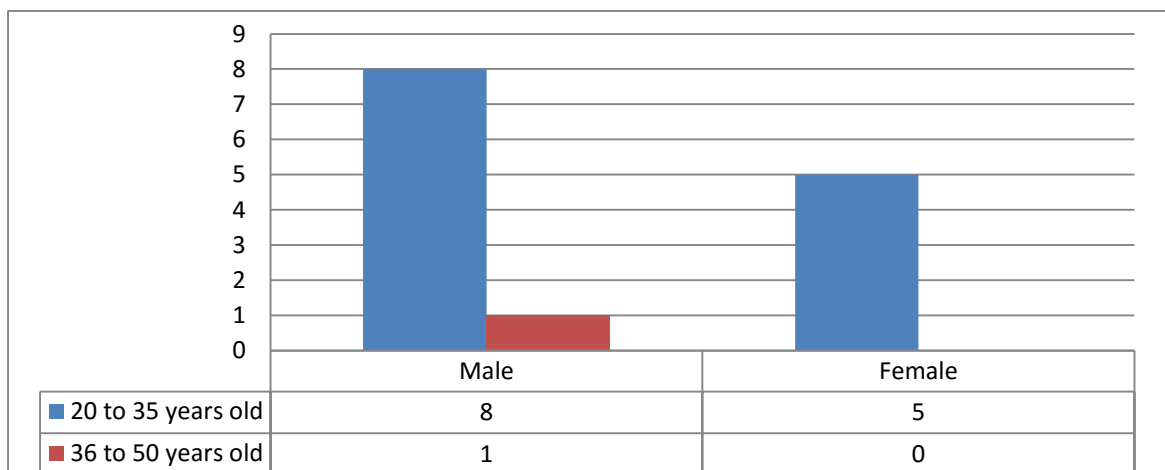
Figure 5.1: ME profile by age and gender

5.2.1.2 Profile by community roots and gender

The MEs implemented the project in the communities they lived in. One female ME had been living in her community for a period in the category four to ten years. The other 13 MEs had been living in their communities for a period of over ten years. Figure 5.2 shows the MEs' profile by their community roots and gender.

	4 to 10 years	More than 10 years	Total
■ Male	0	9	9
■ Female	1	4	5
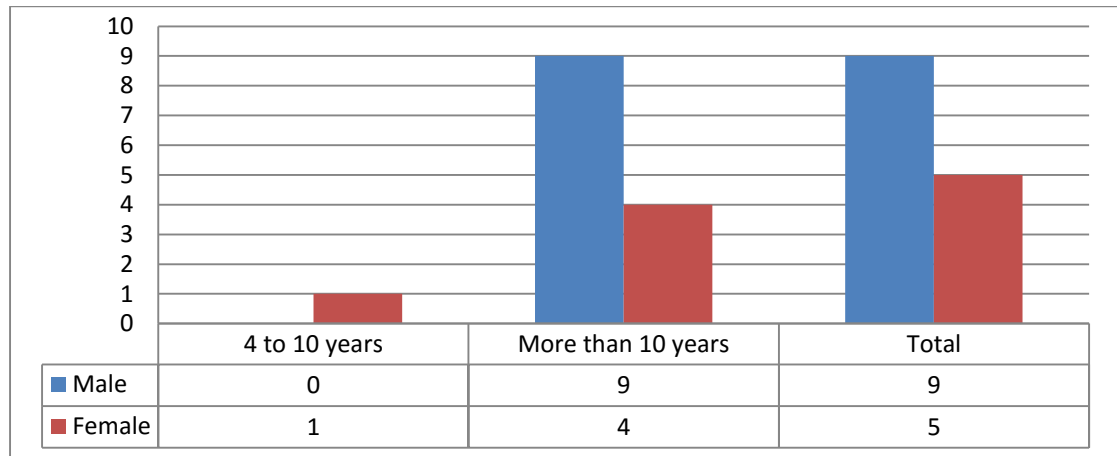
Figure 5.2: Profile by community roots and gender

5.2.2 MEs' screening profile

This section describes the number of mobile screenings done by the MEs, the number of screenings during the different times of the day, the number of screenings according to the ME's gender, the number of screenings per month during the six month duration of the project and the type of content the MEs screened. The data was collected from the transactional data from the Mosaic Player Platform (MPP). This section helped the researcher answer the following research question: How did the participating entrepreneurs make use of the mobile technology provided to them? The research objective addressed: to describe how the Cinema-in-a-backpack project was implemented.

5.2.2.1 Number of screenings

The MEs were able to do screenings over a period of six months beginning in the month of March and extending to August. Five of the MEs had less than 25

48

screenings each. Two of the MEs had 26 to 50 screenings each. Three micro-entrepreneurs had 61-75 screenings each. Two MEs had 76 to 100 screenings each and another two had 126 to 150 screenings each. The female MEs averaged 92 screenings per ME compared to their male MEs who had an average of 36 screenings. Figure 5.3 shows the number of mobile screenings and number of screenings per ME respectively.
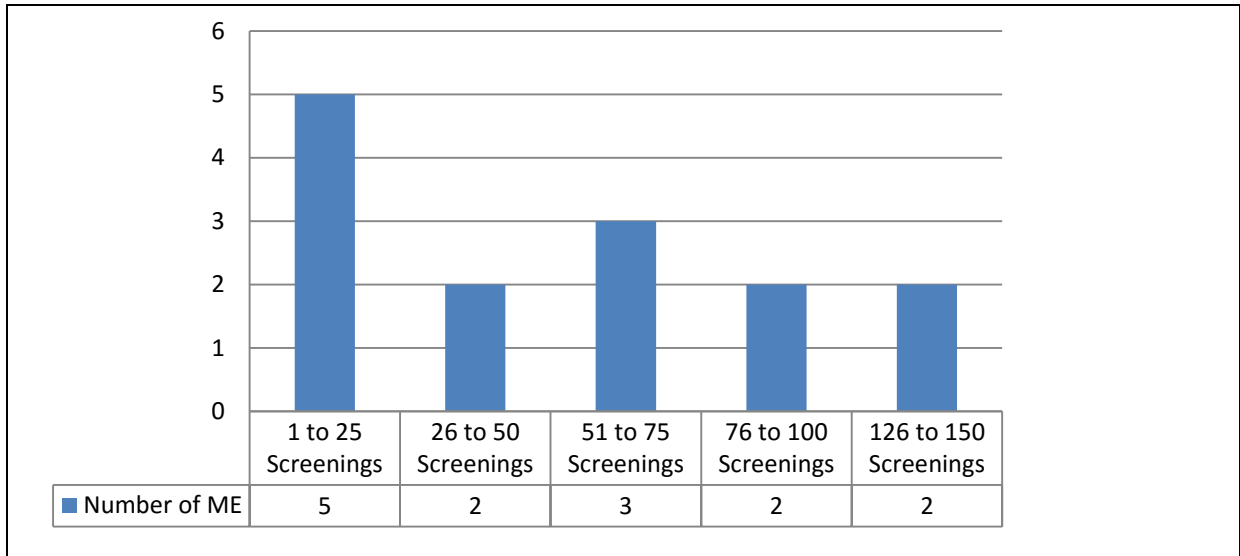
Figure 5.3: The number of screenings

5.2.2.2 Screenings by time

Mobile screenings were mostly held after 14:00hrs. 66% of the screenings were held from 14:00hrs until 22:00hrs. Figure 5.4 shows the times the MEs held their screenings and Figure 5.5 shows the times according to individual MEs.
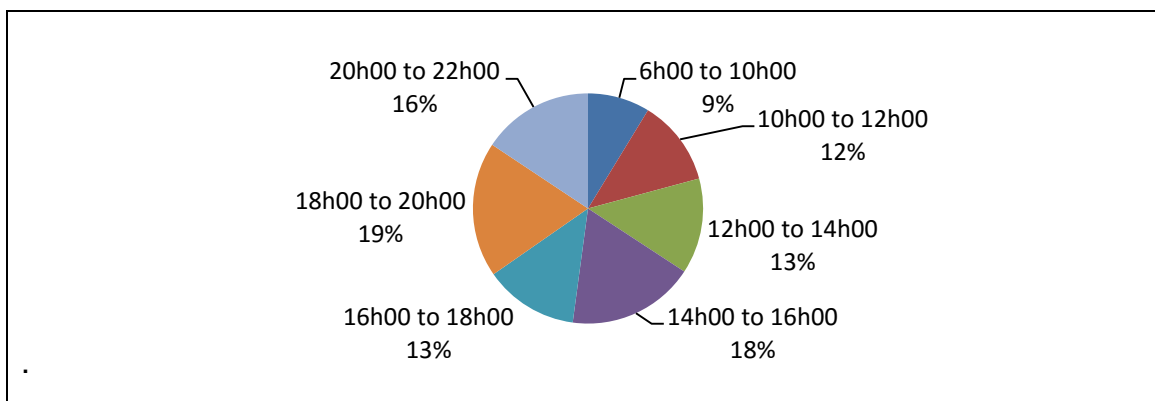
Figure 5.4: Screenings by time
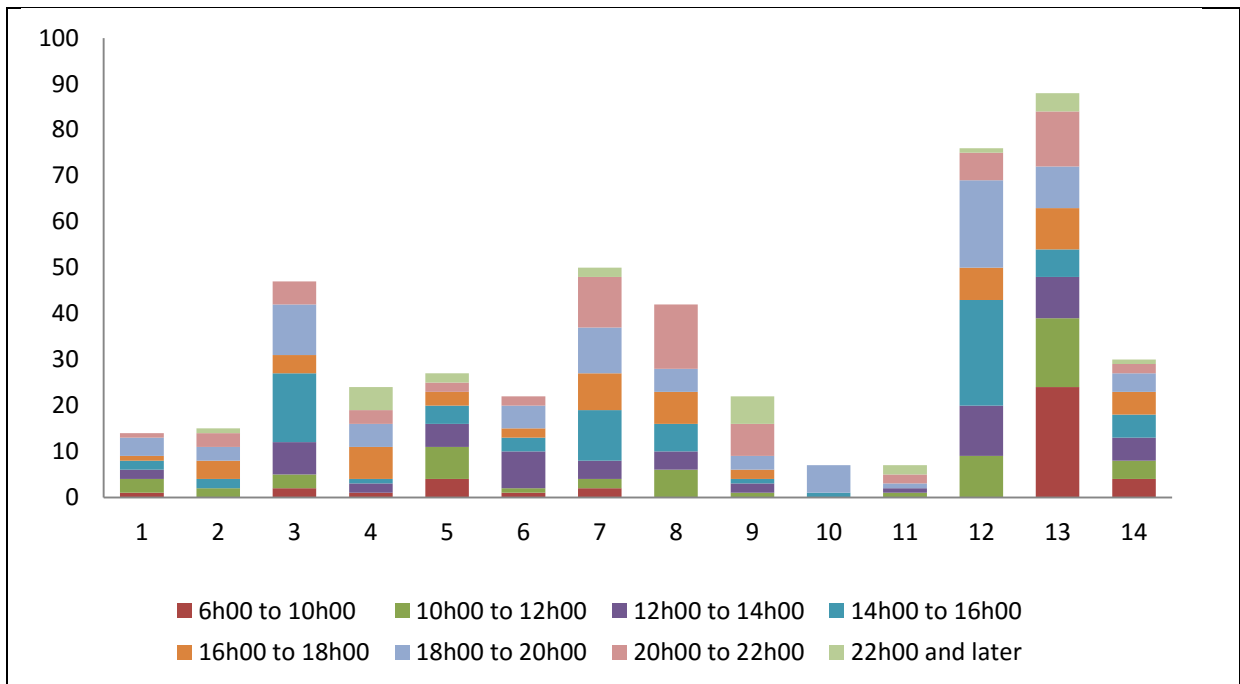
Figure 5.5: Screenings by time according to individual MEs

5.2.2.3 Screenings by gender

Figure 5.6 shows the number of screenings by the MEs according to gender and time. The female MEs had more screenings than their male counterparts. The female MEs did 58% of the total screenings and the male MEs did 42% of the total screenings.

	6h00 to 10h00	10h00 to 12h00	12h00 to 14h00	14h00 to 16h00	16h00 to 18h00	18h00 to 20h00	20h00 to 22h00	22h00 and later
Male	27	29	28	19	36	40	44	18
Female	12	24	32	59	27	44	26	6
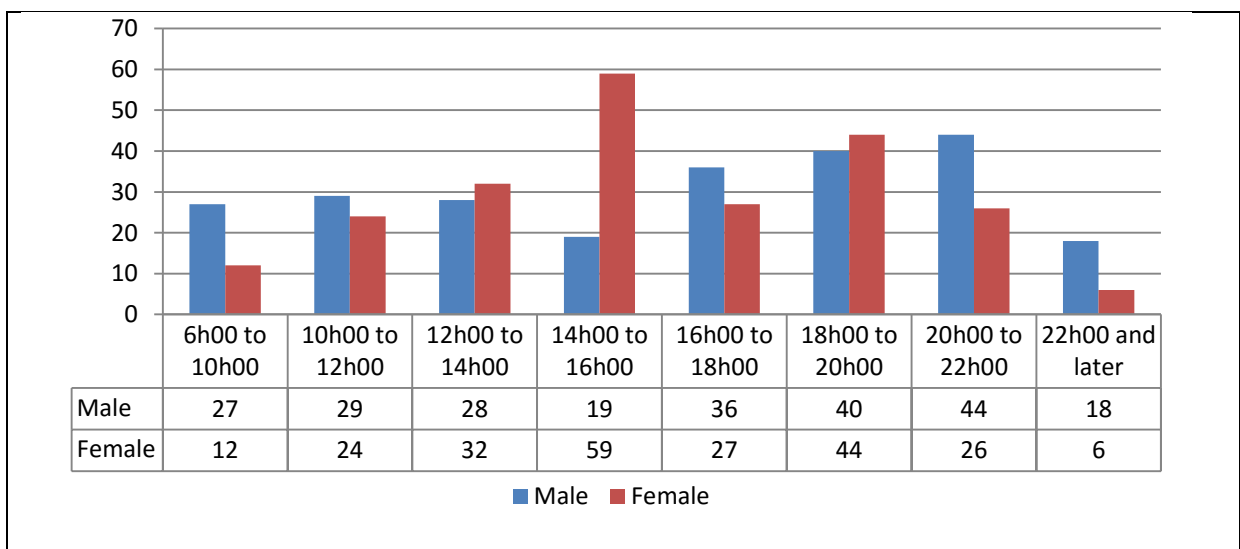
Figure 5.6: Screenings by ME's gender and time

50

5.2.2.4 Screenings per month

Figure 5.7 shows that there were 192 screenings done by the MEs at the onset of the project at the beginning of March up to the end of May. These figures dropped in April from 192 screenings to 168. There was a decrease in the number of screenings by the female MEs from 126 to 94 mobile screenings and an increase in the number of screenings by the male MEs from 66 to 74 mobile screenings.

These number of screenings increased in the month of May to a total of 175 screenings from a figure of 168 screenings. This increase was attributed to the number of screenings by the female MEs increasing to 101 from a figure of 94. The screenings done by the male MEs remained constant at 74.

The numbers dropped significantly in June. The number of screenings came to 79 compared to 175 screenings recorded for May. Figure 5.8 shows that both the male and female MEs' number of screenings dropped, with the males recording 32 and the female MEs recording 47 screenings. The total screenings for July remained at 79 with the male MEs increasing their screenings by four and the female MEs decreasing by four. The number of screenings increased to 90 in August, with male MEs having seven extra screenings and the female MEs having four extra screenings.
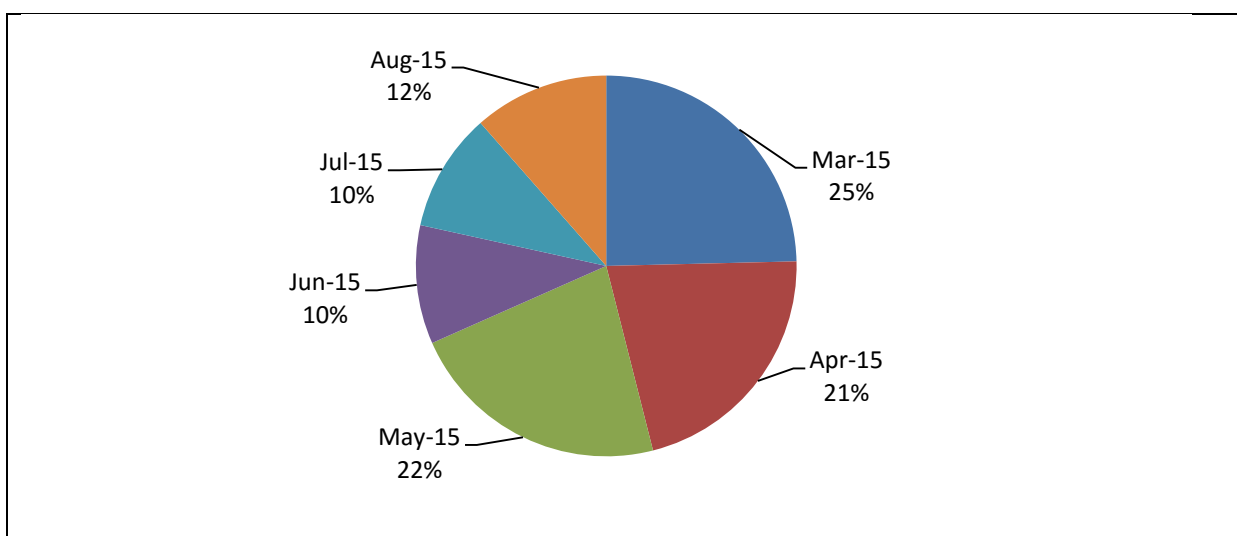
Figure 5.7: Screenings by month

	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15
■ Male	66	74	74	32	36	43
■ Female	126	94	101	47	43	47
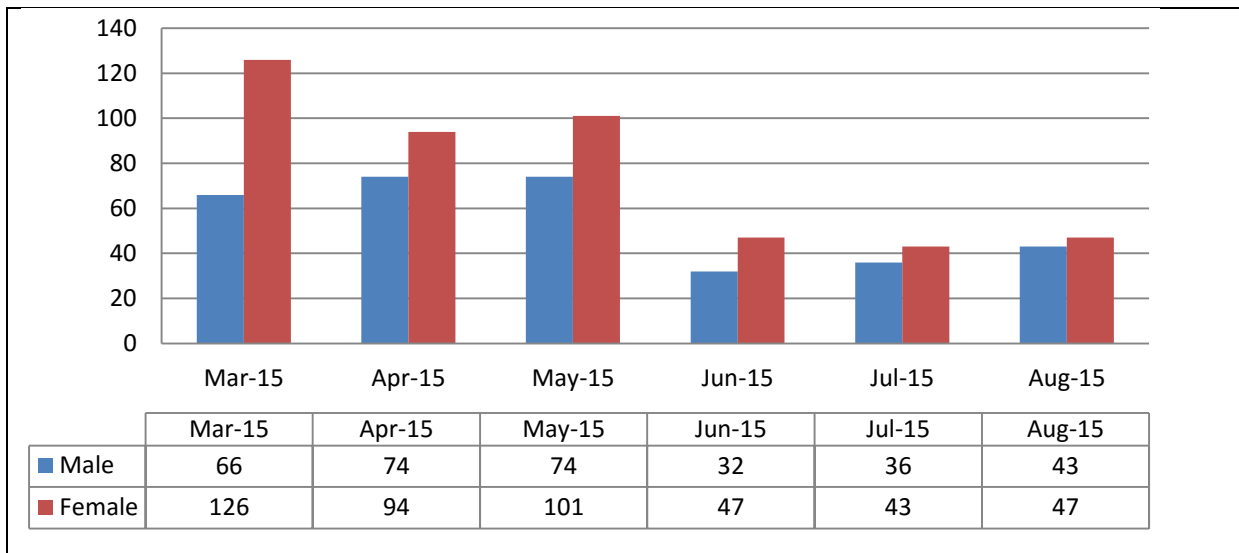
Figure 5.8: Screenings by month and gender

5.2.2.5 Screening content: local versus international productions

The MEs screened a total of 765 movies. 43% were local screenings and 57% were international screenings. There were 22 different local and continental movie and film productions and the MEs screened these productions a total of 328 times. There were 43 different international movie and film productions screened through the mobile cinema and the MEs screened these productions a total of 437 times.

5.2.2.6 Summary

The above data shows the MEs mobile cinema screening profile. The data shows that the number of screenings varied from the MEs doing a maximum of up to 25 screenings and the other MEs doing up to a maximum of 150 screenings. The female MEs averaged more screenings than their male counterparts as they recorded an average of 92 screenings whilst their male counterparts recorded 36 screenings. The female MEs did 58% of the total screenings and the male MEs did 42% of the total screenings. Sixty six percent of the screenings were held after 14:00hrs, which shows that there was less screening activity during the morning. The most screenings were done during the first month of the Cinema-in-a-backpack project and the number started decreasing as the project progressed. This data

52

describes how the Cinema-in-a-backpack project was implemented. It describes how the MEs used the technologies provided to them.

5.2.3 Audience satisfaction survey

The film market is established in the communities were the MEs conducted the Cinema-in-a-backpack project. This section shows how the communities accepted and responded to the Cinema-in-a-backpack project the researcher looks at the social buy-in and participation of the communities as discussed in Section 2.5. The data was collected from the audience satisfaction survey. This section helped the researcher answer the research question: What were the outcomes of the Cinema-in-a-backpack project in terms of the sustainability of the businesses that emerged? The research objective addressed: To determine if the businesses developed can sustain themselves.

5.2.3.1 Audience profile by age and gender

Figure 5.9 shows the profile of the audience who attended the screenings by age and gender. The survey revealed that most of the viewers who attended these screenings and completed the survey are in the age groups of 13 to 18 and 19 to 34 years. The age group of 13 to 18 years contributed 23% of the total audience who responded to the questionnaire and the age group of 19 to 34 years old represented 41% of the total age group. The total population of the respondents divided by gender was represented as follows: 52% males and 48% females.

	Under 7 years old	8 to 12 years old	13 to 18 years old	19 to 34 years old	35 to 50 years old	Over 50 years old
■ Male	26	21	54	100	13	1
■ Female	18	21	41	68	34	16
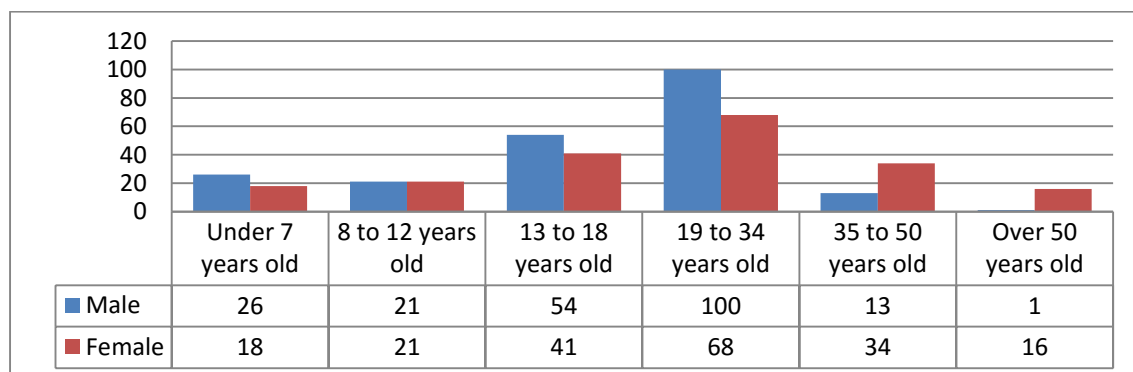
Figure 5.9: Respondents' profile by age and gender

53

5.2.3.2 Audience primary forms of entertainment

The respondents' primary form of entertainment extends from watching TV, going to church, and going to the shebeen, to playing sports, socialising with friends and watching movies as seen in Figure 5.10 and Figure 5.11. Watching television is the primary form of entertainment for 26% of the respondents. 18% socialise with friends and another 18% play sports. 14% of the respondents spend their leisure time watching TV whilst another 13% go to the church. 3% of the respondents spend their leisure time at the shebeen whilst 8% of the respondents spend their leisure time doing other things which were not specified.
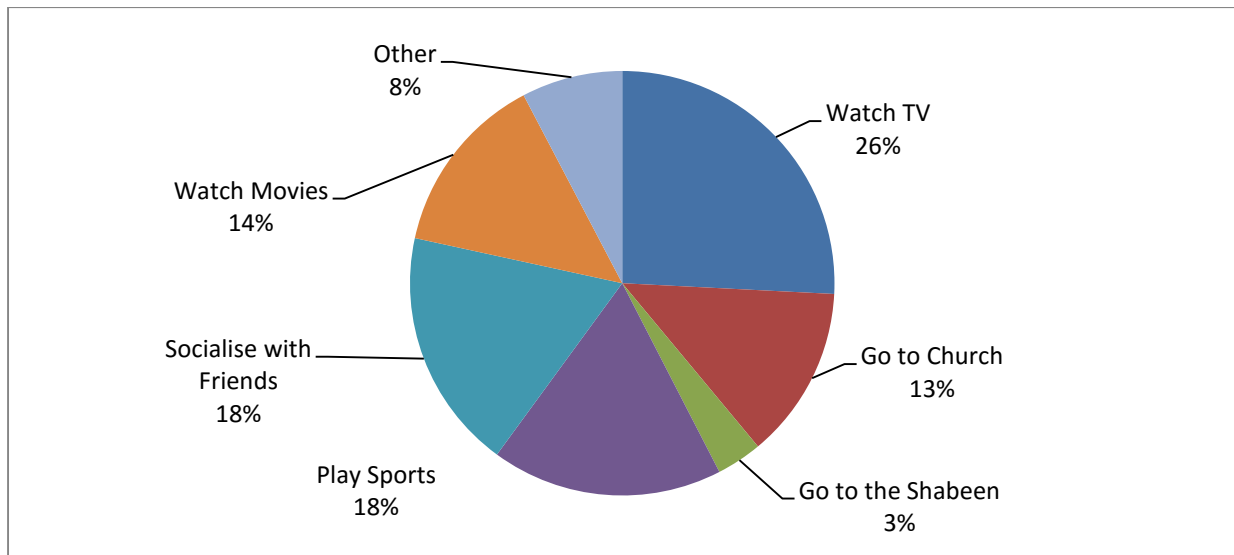
Figure 5.10: Audience' primary forms of entertainment

	Watch TV	Go to Church	Go to the Shabeen	Play Sports	Socialise with Friends	Watch Movies
Male	47	13	11	54	32	41
Female	57	40	3	17	42	15
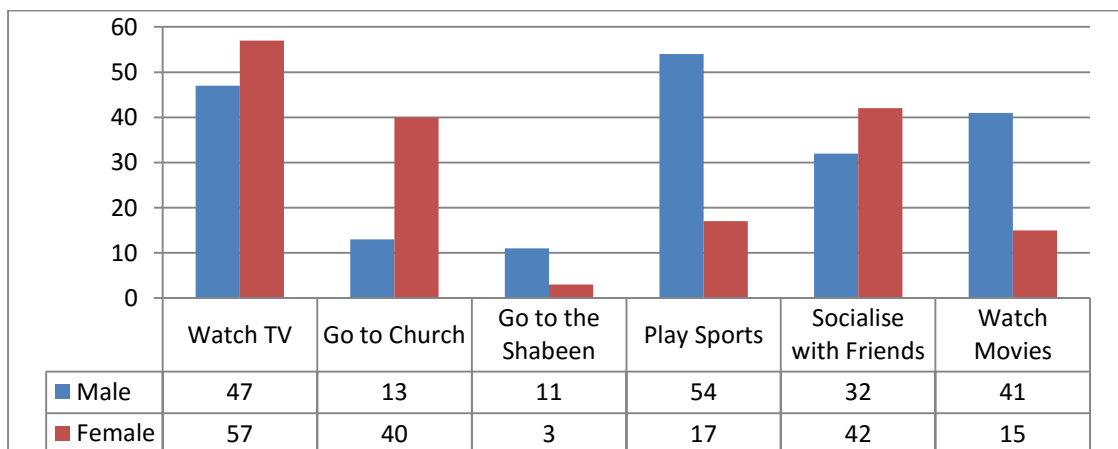
Figure 2: Audience' primary form of entertainment by gender

54

Watching TV and watching movies are an integral part of the society leisure activities. The female population of the respondents is more likely to watch TV and the males are more likely to go for sports.

Watching TV ranks first and watching movies ranks fifth for the female population. For the male population, watching TV ranks second whilst watching movies ranks third.

5.2.3.3 Audience access to movies

The majority of the respondents have never been to the cinema, as illustrated in Figure 5.12. A total of 53% of the respondents have never been to a cinema, while 27% of the respondents have been to a cinema only once. 20% of the respondents have visited a cinema several times.
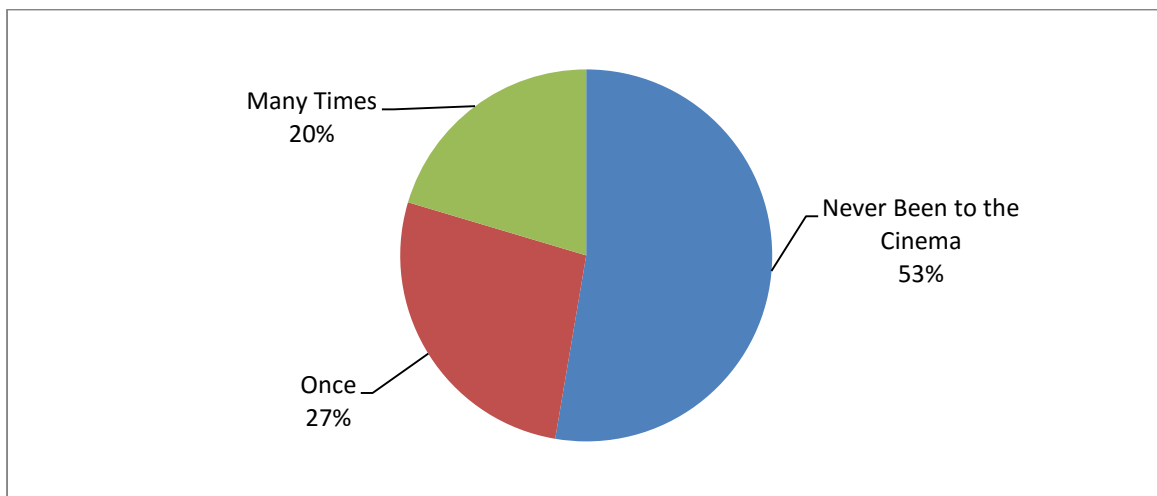
Figure 5.11: Audience' cinema experience

Figure 5.13 shows cinema experience by age and gender. Nineteen to thirty four year olds attended the screenings more than any other age group and the group also consists of the largest number of people who had never visited a cinema in their lifetime.

55

	Under 7 years old	8 to 12 years old	13 to 18 years old	19 to 34 years old	35 to 50 years old	Over 50 years old
Never Been to the Cinema	32	31	54	58	27	15
Once	11	8	32	47	12	1
Many Times	0	3	9	63	8	1
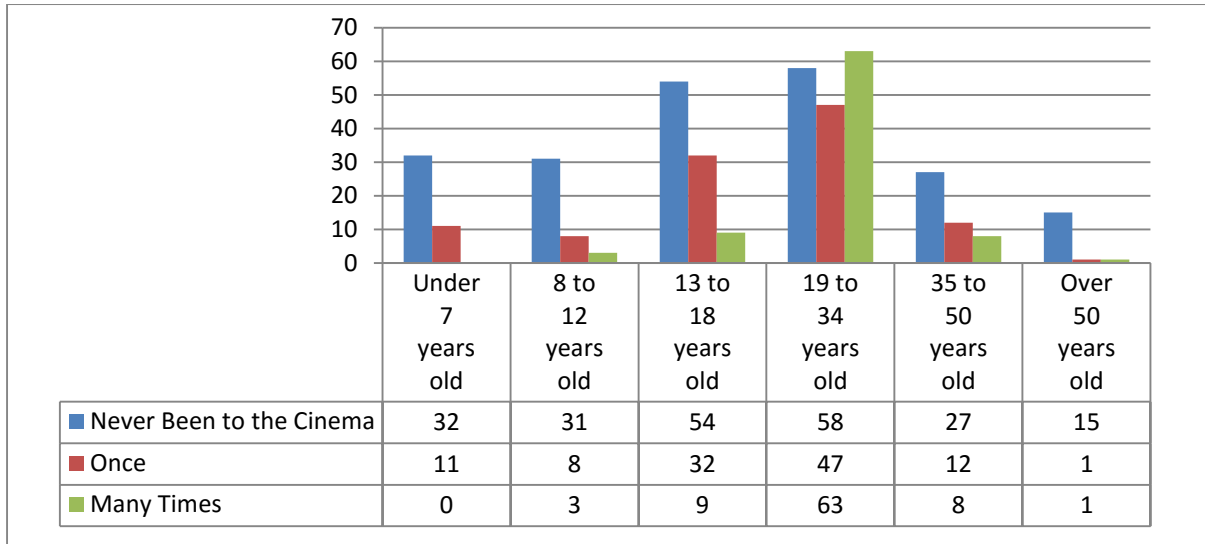
Figure 5.13: Audience cinema experience by age and gender

Figure 5.12 shows that 53% of the respondents have never been to the cinema and Figure 5.14 shows that 94% of the respondents watch movies in their homes. Of that 94%, 34% watch movies in their homes almost on a daily basis, 44% watch movies in their homes once a week and 16% watch movies once a month. 6% have never watched movies in their homes.
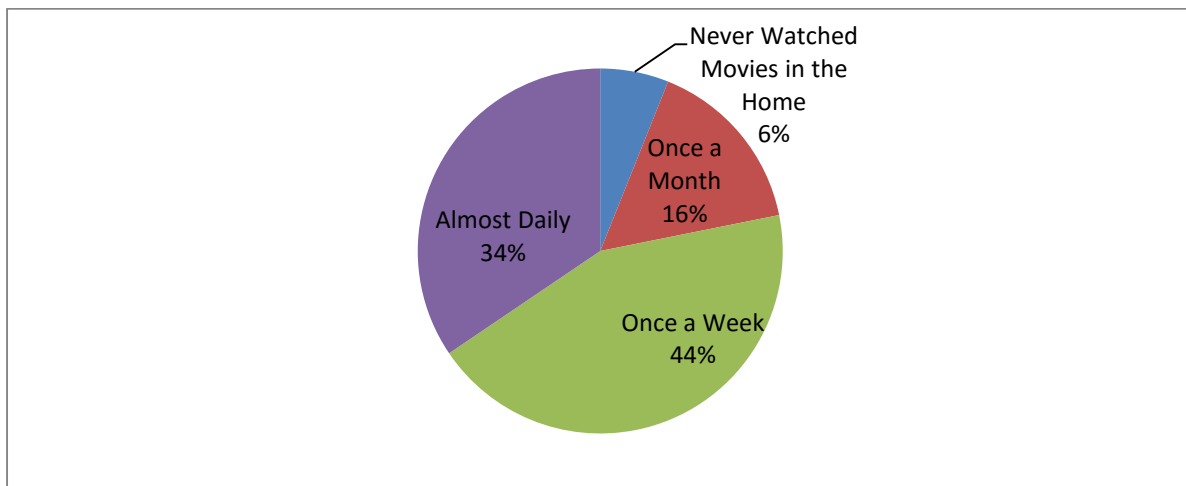
Figure 5.14: Viewing movies in their homes

Figures 5.15 and 5.16 show that 34% of the respondents watch a movie everyday in their homes. 42% of the respondents watch movies on television broadcasts and 34% on DVDs. The majority of females watch movies on TV and the majority of males watch on DVDs as in Figure 5.18. The 19 to 34 year old age group watches

56

movies in the following order of ranking: DVDs, television and on their computers as seen in Figure 5.17.

	Never Watched Movies in the Home	Once a Month	Once a Week	Almost Daily
■ Male	8	26	85	96
■ Female	17	39	95	46
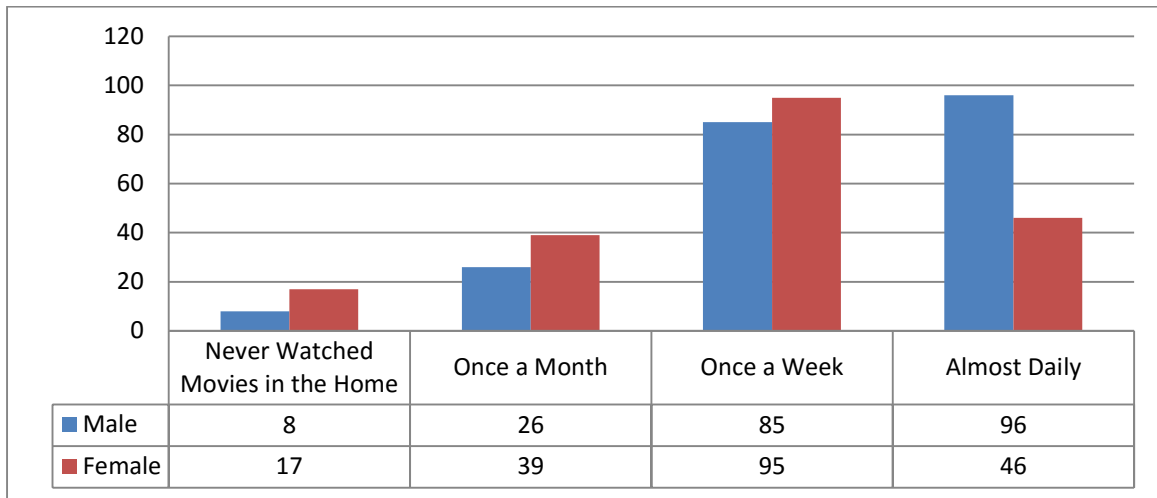
Figure 5.15: Viewing movies in their homes by gender
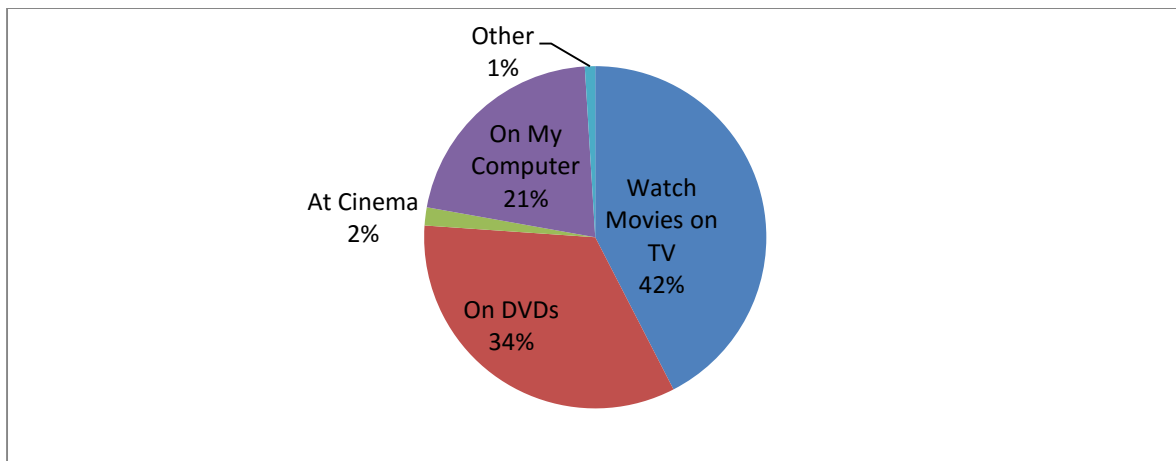
Figure 5.16: Accessing movies in their homes
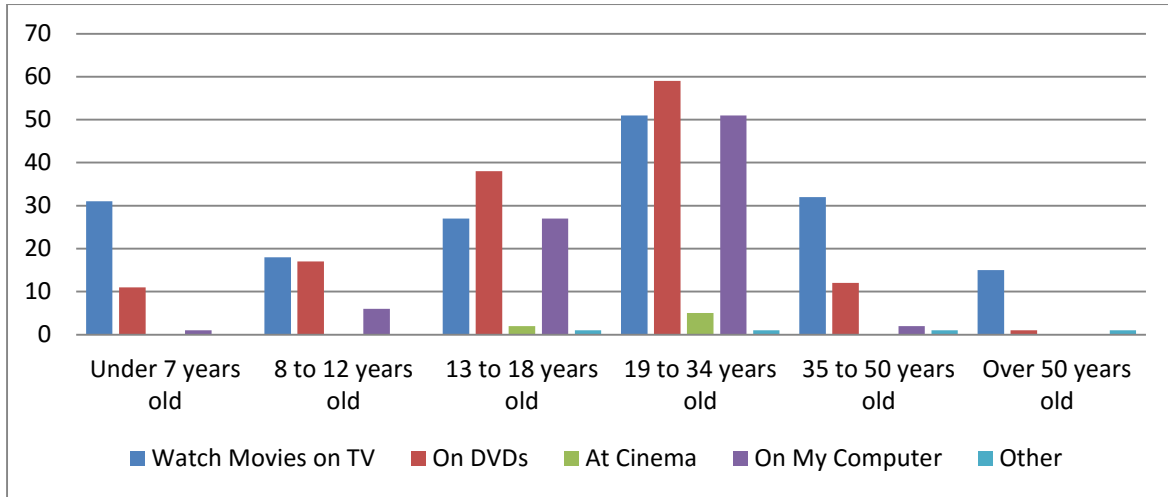
Figure 5.17: Accessing movies in their homes by age

	Watch Movies on TV	On DVDs	At Cinema	On My Computer	Other
Male	65	75	5	67	2
Female	109	63	2	20	2
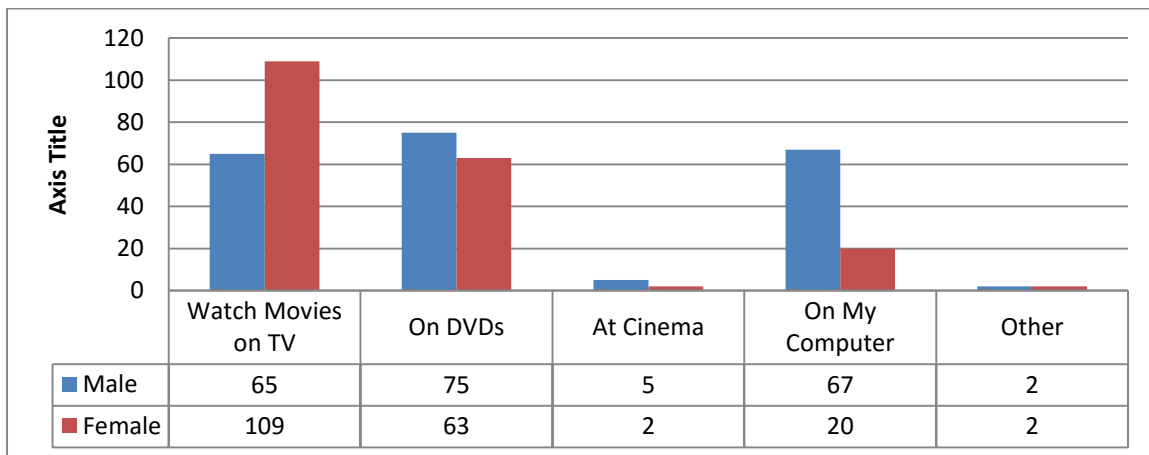
Figure 5.18: Accessing movies in their homes by gender

Figure 5.19 shows that 59% of the respondents got to know about the screenings through the MEs and a further 21% through their neighbours and friends. 10% of the respondents were either informed about the screenings through schools or churches. 5% of the respondents got to know about the screenings through the advertisements, three percent just happened to walk by the screenings and got to find out about the screenings. 2% were informed by their parents about the screenings.

58
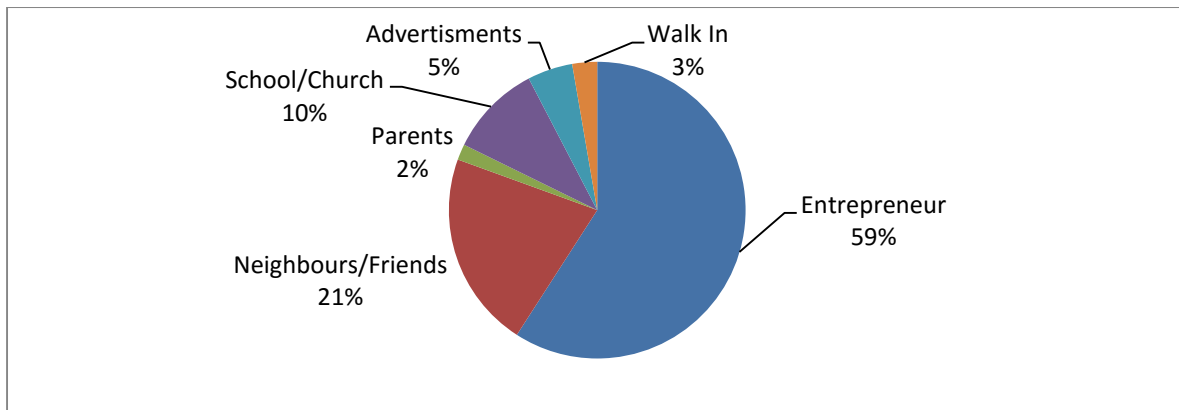
Figure 5.19: Respondents' awareness about the screenings

The communication mediums with which the respondents found out about the screenings differed. Figure 5.20 shows the different communication forms which range from local radio, Facebook, SMS, WhatsApp, local newspaper and posters.
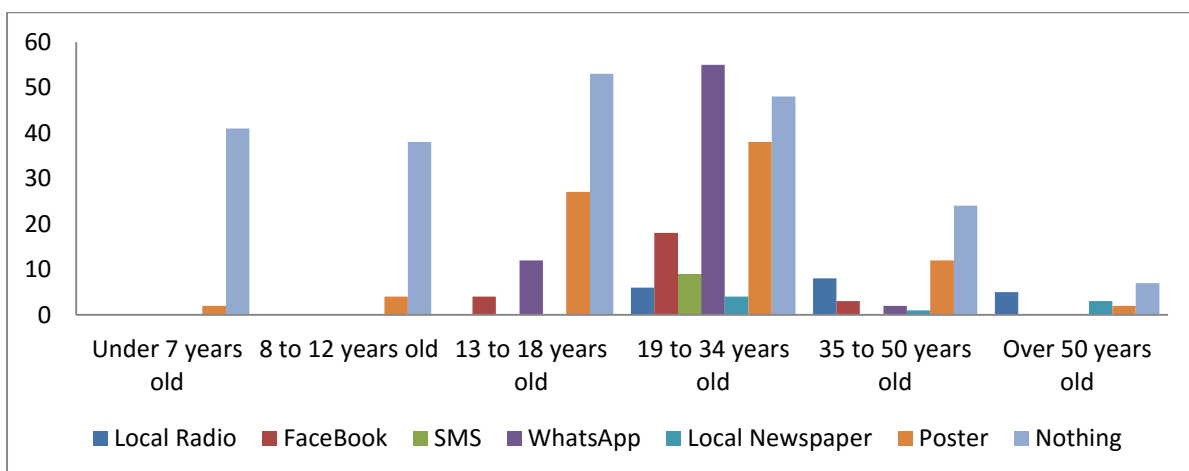
Figure 5.20: Respondents' awareness of screenings through marketing by age

5.2.3.4 Audience loyalty

74% of the total respondents were only exposed to a single viewing. The numbers as shown in Figure 5.21 dwindled as the viewings increased. The numbers went down due to the nature of the screenings. The MEs indicated that the cinema screenings are mobile, hence there are not screened at one single venue, which leads to a change of customers frequently. The movie content was old and the audience had already viewed the movies that were being screened. This is described in Figure 5.21.

59
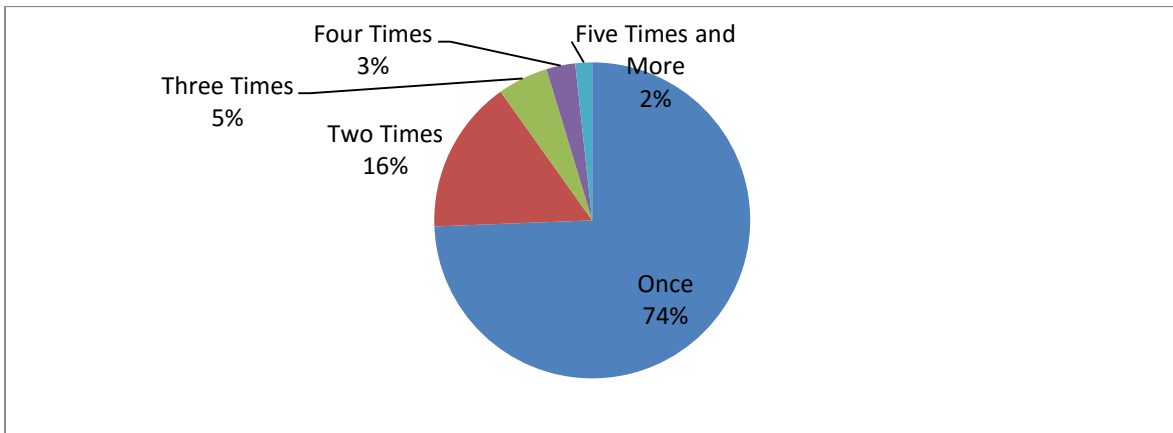
Figure 5.21: Audience' frequency of viewing

The respondents indicated that they attended the screenings for multiple reasons. Most respondents attended for the educational value of the mobile screenings as in Figure 5.22. This was followed by those who just attended as a social gathering. During the focus group interviews, the MEs indicated that the Cinema-in-a-backpack project offered a cinema experience to the community and members of the community found an alternative space to come together and socialise.
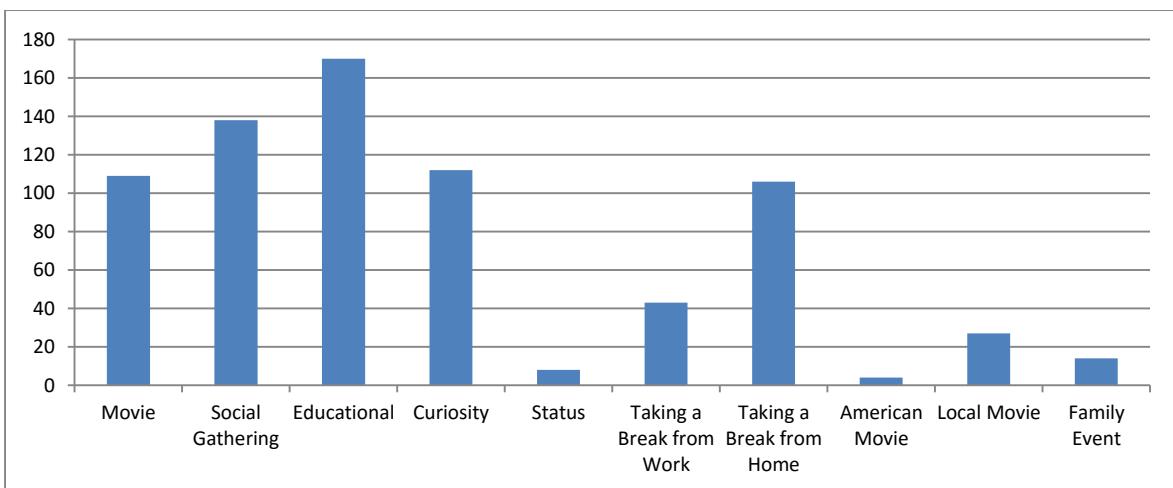
Figure 5.22: Audience' motivations for attending the screenings
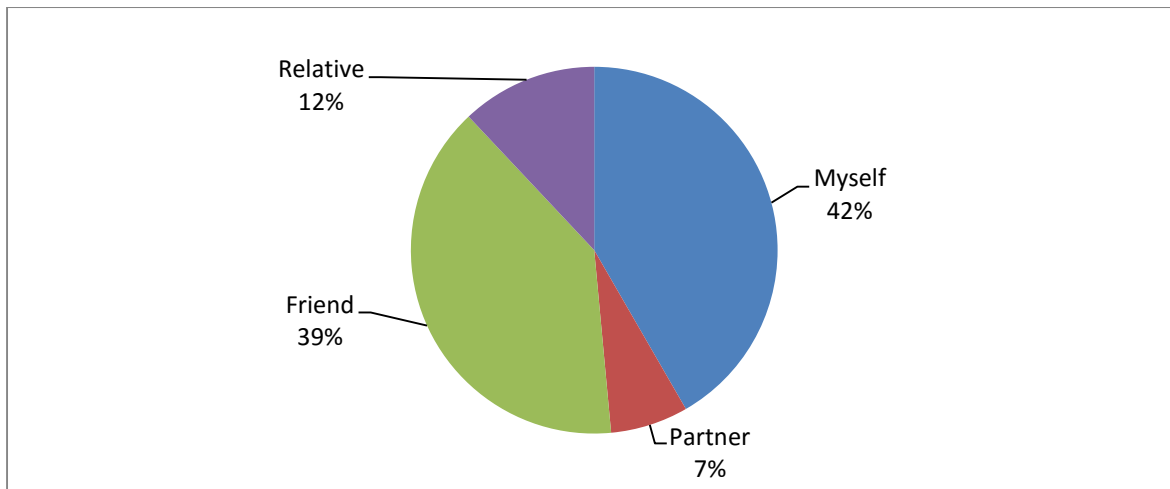
Figure 5.23: Audience attendance

42% of the audience who attended the screenings came alone and 58% were accompanied by either a relative, partner or a friend as in Figure 5.23. 7% attended with a partner, 39% attended with a friend and 12% attended with a relative.

5.2.3.5 Summary

The viewers who attended the screening were mostly 13 to 18 years old and 19 to 34 years old and contributed 23% and 41% of the total audience respectively. The gender distribution amongst the audience was 52% males and 48% females. The viewers' primary forms of entertainment varied with the majority, with 26% of the viewers opting to watch TV than engage in other forms of activities. 53% of the viewers had never been to a cinema before and this was their first experience of a cinema. Ninety four percent of the viewers have access to movies in their homes and have watched movies in their homes whilst only 6% have never watched movies in their homes. Thirty four percent of the viewers watched a movie every day in their homes. Fifty nine percent of the MEs got to know about the Cinema-in-a-backpack project through the MEs and the rest got to know through other channels of communication. The audience frequency of viewings decreased as the MEs did more screenings with 74% of the viewers having attended the screenings once. Most of the viewers attended the screenings because of the educational value of the movies and films screened. When attending the screenings, 42% of the audience attended alone and the other 58% were accompanied by another person.

This section helped the researcher answer the research question regarding sustainability. It focuses on social sustainability which is a part of the overall sustainability of the project. This will be discussed in detail in Chapter 6.3.

5.2.4 Technology profile

This section describes the MEs technology profile: the MEs' computer knowledge, the MEs' attitude towards ICTs, the MEs' access and use of the internet and the MEs' perceptions of the Cinema-in-a-backpack project support during the project run. The data was collected from the technology baseline and endline survey. This helped the researcher answer the research question: what were the outcomes of the Cinema-in-a-backpack project in terms of feasibility of low cost mechanisms to deliver multimedia content to entrepreneurs. The research objectives addressed were to determine if the low cost mechanisms to deliver multimedia content to entrepreneurs are feasible and to determine the success factors and obstacles encountered for future ICT4D research.

5.2.4.1 Use of technology

Before the start of the Cinema-in-a-backpack project, the MEs were asked about their knowledge of computer usage. Twelve of the MEs did a computer course after completing school. Only one ME learnt how to use the computer by himself and another ME was taught how to use the computer at school as shown in Figure 5.24.
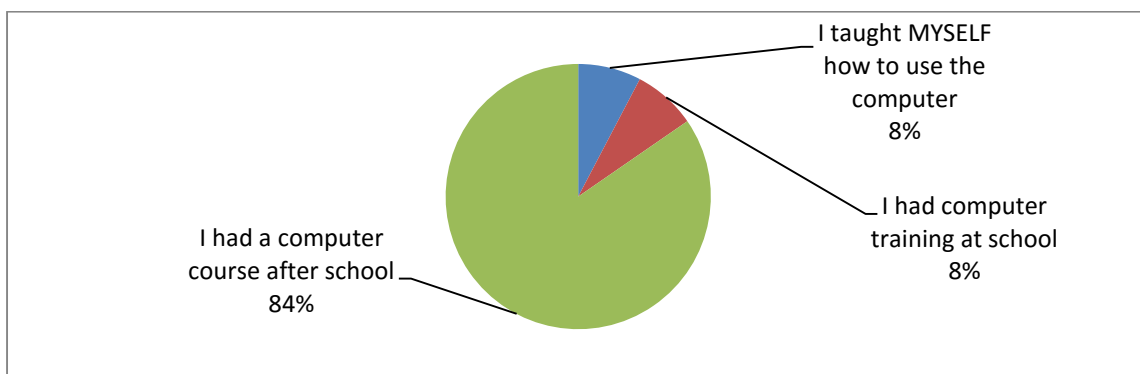
Figure 5.24: ME training in computers

5.2.4.2 Attitudes towards ICT

	I love all forms of technology; it adds great value to my life	I find the field of ICT overwhelming	ICT can be a great asset in the business	The world of ICT scares me	I would love to learn more about the role of ICT in business	I am excited about the introduction of new technologies in business
■ Baseline	9	3	3	1	3	7
■ Endline	7	3	3	1	5	7
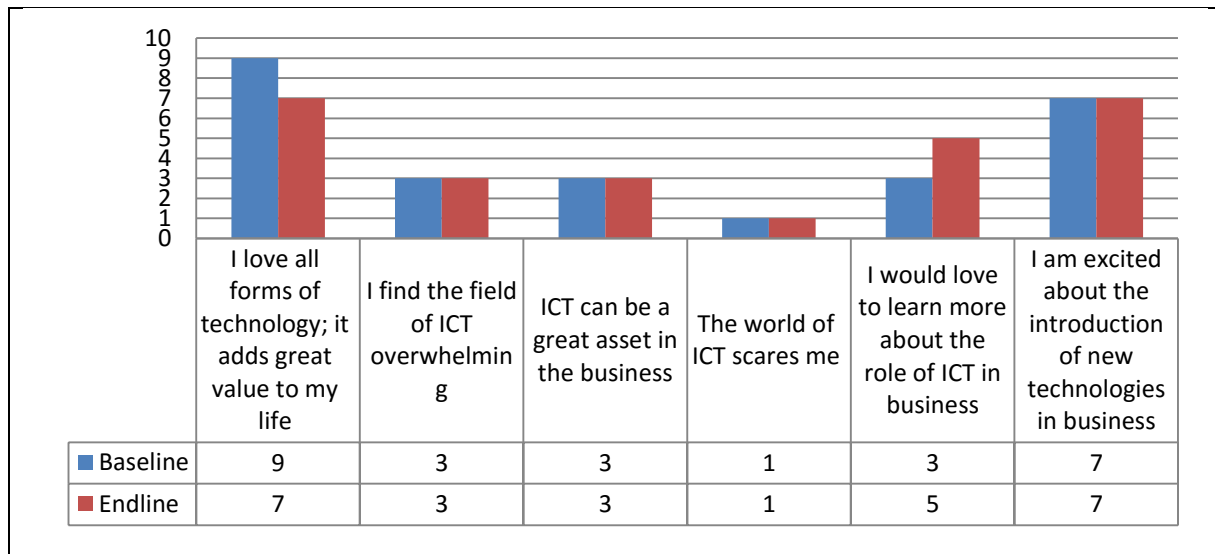
Figure 5.25: MEs attitudes towards ICT in business
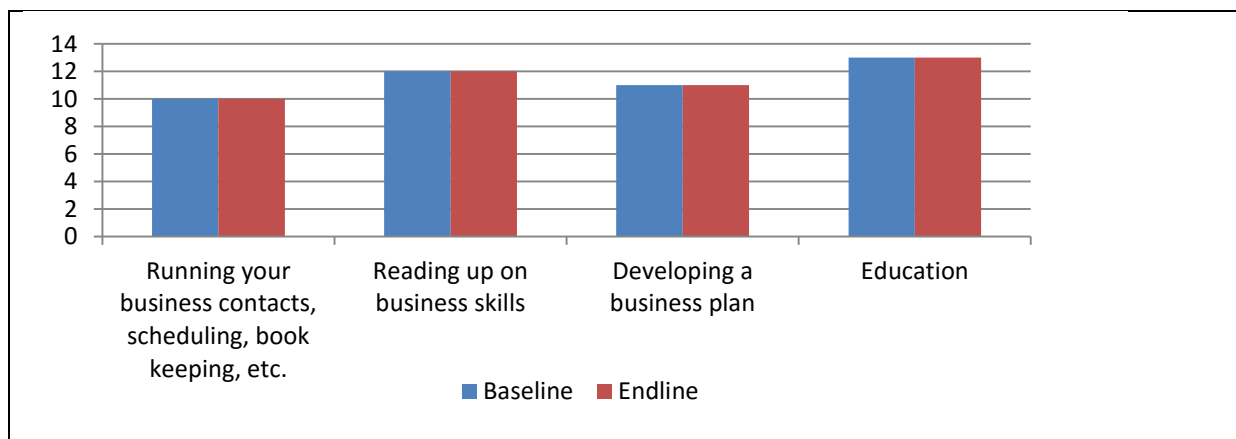
Figure 5.26: MEs ICT usage

Figure 5.25 shows that the MEs' attitudes towards ICT did not significantly change. Ten MEs used ICTs for running their business, contacts, scheduling and bookkeeping amongst other things prior to project commencement and after the project had closed as shown in Figure 5.26. Prior to project commencement, 12 MEs used ICTs to read up on business skills. This number neither increased nor decreased after project closure. Twelve MEs used ICTs to read up on business skills after project closure. Eleven MEs used ICTs to develop business plans prior to project commencement and after the project closure. Thirteen MEs used ICTs for educational purposes prior to project commencement and after project commencement.

63

5.2.4.3 Access and use of internet

The MEs access and use of the internet increased over the duration of the Cinema-in-a-backpack project as in Figure 5.27. Ten MEs accessed the internet via their cell phones and three MEs accessed the internet via work personal computers prior to project commencement. After the project duration, the MEs had accessed and used the internet via a variety of media which included home personal computers and internet cafés.

Access Internet

	Cell Phone	Work PC	Home PC	Internet Café	PC @ Family/Friends	PC @ School
Baseline	10	3	0	0	0	0
Endline	10	10	6	7	3	4
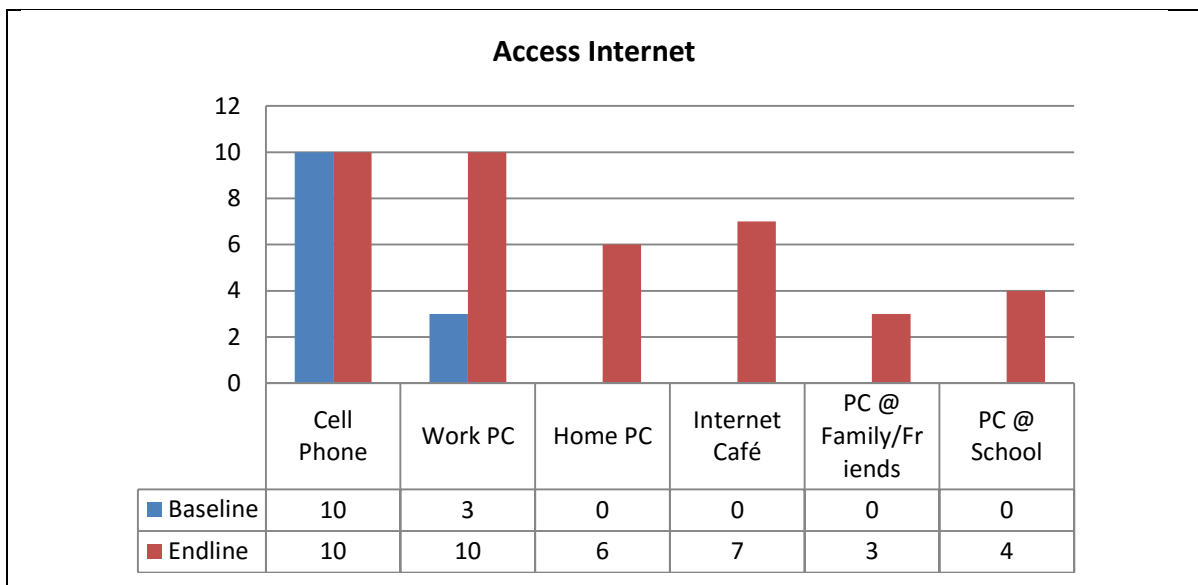
Figure 5.27: Access to internet
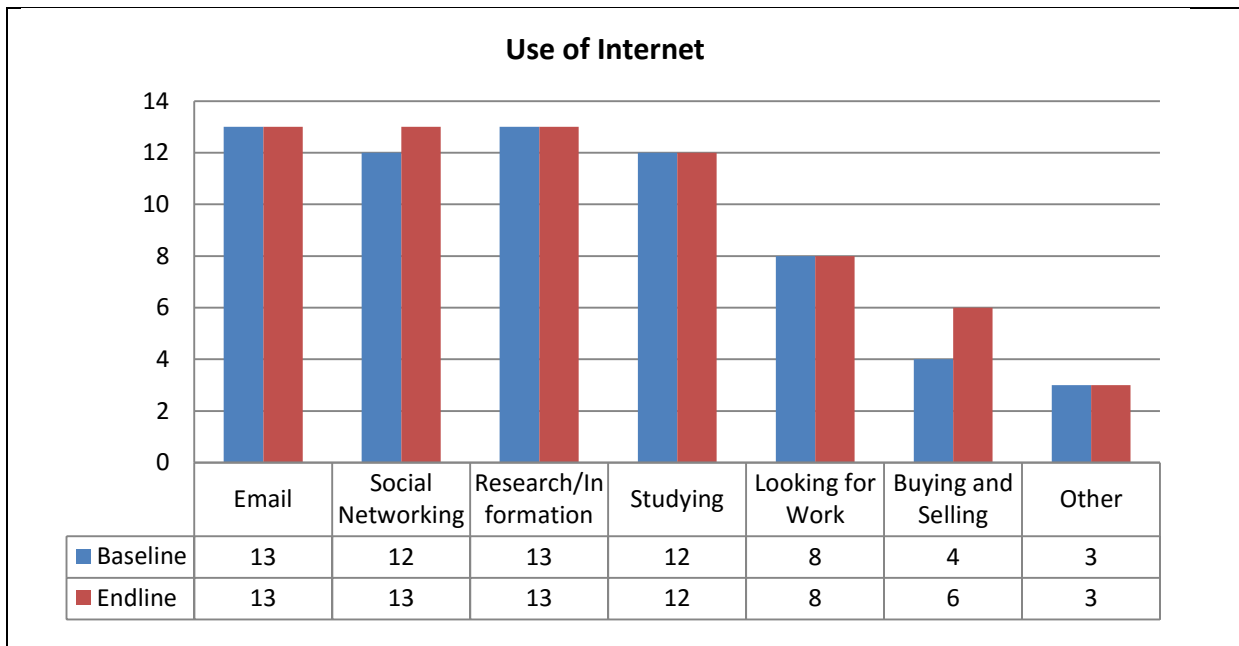
Figure 5.28: Use of internet

Figure 5.28 shows that 13 MEs used the internet for emails prior to project commencement and this number did not change for the project duration. Twelve MEs used the internet for social networking prior to project commencement and this number increased to 13 after the project had closed. Thirteen MEs used the internet for research purposes and this number did not change after the project had closed. Twelve of the MEs used the internet for studying purposes and this number did not change when the project finished. Eight MEs used the internet to look for work prior to project commencement and this number did not change after the project had finished. Four MEs used the internet for buying and selling before project commencement and this number increased to six MEs at the end of the project. Three MEs used the internet for other purposes prior to project commencement and after the project had closed, this number did not change.

5.2.4.4 The MEs perceptions' of the Cinema-in-a-backpack support during the project.

With regard to external support and knowledge, the MEs were asked prior to project commencement and after the project had finished if they thought that the project team would be helpful in the use of the Cinema-in-a-backpack and after, if the project team had been helpful with the use of the Cinema-in-a-backpack. Nine MEs thought that the project team would be helpful and after the end of the project only eight MEs believed that the project team was helpful with the use of the Cinema-in-a-backpack as shown in Figure 5.29.

	I fully agree that the project training team has been helpful in the use of the cinema-in-a-backpack	I fully agree that I have the resources necessary to use the cinema-in-a-backpack	I fully agree that I have the knowledge necessary to use the cinema-in-a-backpack
Baseline	9	6	9
Endline	8	1	8
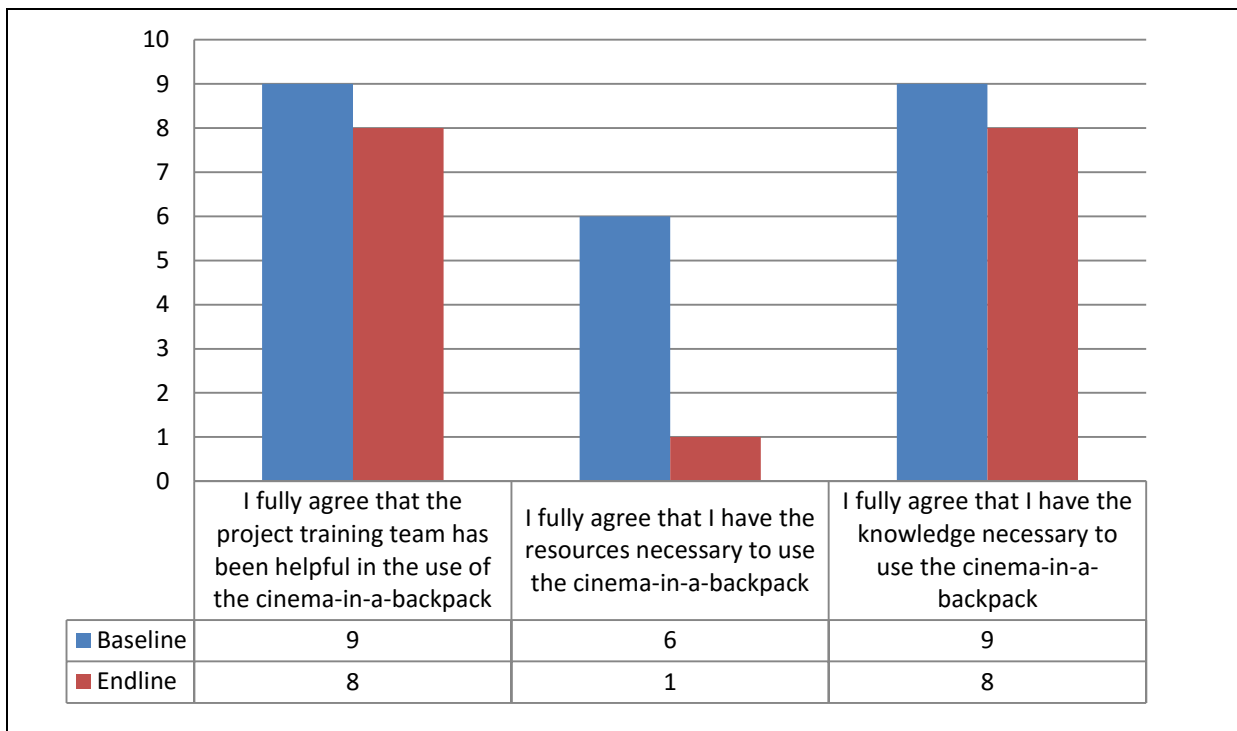
Figure 5.29: MEs perceptions' of cinema-in-a-backpack support during the project

Only one ME mentioned that speakers would facilitate cinema screening success prior to project commencement and only one ME mentioned that speakers were able to facilitate mobile cinema screening success. During the focus group interviews, the MEs highlighted that the speakers limit their success as sound is integral to the movie experience and the speakers were not generating enough sound to offer a full movie experience but only worked well in small rooms.

At the onset of the project, nine MEs believed that the tablet would seriously facilitate their mobile-cinema screening success and at the end of the project there was a drop in these figures and only seven MEs believed that the tablet facilitated their success.

At the onset of the project, four MEs believed that the business application on the MPP (where content is downloaded and questionnaire answered) will seriously facilitate their success. At the end of the project, this number did not decrease or increase, four MEs believed that the business application facilitated their success.

Prior to the Cinema-in-a-backpack project commencement, seven MEs believed that the business data they would receive via the business application on the MPP to help them with decision making would seriously facilitate their business success. There was a drop in these numbers at the end of the six month project as six MEs believed that the business data they received via the business application on the MPP aided their success.

Two MEs believed that the distribution via the DTN (receiving the content at the depot via the wireless router) would facilitate the success of the project prior to project commencement. At the end of the project, one ME mentioned that the distribution via the DTN facilitated project success. This is described in Figure 5.30.

	The speakers facilitate my success	The tablet seriously facilitate my success	The business application (where content is viewed, downloaded and questionnaire answered) seriously facilitate my success	The business data that you receive via the business application to help with decision making (visual analytics) seriously facilitate my success	The distribution via the DTN (receiving the content at the depot via the wireless router) seriously facilitate my success
■ Baseline	1	9	4	7	2
■ Endline	1	7	4	6	1

Figure 5.30: MEs view of the cinema-in-a-backpack equipment

Prior to project commencement, six of the MEs believed that they had the necessary resources to implement the Cinema-in-a-backpack project. At the end of the project, these numbers went down significantly. Only one ME had the necessary resources to implement the Cinema-in-a-backpack.

Prior to project commencement, nine MEs believed that they had the necessary knowledge to implement the Cinema-in-a-backpack project. After project implementation and when the project had ended, only eight MEs indicated they had the necessary knowledge needed to implement the Cinema-in-a-backpack project.

5.2.4.5 Summary

All the MEs knew how to use a computer before the start of the Cinema-in–a-backpack project. The MEs attitudes towards ICTs prior to the Cinema-in-a-backpack project commencement did not significantly change at the end of the project. The MEs' ICT usage did not change at all at the end of the Cinema-in-a-

68

backpack project. The MEs' access to internet significantly increased at the end of the cinema-in-a-backpack project but their use of the internet did not significantly change. At the beginning of the Cinema-in-a-backpack project, six of the MEs thought they had all the resources they needed to use the Cinema-in-a-backpack but at the end of the project, only one ME had the resources needed to use the Cinema-in-a-backpack project.

This section helped the researcher answer the research question regarding feasibility of low cost mechanisms to deliver multimedia content to entrepreneurs. This will be discussed in detail in Section 7.2.5.

5.2.5 Employment profile

The following data describes the MEs' employment profile. The data was collected from the employment and entrepreneurship baseline and endline survey. This helped the researcher to answer the research question: what were the outcomes of the Cinema-in-a-backpack project in terms of sustainability of the businesses that emerged. This section helped the researcher tackle the following research objective: to determine if the businesses developed can sustain themselves.

5.2.5.1 Employment status

At the onset of the project, six male MEs were self-employed and two MEs were self-employed but considering full time employment. There were four self-employed female MEs and one unemployed female ME. At the end of the project, the status for the male MEs did not change and for the female MEs, the one female ME that was unemployed at the beginning, now considered herself to be self-employed. This is shown in Figures 35 and 36.

69

Baseline

	Unemployed	Self employed	Self-employed (looking for full-time employment)
■ Male	0	6	2
■ Female	1	4	0
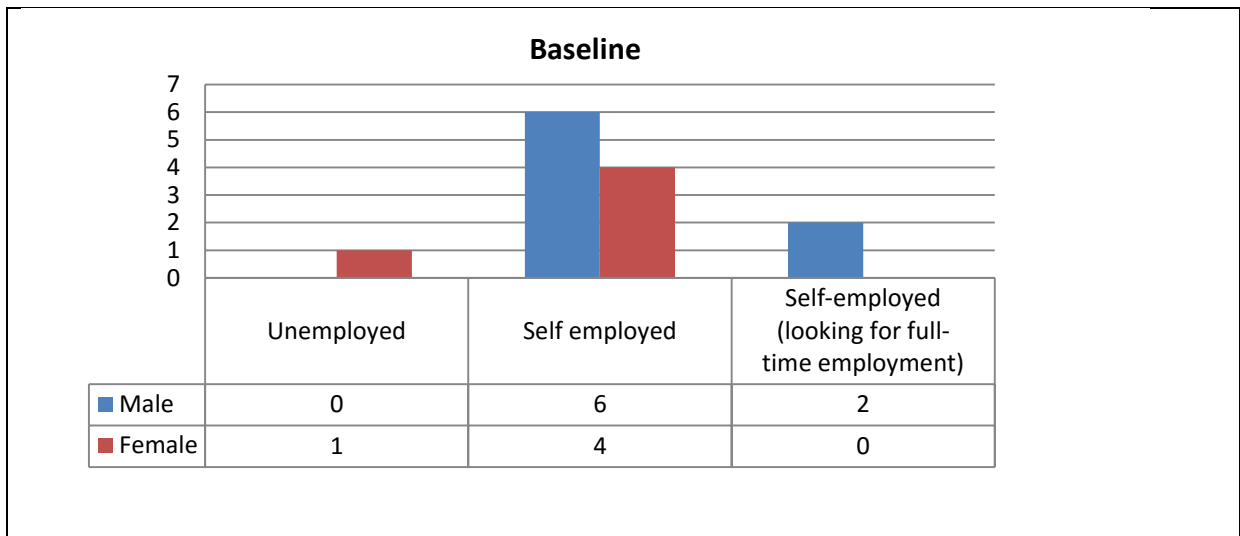
Figure 5.31: Employment status (Baseline)

Endline

	Self employed	Self-employed (looking for full-time employment)
■ Male	6	2
■ Female	5	0
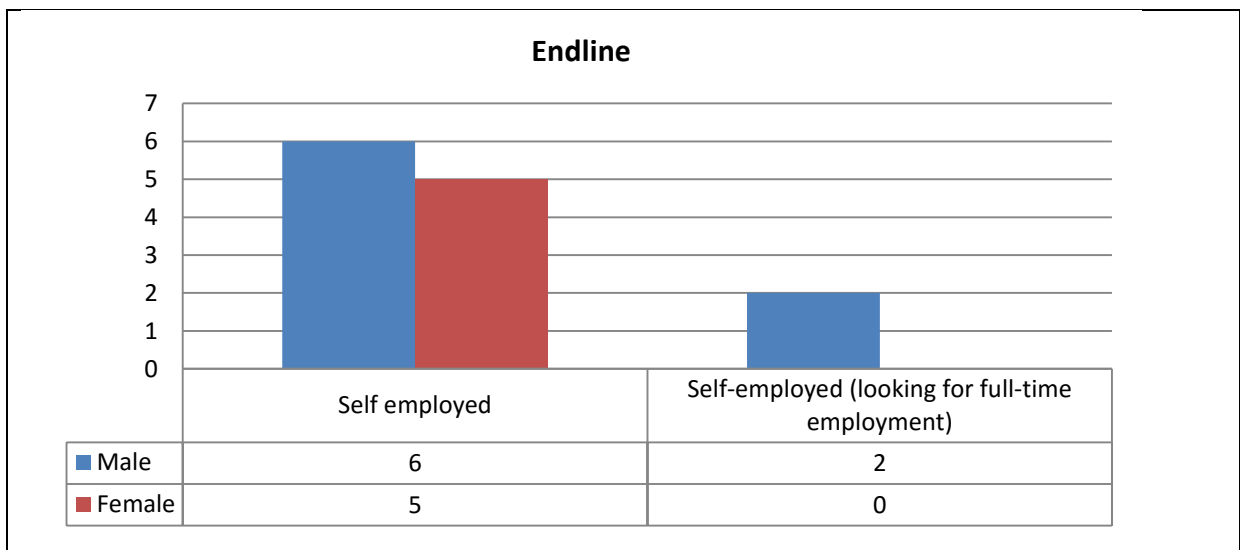
Figure 5.32: Employment status (endline)

5.2.5.2 Perceptions of self-employment

The ME's perception of self-employment at the onset and end of the Cinema-in-a-backpack project did not change. The majority of the male MEs still see self-employment as a good way to make money to a large extent. Two of the female MEs also share the same sentiment with the four male MEs and another two completely believe that self-employment is a good way to make money as depicted in Figures 37 and 38.

70
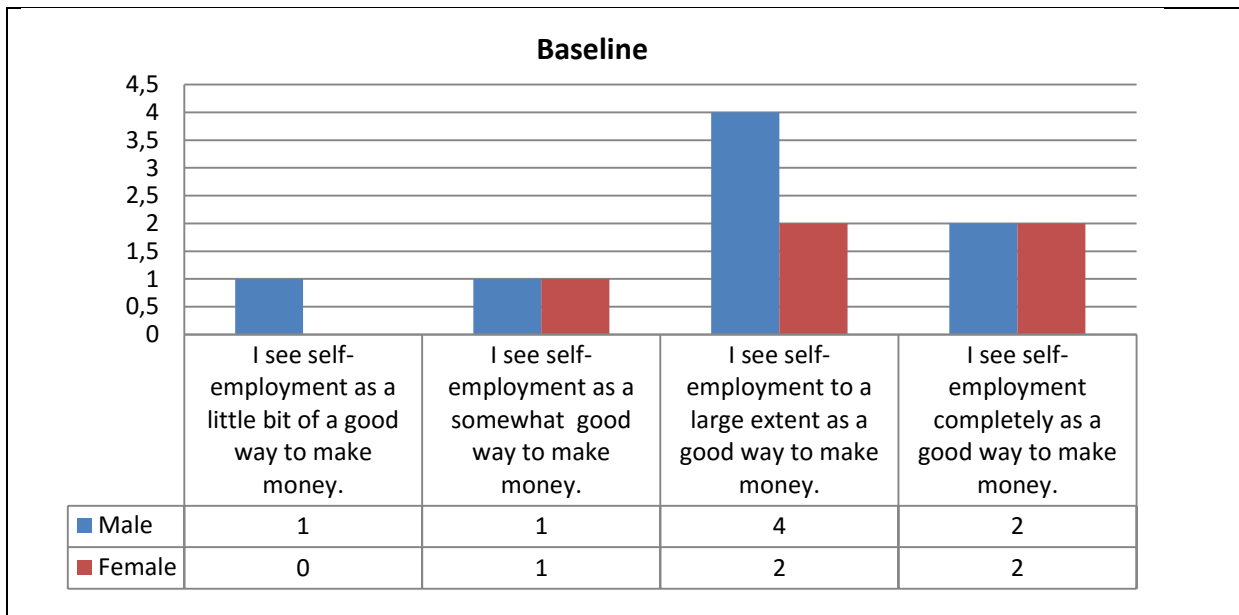
Figure 5.33: Perceptions of self-employment (Baseline)

Baseline	I see self-employment as a little bit of a good way to make money.	I see self-employment as a somewhat good way to make money.	I see self-employment to a large extent as a good way to make money.	I see self-employment completely as a good way to make money.
Male	1	1	4	2
Female	0	1	2	2
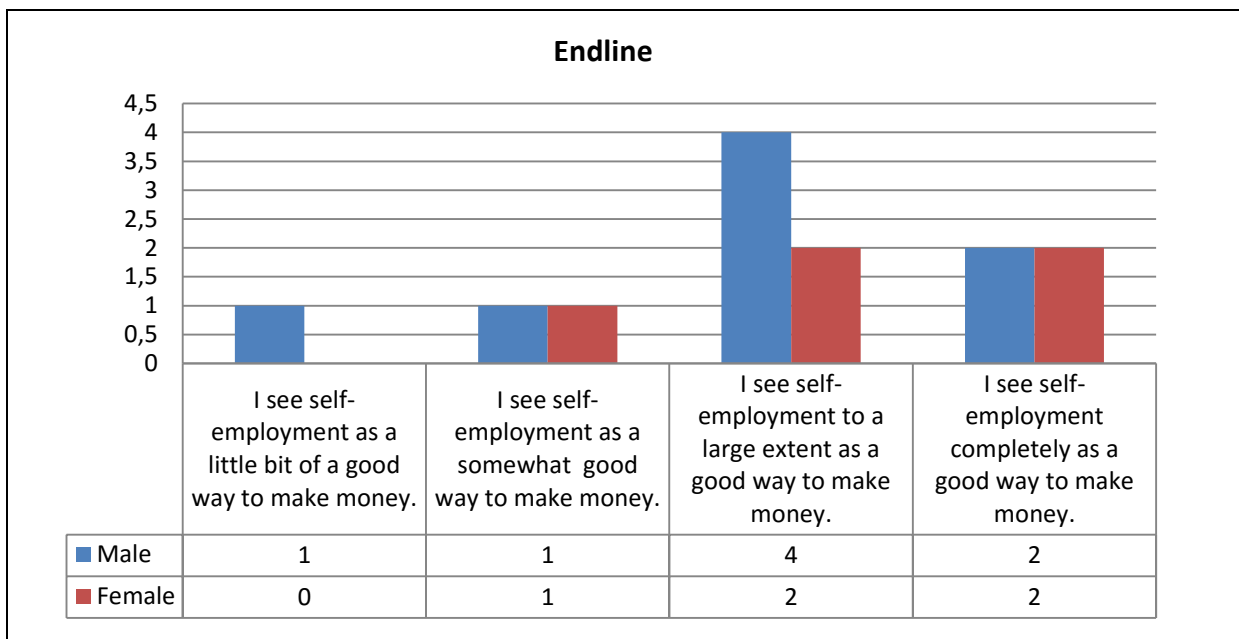
Figure 5.34: perceptions of self-employment (Endline)

Endline	I see self-employment as a little bit of a good way to make money.	I see self-employment as a somewhat good way to make money.	I see self-employment to a large extent as a good way to make money.	I see self-employment completely as a good way to make money.
Male	1	1	4	2
Female	0	1	2	2

5.2.5.3 MEs income, business and career satisfaction

From the onset to the end of the Cinema-in-a-backpack project, the number of MEs who were satisfied with the income or amount of money available to them and those who were satisfied with their current job or business remained constant. However, the number of MEs satisfied with the direction their career is going increased. This is shown in Figure 5.35.

71
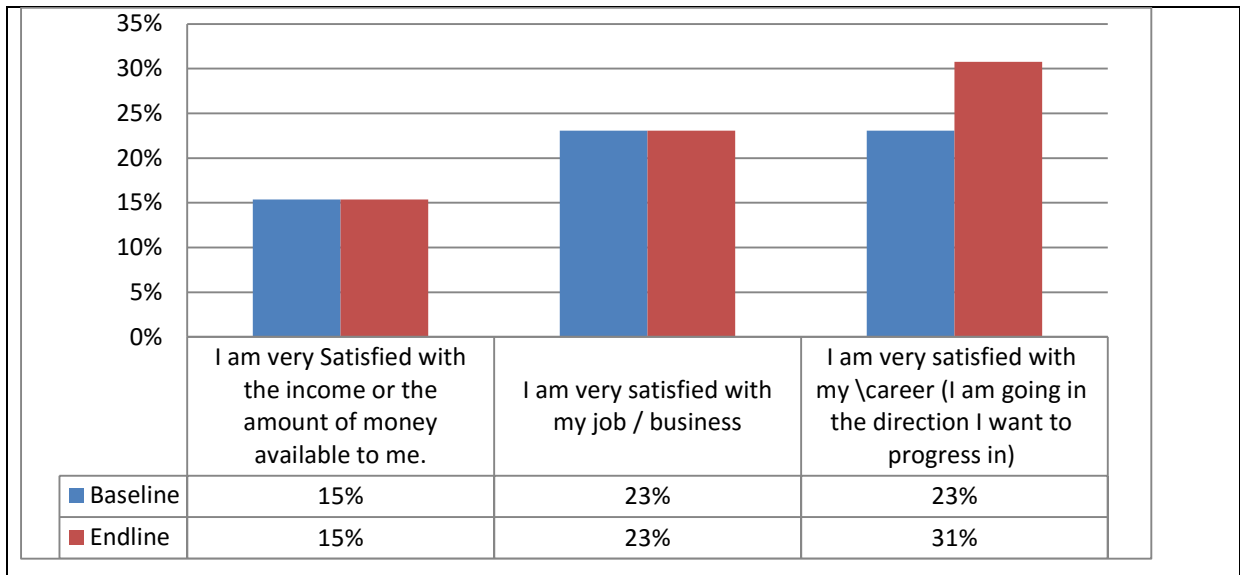
Figure 5.35: Satisfaction about their income, business and career (Baseline and Endline)

5.2.5.4 MEs duration of self-employment

Figure 5.36 shows that 12 of the MEs were self-employed for more than one year, and one ME has been self-employed for less than one year. One ME has been self-employed for only a year, four MEs have been self-employed for more than four years, and three MEs have been unemployed for five years, another three for six years and one for seven years.
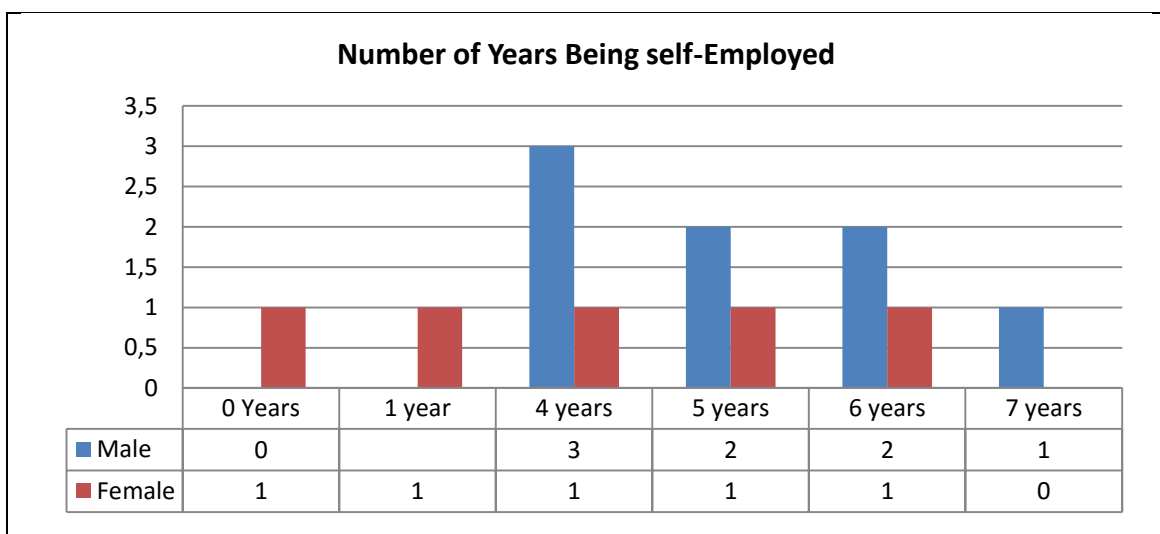
Figure 5.36: Duration of self-employment

Figure 5.37 shows the percentage of MEs who were looking for work before the cinema-in-a-backpack project. The number of MEs looking for work had reached 43% prior to the project.
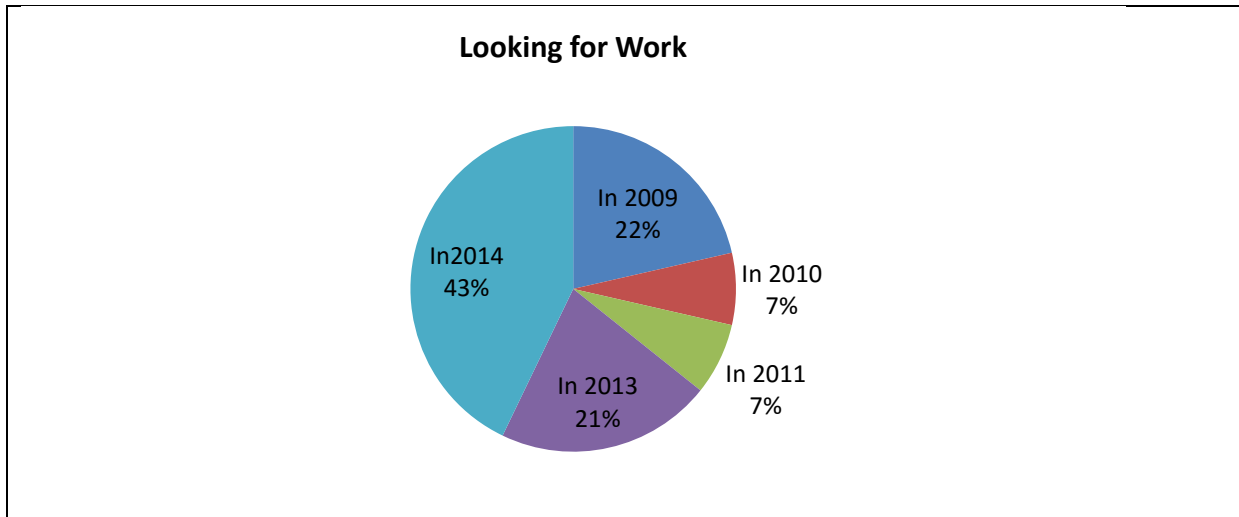
Figure 5.37: MEs looking for work

5.2.5.5 Summary

The above data describes the MEs' employment status, MEs' perceptions of self-employment at the onset of the project and at the end of the project, the MEs' satisfaction about their income, business and career at the onset and of the project, and the MEs' duration of self-employment. This data helped the researcher in determining if the businesses developed can sustain themselves by looking at how the MEs perceive self-employment and if they actually reap any benefits from it.

5.2.6 Income profile

The following data describes the MEs' income profile. The data was collected from the socio-economic baseline and endline survey. This helped the researcher answer the following research question: What were the outcomes of the Cinema-in-a-backpack project in terms of the sustainability of the businesses that emerged. This section helped the researcher tackle the following research objective: to determine if the businesses developed can sustain themselves.

73

5.2.6.1 Income sources

Four of the MEs relied on a single income sources and nine of the MEs relied on multiple sources of income prior to the Cinema-in-a-backpack project commencement as shown in Figures 42 and 43. This did not change at the end of the project. Nonetheless, their reported income earning activities at the endline appears more diverse than at the onset of the pilot as presented in Table 1.
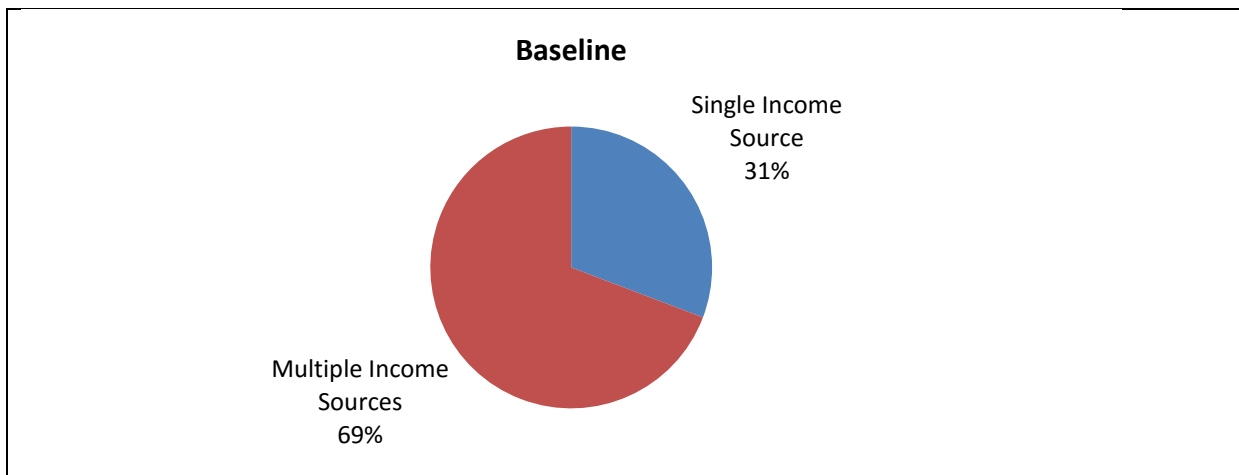
Figure 5.38: Income sources at the onset of the project
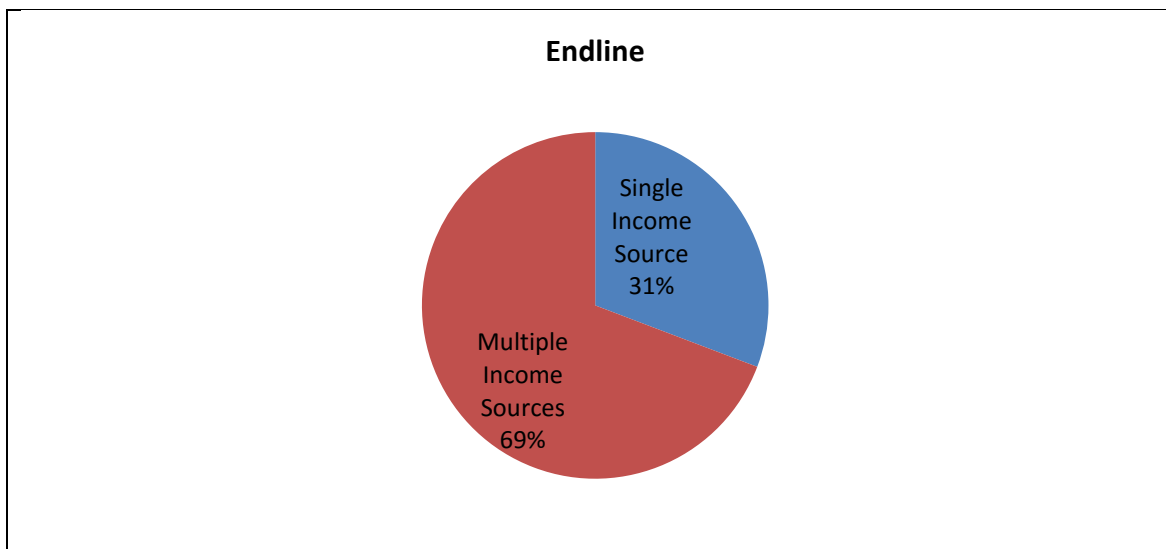
Figure 5.39: Income sources at the end of the project

Table 5.1: Income sources at the start and end of the Cinema-in-a-Backpack project

MEs	Income Activities at Baseline	Income Activities at End line
ME1	• Internet café • Video filming & editing	• Internet service • Video filming & editing • Binding documents • Photo copying • Cinema in a back-pack (movies)
ME2	• Internet café • Catering	• Internet café • Catering • Video production • Cinema in a back-pack
ME3	• Selling atchar from home	• Selling atchar from home • Screening movies for people around my area
ME4	• Internet café	•
ME5	• Internet café • Video filming & editing	• Internet café • Video filming & editing
ME6	• None	• Screening of movies • Marketing • Selling refreshments and snacks
ME7	• Management administration • Customer service	• Technician • Screening movies • Camera woman • Computer lessons • Training and teaching
ME8	• Internet café	• Internet café
ME9	• Internet café • Making shoes and selling them • Hair salon	• Internet café • Making shoes and selling them • Hair salon • Screening movies
ME10	• Poultry- • Butchery • Internet café	• Poultry • Butchery • Internet café • Mosaic movies
ME11	• Internet café	
ME12	• Internet café • Consulting • Technical work	• Hosting • Screening • Presentations • Marketing
ME13	• Internet café • Video filming & photography	• Internet café • Video filming and photography • Selling airtime and electricity • Designing wedding cards • Typing and printing

75

5.2.6.2 Perceptions of their business success

The MEs' perceptions of their business activities improved at the end of the Cinema-in-a-backpack project implementation. None reported that their businesses were very successful in the endline survey (Figure 5.41) as compared to the baseline survey in Figure 5.40. The ME who is for the first time running her own business because of her participation in the Cinema-in-a-backpack project reported that her business was averagely successful.

	My business is not at all successful	My business is below average successful	My business is average successful	My business is successful	My business is very successful
Male	0	2	4	2	0
Female	0	0	2	2	0
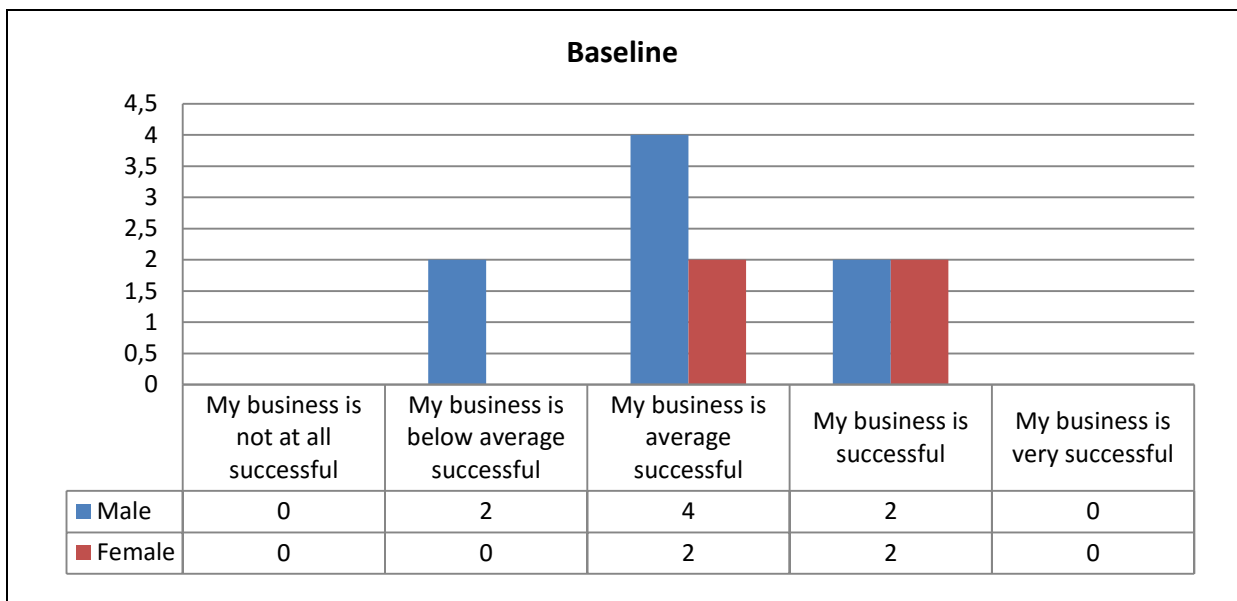
Figure 5.40: Perceptions of their business success at the onset of the project

	My business is not at all successful	My business is below average successful	My business is average successful	My business is successful	My business is very successful
Male	0	0	7	1	0
Female	0	0	3	2	0
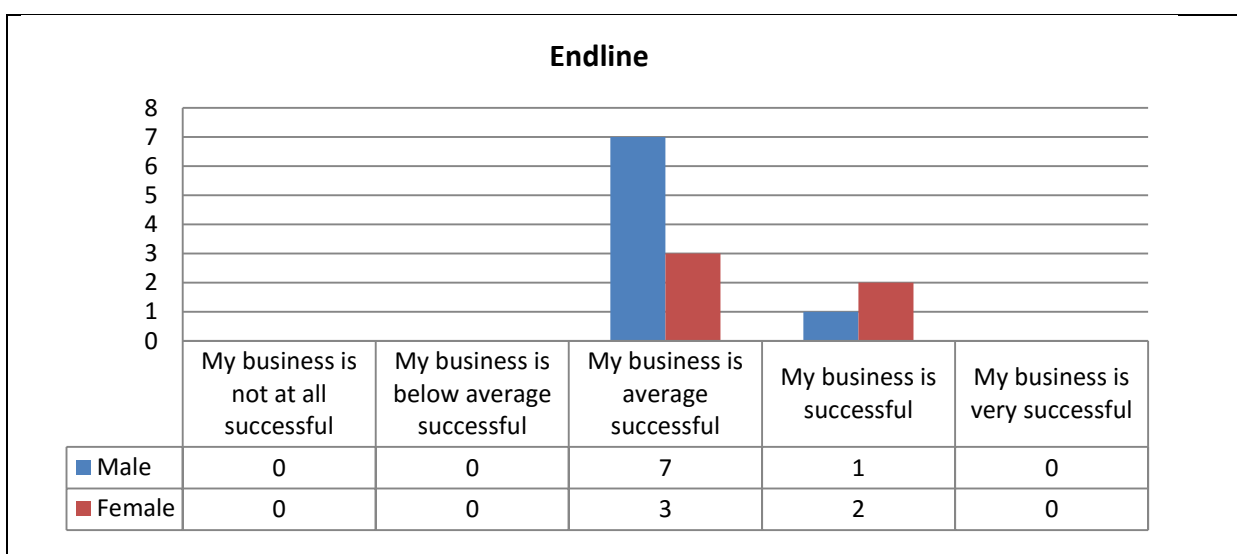
Figure 5.41: Perceptions of their business success at the end of the project

76

5.2.6.3 MEs income profile

At the onset of the Cinema-in-a-backpack project, the majority earned over R2 000 per month. One ME earned less than R500 a month, three MEs earned between R1000 and R1501, one ME earned between R1500 and R2001 and eight MEs earned over R2000. At the end of the Cinema-in-a-backpack project, the MEs income profile had changed. One ME earned less than R500 a month, one ME earned between R499 and R1001. Only one ME now earned between R1000 and R1501 and none earned between R1500 and R2001. Ten MEs earned over R2000 at the end of the project. This is shown in Figures 46 and 47.

Baseline

	Less than R500 per month	R500 to R1 000	R1 001 to R1 500	R1 501 to R2 000	Over R2 000
Male	0	0	3		5
Female	1	0	0	1	3
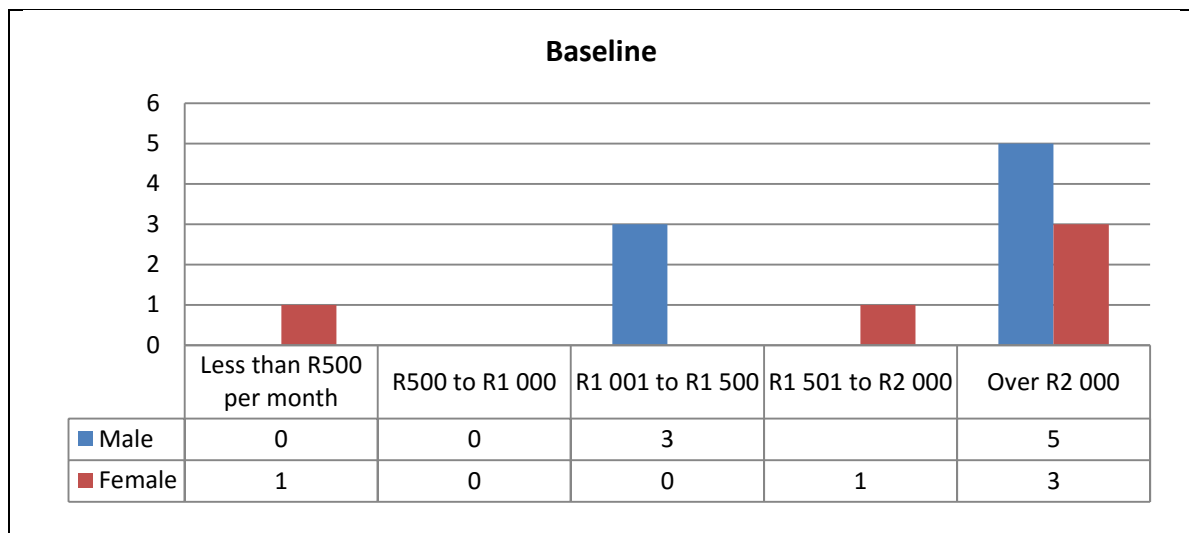
Figure 5.42: Income profile by gender at the onset of the project

Endline

	Less than R500 per month	R500 to R1 000	R1 001 to R1 500	R1 501 to R2 000	Over R2 000
Male	0	0	1	0	7
Female	1	1	0	0	3
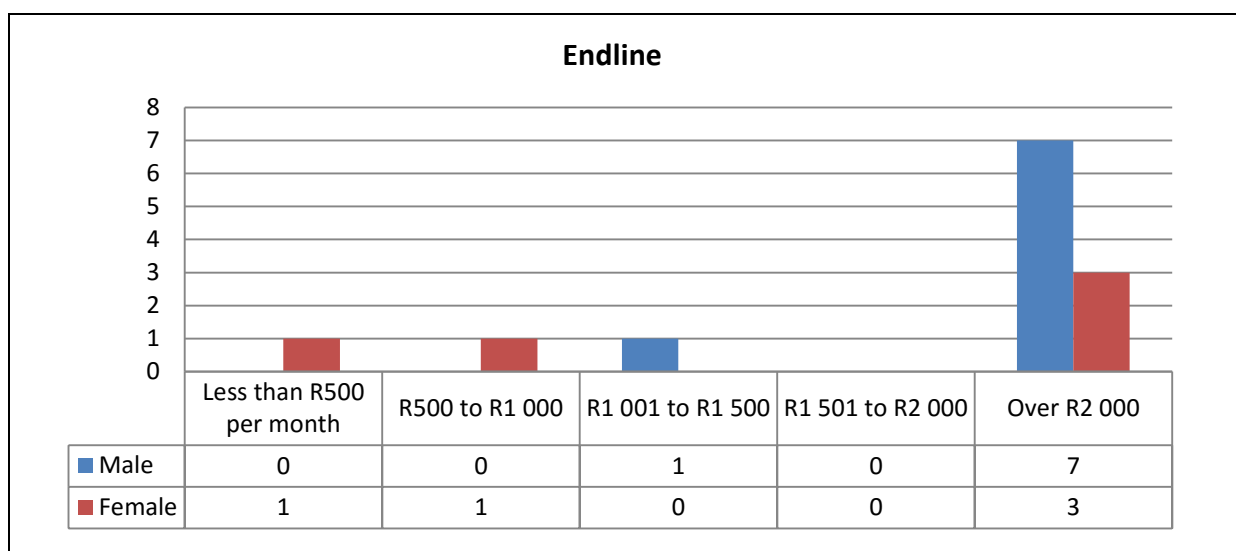
Figure 5.43: Income profile by gender at the end of the project

5.2.6.4 Income sufficiency

Figures 48 and 49 shows the income sufficiency profile for the MEs slightly improved with three MEs who initially reported that their income was "not at all" sufficient or "a little bit" sufficient reporting that their income was now "somewhat" sufficient.

Baseline

	Not at all	A little bit	Somewhat	To a large extent	Completely
Male	2	2	1	2	1
Female	2	1	0	2	0
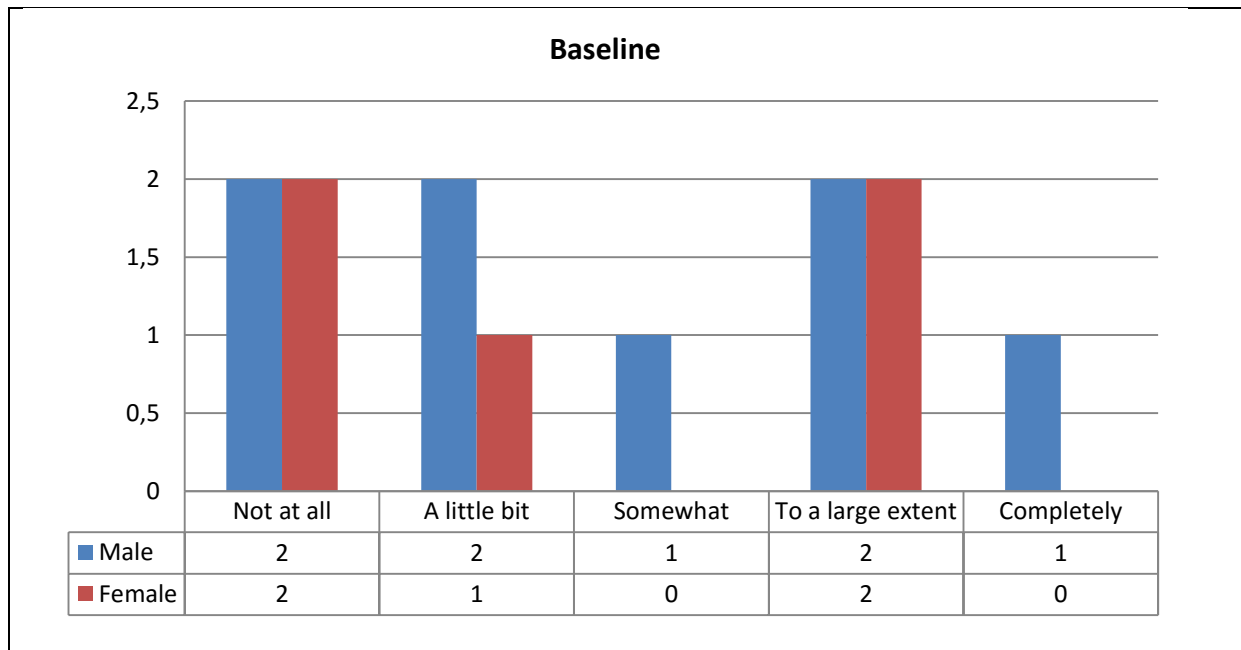
Figure 5.44: Income sufficiency at the onset of the project

Endline

	Not at all	A little bit	Somewhat	To a large extent	Completely
Male	1	1	3	2	1
Female	1	1	1	2	0
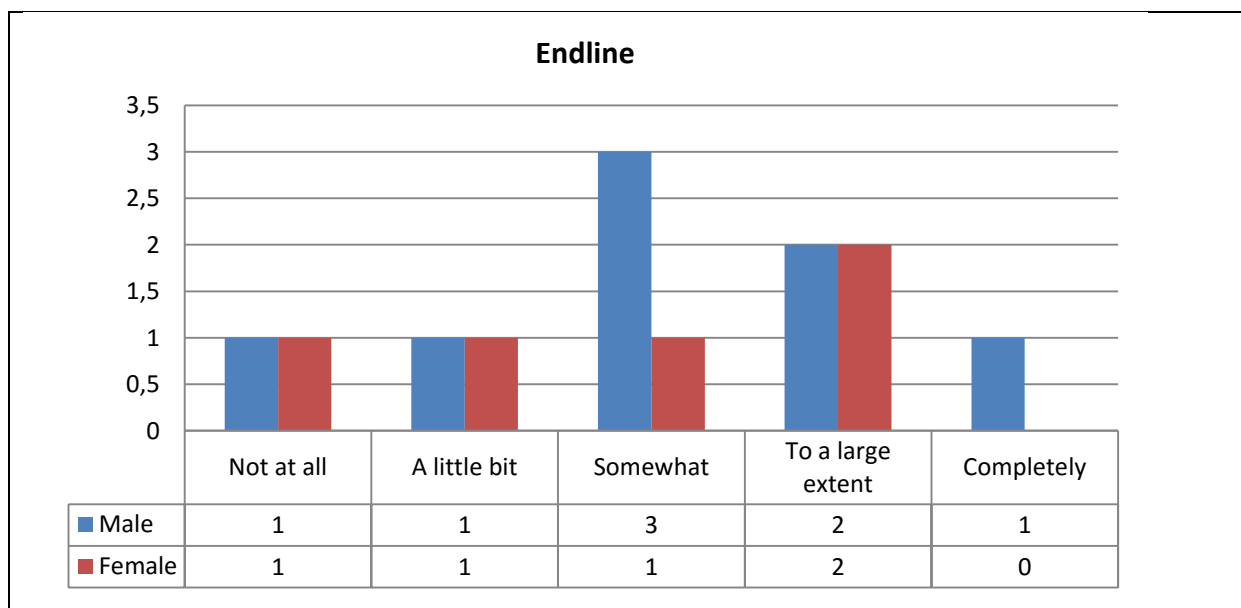
Figure 5.45: Income sufficiency at the end of the project

78

5.2.6.5 MEs' profit reporting

Of the 13 MEs who finished the Cinema-in-a-backpack project, none reported making a loss. Figure 5.46 shows the weekly revenue in comparison to other income activities.
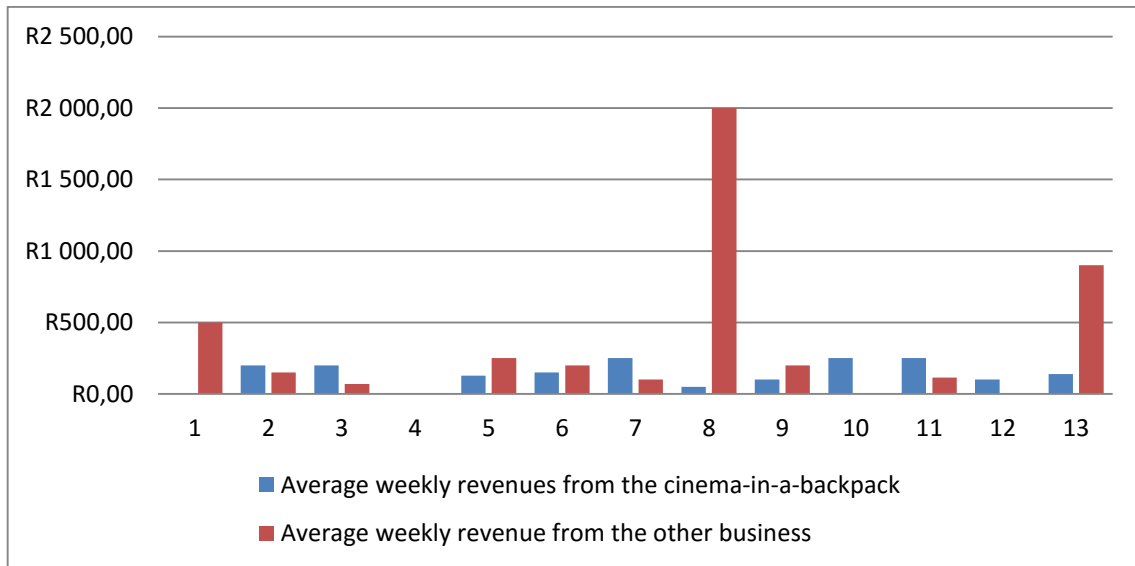
Figure 5.46: Weekly revenue from Cinema-in-a-backpack versus other income activities

Five of the male and five of the female MEs reported that they made a profit and three of the female MEs reported a break even as seen in Figure 5.47.

	Profit	Break Even
Male	5	3
Female	5	0
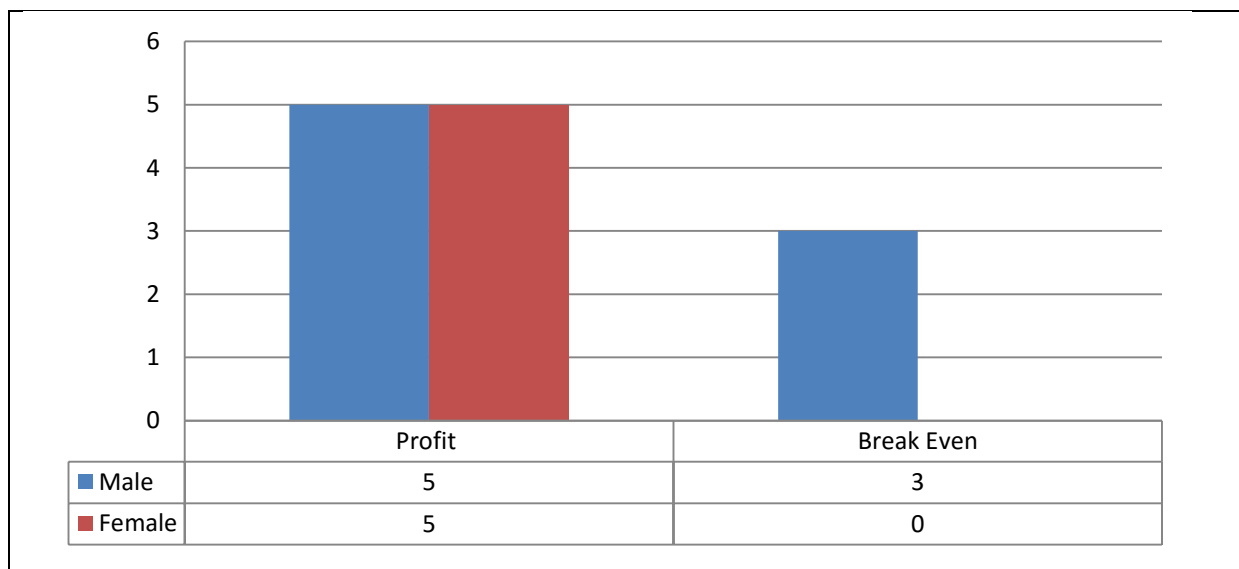
Figure 5.47: MEs reported profitability by gender

79

5.2.6.6 Summary

The MEs' above data describes the MEs' income profile. It describes in detail the MEs' income sources, MEs' perception of their business success, MEs' income profile, MEs' income sufficiency, and MEs' profit reporting. This data helped the researcher tackle the research objective: to determine the sustainability of the businesses developed.

5.2.7 MEs' attitude towards the Cinema-in-a-backpack profile

The following data was collected from the employment and entrepreneurship baseline and endline survey. The data helped the researcher answer the following research question: what were the outcomes of the Cinema-in-a-backpack project in terms of sustainability of the businesses that emerged? The research objective tackled: to determine if the businesses developed can sustain themselves.

The MEs' perception of growth in their respective communities changed at the end of the project from what they thought at the onset of the project. Five MEs initially indicated that their areas somewhat offer enough business opportunities for small business owners to grow their businesses and this number increased to seven. At the end of the project one ME indicated that there are no business opportunities for small business owners to grow their businesses in their area. Two MEs at the end of the Cinema-in-a-backpack project believed that their area offers business opportunities to a larger extent for small business owners to grow their businesses; this number had decreased from five at the onset of the project. This is shown Figures 52 and 53.
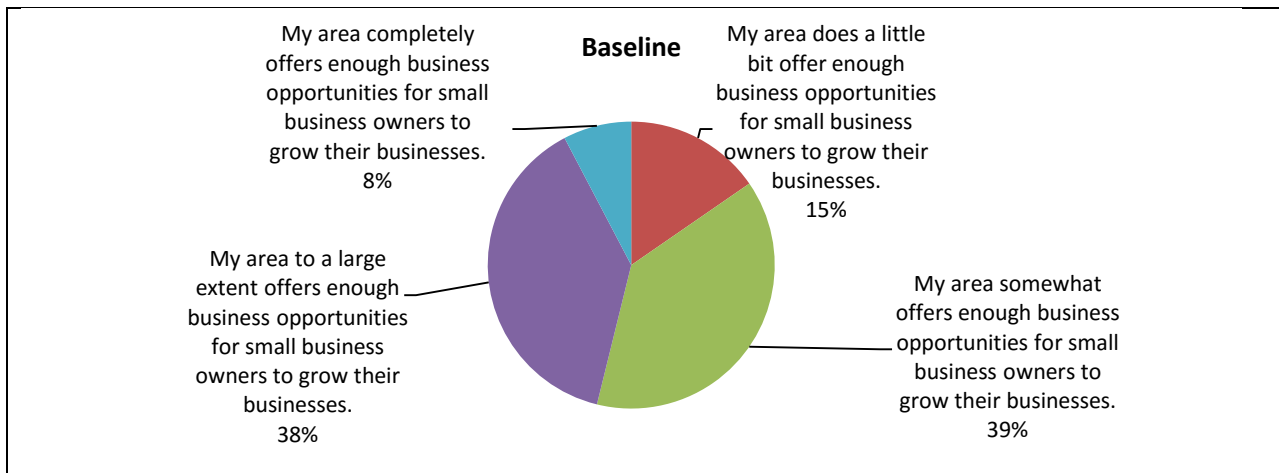
Figure 5.48: Perceptions of growth in their respective communities at the onset of the project
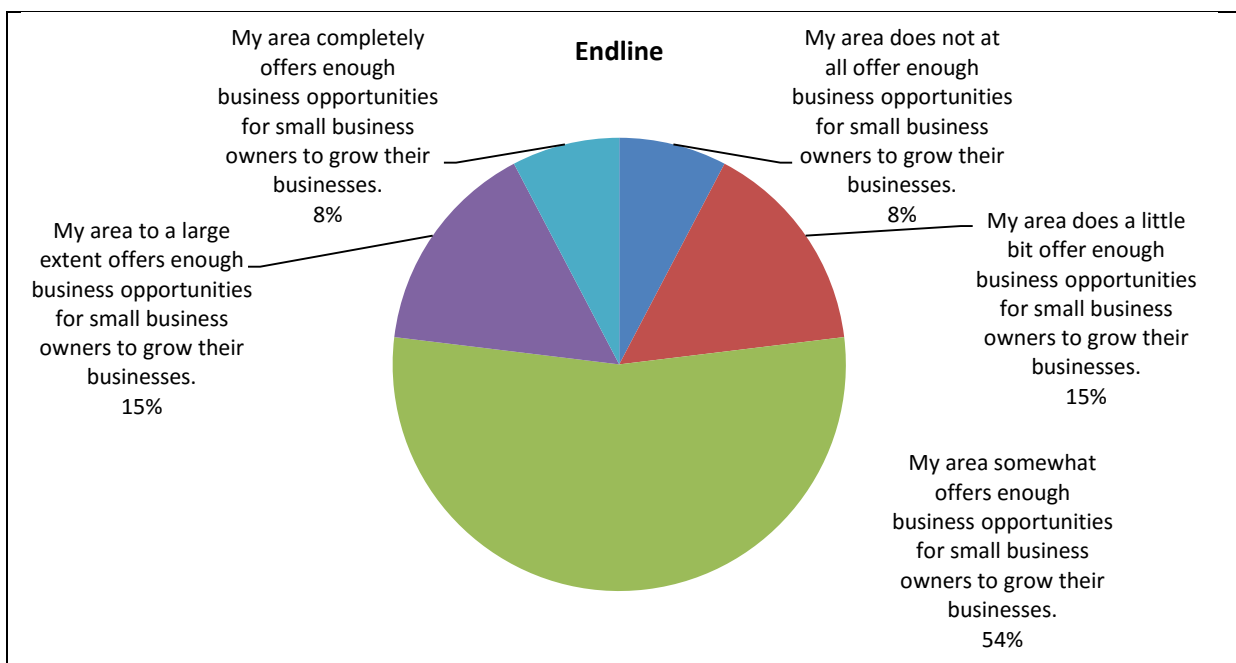
Figure 5.49: Perceptions of growth in their respective communities at the end of the project

The MEs' perception of the market for cinema changed at the end of the project with ten MEs indicating that their areas "somewhat" offer opportunities to run a cinema compared to only six MEs at the onset. One ME indicated that the area to a "large" extent offers opportunities to run a cinema and at the onset five MEs had indicated the same. Two MEs believed that their areas "completely" offers opportunities to run a cinema. This is shown in Figures 54 and 55.
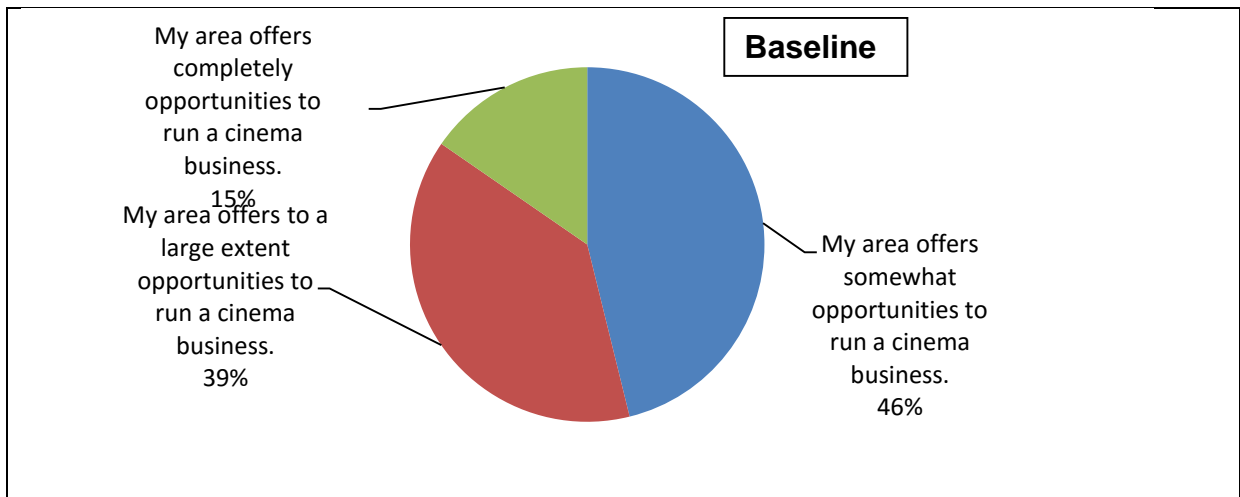
Figure 5.50: Perceptions of market for cinema in their respective communities at the onset of the project
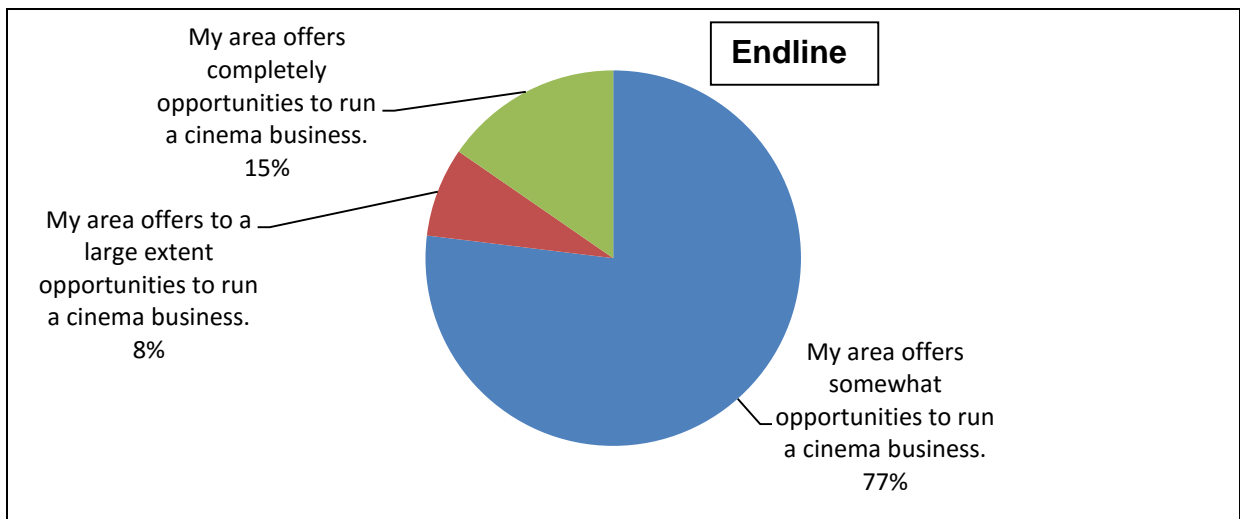
Figure 5.51: Perceptions of market for cinema in their respective communities at the end of the project

5.3 Results from interviews

5.3.1 Value creation methods developed by the MEs

This section describes the value creation methods developed by the MEs. The following data was collected from the exit interviews attached in Appendix A. The data helped the researcher answer the following research question: what were the outcomes of the Cinema-in-a-backpack project in terms of: business models that emerged. The research objective tackled: to determine what business models the entrepreneurs use to make their businesses a success.

There were ten MEs who started partnerships and three MEs who did not start partnerships of any kind. The following value creation methods were implemented by the MEs who started partnerships.

The MEs had to come up with a business model so as to implement the Cinema-in-a-backpack project. During the project run of six months, the MEs came up with the following value creation methods:

1. Targeting the children's market: the film market is well developed in the communities where the MEs conduct their businesses and the youth and adult audiences are not willing to spend their money on watching movies which are not recent. The MEs decided to target the children's market. Children appeared to be more receptive to watching 'old movies'.

2. Targeting schools and crèches: Finding affordable screening venues was a major challenge for the MEs. As the children's market was receptive to the Cinema-in-a-backpack project, the MEs decided to target schools and crèches. This business model enabled the MEs to trade the high costs of venue rental with low ticket prices.

3. Promoting the Mosaic 2B menu as local content: Their potential audience had access to the latest Hollywood blockbusters through DStv and pirated DVDs. The Mosaic Player Platform menu had 33% local movies and films in indigenous languages. The MEs then promoted their new business venture as one which can provide a local content cinema.

83

4. Marketing the Mosaic 2B menu as educational (and religious) content: The Mosaic Player Platform had movies with lots of moral and historical lessons. The MEs used these to advertise their business venture as edutainment.

5. Advertising the Cinema-in-a-backpack as a social event: Micro-entrepreneurs advertised their cinema enterprise as a social event for local children, youth and adults to meet together and also to be entertained. One particular example is the 'chilling session', where local youth come together and watch a recent blockbuster movie.

6. Selling private screenings: Micro-entrepreneurs held mobile screenings at private functions. They charged the organisers a fee for the screening.

7. Renting the equipment (projector): besides screening movies, the projector from the Cinema-in-a-backpack project was rented out to clients as a way to get extra income.

8. Selling refreshments during the mobile screenings: Refreshments and snacks were sold at the mobile screenings. This was done to increase the revenue from the screenings.

9. Offering credit: Schools were allowed to pay at the end of the month for screenings done during the month

10. Promoting the screenings as fundraising activities for the crèche: The MEs agreed with the client to use the screenings as a way of raising additional funds for the school. The client pay a set fee for the screenings and all the money raised from the screenings is used by the client.

In conclusion, there were ten MEs who were able to employ at least one value creation method. Ten MEs came up with ten different ways of ensuring that their business ventures started making profits and delivered value to their clients.

The above data is representative of the business models employed by the MEs but they are not the actual business models. This data helped the researcher deduce which business models the MEs used. These business models will further be discussed in detail in Section 6.2.

5.3.2 Challenges and positive experiences faced by the MEs

In this section the researcher discusses the challenges and positive experiences the MEs came across. The following data was collected from the focus group interviews and the exit interviews. This information helped the researcher answer the following research question: What were the challenges and positive experiences the MEs encountered with regards to the Cinema-in-a-backpack project? The research objective tackled: to determine the success factors, so as to build on those and determine the obstacles to success, so as to counter these when developing future ideas. The discussion starts by describing the obstacles to success followed by the success factors.

5.3.2.1 Obstacles

Venues

Some of the MEs reside in areas where there are no community or public halls, hence they did not have a public place where they could do their screenings. The rest of the MEs who stay in areas where there are community or public halls failed to use these halls because they were expensive to rent. The price of booking a venue at any of the community halls could be as high as R2 500.00. The MEs could not afford to book a venue at this cost.

The MEs had concerns regarding cancellation of bookings. Some of the MEs were able to secure screening venues at crèches and schools, but they faced the challenge of the crèches and schools' administrative offices cancelling their events. The MEs would have secured a venue for screening at a crèche and at a school.

Content

The MEs were not able to order the most recent movies. They highlighted that the audience has already watched the movies they were screening and the audience were not willing to come to the screenings or were not willing to pay for old content. Some of the audience would then watch the movies for free and were only willing to pay for recent movies.

The other issue which the MEs raised was that some members of the communities had access to DStv. Therefore they did not find it necessary to go watch movies which they could access on DStv.

The MEs were also facing a lot of competition from pirated movies. The pirated movies cost as low as R10 and the people selling these pirated movies will be offering the latest content.

Marketing

The MEs indicated that they struggled to market the service they were offering their target market. The MEs employed only three tactics to market what they were offering, namely instant messaging services such as WhatsApp to spread the word about upcoming screening events, posters to advertise their screening events, and lastly word of mouth. The MEs struggled to fund their marketing efforts.

Equipment

One of the MEs had screening equipment which was not battery powered, but needed to be plugged in directly into an electricity point, whereas the other MEs had backup batteries. This meant that when there was electricity load shedding in the area, then that ME was not able to do any screening.

Technology

The MEs experienced some difficulties associated with the infostations. The connection speed between the Mosaic 2B Player Platform (MPP) and the infostation was slow and this led to the download speed being slow. Once the movies were downloaded onto the MPP, it took time to unlock: in some instances, the MEs reported that it took about 5 days for a movie to become playable on the MPP. Only one device could connect to the infostation at a time.

Non-payments

Some of the audience were not willing to pay for the movies. This was mostly attributed to the fact that the entrepreneurs were screening old content.

Safety

The infostation was located in an isolated area. The female MEs were concerned about their safety when they visited the infostation.

5.3.2.2 Positive factors

Innovative venture

The community was never before exposed to this kind of entertainment, so it was a new experience for the community. This new business venture helped keep the children of the streets.

Business experience

The MEs were able to grow their business skills. The MEs were able to nurture their negotiation skills. They also learnt how to plan, manage finances and communicate with different people. The Cinema-in-a-backpack project also helped the MEs create healthy work and personal relationships which may prove fruitful in the future.

Business opportunity

The equipment was portable and easy for screening in a lot of different places. This presented the MEs with a lot more opportunities as they could go around seeking new markets.

Community recognition

The screenings helped bring the community together. The community came together to socialize whilst watching movies and films.

5.3.2.3 Summary

The MEs faced several challenges with regards to the Cinema-in-a-backpack project. The MEs were unable to secure cheap venues to screen their movies and films. The content that the MEs were able to secure was not in demand. There was an issue with one of the ME's equipment which was not battery powered as it had no backup power in the event of power failure. Connecting and downloading movies from the infostation took long hours. Some members of the community were not

87

willing to pay for the screenings but wanted to watch the screenings for free. The infostation was in an isolated area and the MEs did not feel safe visiting the infostation.

The MEs also experienced some positive outcomes. The Cinema-in-a-backpack project was an innovative venture and attracted attention. The MEs gained business experience. The project offered new business opportunities. The community recognised the efforts of the MEs.

The challenges and positive outcomes of the project will further be discussed in Section 7.2.3 as the researcher discusses the research findings.

5.3.3 Cinema-in-a-backpack monthly progress

To measure the monthly progress of the MEs, the entrepreneurs were asked monthly how things were going with the Cinema-in-a-backpack project. This data was collected using the In-field monitoring survey. They had to respond by giving a rating on a Likert scale where 0 was not good at all and 10 was excellent. The entrepreneurs were then supposed to give a reason for their selection and the data for the months of March to June. This helped the researcher answer the research question: What were the challenges and positive outcomes of the Cinema-in-a-backpack project. This addressed the following research objective: to determine what the success factors and obstacles of the Cinema-in-a-backpack project were so as to build on those for future research.

March Data

83% of the responses given by the entrepreneurs gave the project a negative rating of a three to four out of ten. The reasons given by the entrepreneurs were that the idea was still new and the communities needed time to accept the idea. Another reason was that the movies being screened were not appealing to the target audience, in that case mostly children. Another reason also highlighted was the failure to secure venues for screenings.

88

17% of the responses given by the entrepreneurs gave the project an eight out of ten rating. The reason for the eight out of ten rating was that in some communities the target market responded very well and the project did not take time to take off.

April Data

47% of the responses given by entrepreneurs rated the project a negative three to four out of ten. The entrepreneurs could not get venues to screen their movies but instead decided to do home screenings which could only attract a small number of the target market. Another reason highlighted was that the movies being screened were not attractive.

35% gave a neutral rating of a five to six out of ten citing that the communities were warming up to the idea of a cinema. The MEs were getting more audiences for their screenings. On the negative side the MEs were struggling to secure venues and the audience were not willing to pay for the screenings.

18% gave a positive rating of a seven to eight out of ten. The community liked the cinema experience being provided by the MEs. The MEs were getting more audience than the previous month.

May Data

27% of the responses given by the entrepreneurs were negative rating the project a three to four out of ten. The entrepreneurs highlighted various issues. They were not able to find venues for screening. The MEs were not able to capture an audience because the content they were screening was not in demand.

46% gave a neutral rating of five to six out of ten. The MEs were failing to secure venues and the content they were screening was not in demand. The audience requested the latest movies and films. On the positive side, the number of people attending the screenings was increasing.

89

27% gave a positive rating of seven to nine out of ten. These MEs had a great response from the community. They managed to secure venues for their screenings. The audience attending their screenings were responsive to the content being screened.

June data

27% of the responses given by the entrepreneurs rated the project a negative four out of ten. The MEs were still struggling to get venues for screenings and were failing to reach out to the target audience because of the content they were screening.

6% of the responses given by the entrepreneurs rated the project a neutral five to six out of ten. The community was responding well to the screenings but responses given by the entrepreneurs highlighted the issues of the community responding well to their screenings but these entrepreneurs still raised concerns by the target market of screening old content.

Thirteen percent gave a positive rating of seven to eight out of ten. The screenings offered the community an opportunity to come together and socialize. The attendance was increasing for the screenings.

To summarise: The MEs had a lot more negative experiences in the first month when the project was launched where 83% of their responses were negative and 17% were positive. These figures improved the following month where their responses recorded 47% negative experiences and 35% were neutral. 18% had positive experiences. In the month of May, the number of negative responses went down again to 27% and the MEs gave more neutral responses which totalled 46% of the responses. The number of positive responses by the MEs increased to 27% from 18%. In June the number of responses recording negative experiences remained constant at 27%. The responses recording neutral experiences increased to 60%

form 46%. The responses recording positive experiences went down from 27% to 13%.

The researcher used this data to further explain the positive and negative outcomes of the Cinema-in-a-backpack project. This will be discussed further in Section 7.2.3.

5.3.4 Summary

The data presented describes the data collected from the questionnaires and the interviews. This data is used in Chapters 6 and 7 to answer all the research questions, to formulate the research contribution and conclude the research.

In the next section, the researcher discusses the results pertaining to sustainability and business models. This section helps answer the main research question.

Chapter 6. Results Pertaining to Business Models and Sustainability

6.1 Introduction

The primary objective of this dissertation is to find out if the empowerment of micro-entrepreneurs (MEs) in developing communities with mobile technologies can help them develop new business models which lead to sustainable entrepreneurial ventures. Therefore this chapter answers the main research question: How can empowerment of entrepreneurs through access to mobile technologies allow for the development of new business models that will support the sustainability of the businesses?

In this section the researcher starts by describing the business models (Section 6.2) employed by the MEs followed by a discussion on sustainability (Section 6.3) of the Cinema-in-a-backpack project results. The researcher then discusses the impact his research has on the information communication technology for development (ICT4D) field of study.

6.2 Business models

This section describes the value creation methods developed by the MEs whilst conducting their businesses. The researcher used the data in Section 5.3.1 to discuss these methods. These methods lead to the business models developed by the MEs.

6.2.1 Business models that emerged from the Cinema-in-a-backpack project (sub question 4)

For the MEs to make their businesses viable, they had to establish business models for their newly established business ventures. As described in Section 2.8, after the establishment of a business enterprise, a business model is employed explicitly or implicitly. The essence of doing this, is to define the manner by which the enterprise

delivers value to customers, make them pay for that value and then convert those payments to profits (Teece, 2010).

As the Cinema-in-a-backpack project ran for six months, described in Section 5.3.1 are the different ways the MEs conducted their businesses in a bid of making a profit. From the different ways the MEs conducted business, the researcher came up with the following business models, which narrow down the value creation architecture the MEs employed:

1. Targeting the children's market

The film market was established in the communities where the MEs conducted their businesses. The youth and adult audience of the communities were not willing to pay to watch old movies but the children's market was more receptive. This, combined with the difficulties of accessing venues at a low cost, forced the MEs to design a business model that could help them make profit. The MEs started targeting schools and crèches; this enabled them to trade the high costs of venue rentals with low ticket prices as they would screen for free at schools and crèches and share the profits from the screenings with the schools and crèches. This model helped them get a guaranteed audience. To increase their revenue, the MEs sold refreshments and snacks during screenings.

2. Selling private screenings

The MEs would offer screenings at fundraising activities for the schools and crèches. The schools and crèches would then pay the MEs an agreed fee, and all the money raised at the fundraising event would go to the client.

The MEs would offer private screenings at private functions. The MEs charged the organisers of the events a fixed fee and then they would screen movies at the function.

3. Renting out equipment

The MEs rented the equipment out to clients who wanted to do presentations using the Cinema-in-a-backpack equipment. In this way, the MEs got extra income rather than getting income only from the mobile screenings.

4. Social events

The MEs promoted the mobile screenings as a social event, where they would invite the community for a 'chilling session'. This allowed for the community to come together and socialize. According to the audience motivation for attending the screenings survey, social gathering was rated second hence the MEs promoting their screenings as a social event.

5. Educational platform

The MEs screened movies which had educational value and religious value. According to the audience motivation for attending the screenings survey, the screenings being educational was rated first as the best motivation for the audience to attend the screenings.

In conclusion, the business models developed by the MEs fit into the elements of a business model according to Teece, (2010) as follows:

1. Selecting a product: The MEs sold the screenings to the public.
2. Determine customer benefits: The MEs defined how the community benefited, for example, by screening different movie categories such as educational movies and by screening at private functions
3. Identify market segments: The MEs identified different target markets, for example, the children's market and professionals.
4. Confirm revenue streams: The MEs established how they should earn revenue from the different models, for example, by selling movie tickets and snacks.

5. Design mechanisms to capture value: The MEs designed packages in which they sold their product to their clients so as to earn revenue and convert that revenue to profits.

Result:

The MEs successfully created new business models. The Cinema-in-a-backpack proved to represent a viable way of providing entrepreneurs from developing areas with tools and skills to uplift themselves and possibly their communities. It is viable for MEs to create new business models. Next, the issue of sustainability of these business ventures are discussed.

6.3 Sustainability of the businesses that emerged (sub question 6)

In this section, the researcher is going to revisit the five factors discussed in Section 2.5, to evaluate the sustainability of the businesses developed through the Cinema-in-a-backpack ICT4D initiative. The researcher explore the following five factors affecting sustainability: social sustainability, technological sustainability, economic sustainability, environmental sustainability and institutional sustainability.

6.3.1 Social sustainability

Social sustainability looks at user buy-in and participation. As discussed in Section 2.5.1, user buy-in and participation means that if the community feels that the smooth running of the Cinema-in-a-backpack project is in their own interest, they will seek ways to ensure that the project does not shut down.

The Cinema-in-a-backpack project developed its market in the communities where the MEs conducted their business. Viewers from the communities who attended the screenings, both male and female audiences, are from various age groups ranging from under 7 to over 50 years old. The percentage of male and female audiences who attended these screenings are 52% and 48% respectively.

The Cinema-in-a-backpack project created a market for those members of the community who had never been to the cinema before. This is reflected by the number of viewers who attended the screenings who had never been to a cinema before. Fifty three percent of the audience had never been to the cinema, 27% had been to the cinema once and 20% had been to the cinema more than once. These figures indicate that the people who were interested in attending the screenings where the ones who had never visited the cinema before. The MEs during the focus group interviews mentioned that the Cinema-in-a-backpack initiative provided a cinema experience to the community.

The Cinema-in-a-backpack project created a market for those members of the community who like watching TV as a form of entertainment. Of the Cinema-in-a-backpack audience, 26% watch TV, 14% watch movies, 18% socialise with friends and 18% play sports. Eighteen percent of the audience socialise with friends as their primary form of entertainment and social gathering is rated the second best motivation for the viewers to attend the screenings.

The Cinema-in-a-backpack initiative attracted an audience which frequently watches movies. This deduction has been made from the following data: 44% of the audience watch movies in their homes once a week, 34% watch movies daily, 16% watch movies once a month and 6% have never watched movies in their home. Seventy eight percent watch movies in their homes at least once a week. Six percent of the viewers don't watch movies in their homes and 16% watch movies at least once a month. This reflects that the market for people who do not frequently watch movies is very small.

Viewers were motivated to attend the screenings because of the benefits they derived from the cinema screening sessions. Twenty four percent of the audience attended the screenings for educational purposes, 19% attended because it offered the opportunity for socializing and 15% attended the screenings to watch the movie and another 15% attended because they were curious to see what the Cinema-in-a-backpack project offered.

96

The audience loyalty decreased as the MEs did more screenings. Seventy four percent of the audience only attended the screenings once. Sixteen percent attended the screenings twice, 5% attended the screenings three times, 3% attended the screenings four times and 2% attended the screenings five times and more. During the exit interviews, the 13 MEs indicated that the audience were interested in the cinema experience provided by the Cinema-in-a-backpack but the content was too old for the audience to attend the screenings. The MEs highlighted that the audience were requesting the latest movie and film content.

In conclusion, the most important variable which indicates user buy-in that was considered was audience loyalty. The audience loyalty decreased after the viewers had attended one screening. Fifty three percent of the audience had never been to the cinema which shows that there was an initial buy-in by the community, but as the MEs did more screenings, fewer people came for a second time. Even though the market developed by the Cinema-in-a-backpack project attracted an audience who watch movies, as 78% of the audience watched movies at least once a week, and the audience, as a primary form of entertainment (26% watch TV, 18% socialize with friends and 14% watch movies), this did not stop the attendance figure of the audience dropping as the MEs did more screenings.

The final conclusion is then that the Cinema-in-a-backpack project is not socially sustainable.

6.3.2 Institutional sustainability

For the purposes of this research, the researcher looked at the buy-in of key institutional actors that ensure that livelihoods of the developing communities can be continuously improved through capacity building and developing relevant local ICT content. The Cinema-in-a-backpack project was supported by six institutions which are GraphicsMedia.net (GMn), Disney Research Zurich (DRZ), Associação CCG/zgdv – Centro de Computação Gráfica, University of Pretoria (UP), EPI-USE Africa (EPI) and Infusion (INFUSION).

97

These organisations played a pivotal role in the implementation of the Cinema-in-a-backpack project and the role of each organization is described below, the following information was gathered from the project documents according to Mosaic 2B, (2013).

GraphicsMedia.net (GMn)

GMn's role in the Cinema-in-a-backpack project: it was the overall project coordinator. GMn was also responsible for developing the interactive Visualisation Technology capable of providing visual analytic features for intelligent complexity reduction and maximum context awareness.

Disney Research Zurich (DRZ)

DRZ helped to design and run various socio-economic studies. DRZ's interests in the experimental research are to gain an in-depth understanding of the socio-economic dynamics inherent to societies, communities and regions that belong to the bottom-of-the-pyramid. DRZ lead the evaluation of a secure media distribution with opportunistic networks.

Associação CCG/zgdv – Centro de Computação Gráfica (CCG)

CCG actively participated in the specification of solutions and applications to be developed. CCG brought to the project expertise on User Experience and User Interaction and requirements elicitation methodologies, for user requirement analysis. CCG contributed in the development of software applications for this project.

University of Pretoria (UP)

UP assisted in different work areas. UP's main contribution was testing and validating the Mosaic 2B experiment.

EPI-USE Africa (EPI)

EPI brought its essential domain knowledge, technology and operational experience with SAP systems to the Cinema-in-a-backpack project.

Infusion (INFUSION)

To minimise risk, INFUSION provided insight into the context in which the research study was conducted to ensure that all parties accommodated the requirements of the communities where the project was implemented. INFUSION also worked closely with UP and EPI on the socio-economic analysis of the project as well as the conceptual design of the experiment. INFUSION, in partnership with UP, executed the conceptual design of the experiment by identifying, recruiting and training entrepreneurs and then managing and monitoring them in the field. This ensured that the targets for the project were reached and data was gathered.

In conclusion, there was buy-in of key institutional actors by key public and private sector organisations and they contributed immensely to ensure that the socio-economic livelihoods of the developing communities implementing the Cinema-in-a-backpack project are improved through capacity building and developing relevant local information communication technologies (ICT) content.

There was an expertise complementarity and balance between research and industry according to the goals of the project. The research and academic partners built the scientific backbone of the project. Research institutions in particular, provided the fundamental and elemental pieces of knowledge essential for successful achievement of the Cinema-in-a-backpack project goals. The role of the large companies was to provide requirements, domain expertise, demonstration use-cases, assessment of the results, innovation and result take up.

The final conclusion is then that the Cinema-in-a-backpack project is institutionally sustainable.

6.3.3 Technological sustainability

For the purposes of this research, technological sustainability will focus on the possibility of the technology to be used for an extended period of time (Pade, et al., 2006; Ali & Bailur, 2007; Misund & Hoiberg, 2003). The technology which is used in the developing communities for the ICT4D projects should be simple to operate, flexible, maintainable and robust and the technical team should be readily available if needed to assist when an ME encounters technical difficulty.

At the onset of the project, nine of the MEs fully agreed that the project training team would be helpful in the use of the Cinema-in-a-backpack. At the end of the project this number had reduced to eight MEs fully agreeing that the project training team was very helpful in the use of the Cinema-in-a-backpack. Though the number decreased, 62% of the MEs still agree that they received full support and this is more than half of the MEs.

During the exit interviews, one ME indicated that he had a problem once with the tablet and when he contacted the technical team, they fixed the issue and he never experienced another problem with the equipment. The other 12 MEs during the exit interviews mentioned that they never experienced problems with the Cinema-in-a-backpack equipment.

At the end of the project, the MEs were handed over the equipment and leaving the responsibility to find technical support to the MEs. This left a gap, because the MEs no longer have readily available technical support in the event that the need arises.

The portability of the equipment also made it easy to maintain as the pieces of equipment were not big. As the other MEs never had problems with the equipment, it shows that the equipment was very robust.

The cinema in backpack equipment is portable which allowed the MEs to screen at any venue. The equipment is also flexible as one ME rented out his projector to clients who wanted to use the projector for presentations.

100

In conclusion, the Cinema-in-a-backpack project's technological sustainability is inconclusive as it is portable, flexible, robust, easy to maintain but there is no readily available technical support. This could lead to the technology being used for a shorter period than expected.

6.3.4 Economic sustainability

Economic sustainability refers to the capacity of the project to generate enough revenue to meet its maintenance and operational costs.

6.3.4.1 Income activities

At the onset of the Cinema-in-a-backpack project, four MEs relied on a single income source and nine MEs relied on multiple income sources. These statistics did not change at the end of the Cinema-in-a-backpack project. Of the 13 MEs, eight included the mobile-cinema to their income generating activities at the end of the Cinema-in-a-backpack project.

6.3.4.2 MEs income profile

At the onset of the Cinema-in-a-backpack project there were eight MEs who earned over R2000 and at the end of the Cinema-in-a-backpack project, there were ten MEs who earned over R2000. There was an increase in the monthly income for two of the male MEs who used to earn between R1000 and R1501. There was one female ME who had a decrease in her monthly income at the end of the project. She initially earned an income between R1500 and R2001 and her income dropped to an amount between R499 and R1001. One of the female's income remained the same at the end of the Cinema-in-a-backpack project.

The MEs income profile did not significantly change. Two of the MEs started earning more than they did at the onset of the project and one ME started earning less than the amount she earned at the onset of the project. Ten of the MEs income profile remained the same.

101

To find out if the MEs income profile changed, the researcher calculated the mean income for the population and the median income.

Using the formula:

$$\mu = \frac{\Sigma X}{N}$$

Population Mean

The average income per ME at the onset of the project was R1673.08 and at the end of the project it was R1711.54. There was a R38.46 increase in income for the MEs. This shows that there as an increase in the MEs income profile after implementing the Cinema-in-a-backpack project.

The median value shows that the MEs earned over R2000 a month at the onset of the project and at the end of the project and does not give us a specific value. This formula would not give us much detail when looking at the change in their income profile. This value shows us bias as it does not include the MEs who were earning less than R2000 before and after the project.

In conclusion, the researcher used the population mean to get a value which can show a change in values over the six months. The entrepreneurs gave a range of values for their income as the questionnaire did not ask for a specific value but for a range of value. This makes it difficult to come to a conclusion over how much the MEs income profiles changed.

6.3.4.3 MEs' income sufficiency

At the onset of the Cinema-in-a-backpack project, the MEs described on a Likert scale how sufficient their income was. They described on a scale of one to five whether their income was "not at all" sufficient or it was "completely sufficient". There were four MEs whose income was "not at all" sufficient, three MEs whose income was a "little bit" sufficient, one ME whose income was "somewhat" sufficient, four

MEs whose income was "to a larger extent" sufficient and there was one ME whose income was completely sufficient. On average the income for all the MEs was a "little bit" sufficient. On average the income sufficiency for the MEs was 2.62 which meant that it was a "little bit sufficient".

When the Cinema-in-a-backpack project was finished, the average income sufficiency for the MEs had increase to 3 which meant that it was now "somewhat" sufficient. Now two MEs indicated that their income was "not at all" sufficient, two MEs indicated that their income was "a little bit sufficient" four people indicated that their income was "somewhat" sufficient. The figures for the MEs who indicated that their income was "to a large extent" and "completely" sufficient did not change.

During the exit interviews, the MEs indicated that there were no expenses associated with the screenings. Transport money was provided to them.

In conclusion, the economic results show that their reported income activities at the end of the project were more diverse and eight of the MEs had added the screenings to their income generating activities. The Cinema-in-a-backpack project added to their weekly revenues as ten MEs indicated that they earn revenue from the initiative and it contributes more revenue than the other income activities for six MEs. There was an average of R38.46 increase in the MEs income profile. Income sufficiency levels increased from 'a little bit' sufficient to "somewhat" sufficient. At the onset of the cinema in backpack project, the average rating of income sufficiency by the MEs was 2.62 which showed that it was "a little bit" sufficient and this increased to 3 at the end of the project which indicated that it was now "somewhat" sufficient.

In conclusion, the Cinema-in-a-backpack project is potentially economically sustainable. The results are inconclusive as the income profile did not change significantly.

6.3.5 Environmental sustainability

For the purposes of this research, environmental sustainability will focus on the safe disposal of the ICTs used in the Cinema-in-a-backpack project. The ICTs used in this

ICT4D initiative are very durable and there is no expected disposal of any of the technologies except the battery. Only the battery will need to be replaced after a certain number of years as batteries exhaust their useful life, but they also have a long useful-life.

In conclusion, the Cinema-in-a-backpack is environmentally sustainable.

6.4   Conceptual model of the Cinema-in-a-backpack

Figure 6.1 shows a conceptual model of the cinema-in-a-backpack model based on the results discussed above. The *positive factors* motivated the development of five different *business models*. For example, the business experience that they gained, together with their need for income generation (as well as the opportunity for innovation provided through the technology) motivated them to start renting out the equipment and selling private screenings. The possibility for social recognition serves as a motivating factor to organise social events. The business opportunities that emerged led to targeting specific markets (i.e. children and education).

The *obstacles* identified posed a threat to sustainability. Specifically, the lack of venues, safety issues and content that the community does not want will hamper social sustainability. Economic sustainability is directly threatened by unavailability of recent movies, expensive venues, and marketing cost. Technological sustainability is hampered by lack of proper infrastructure to obtain the movie content and problems of using the technology during power outages, and so on.

The business models do, however, provide ways in which to overcome some of these threats. For example, targeting the children's market makes the lack of new content less of a problem since children are more willing to watch repeated screenings of the same classic movies. The problem of the cost of venues is addressed by selling private screenings and then making the venue the responsibility of the client. By providing education, the community can be become more informed about environmental issues.
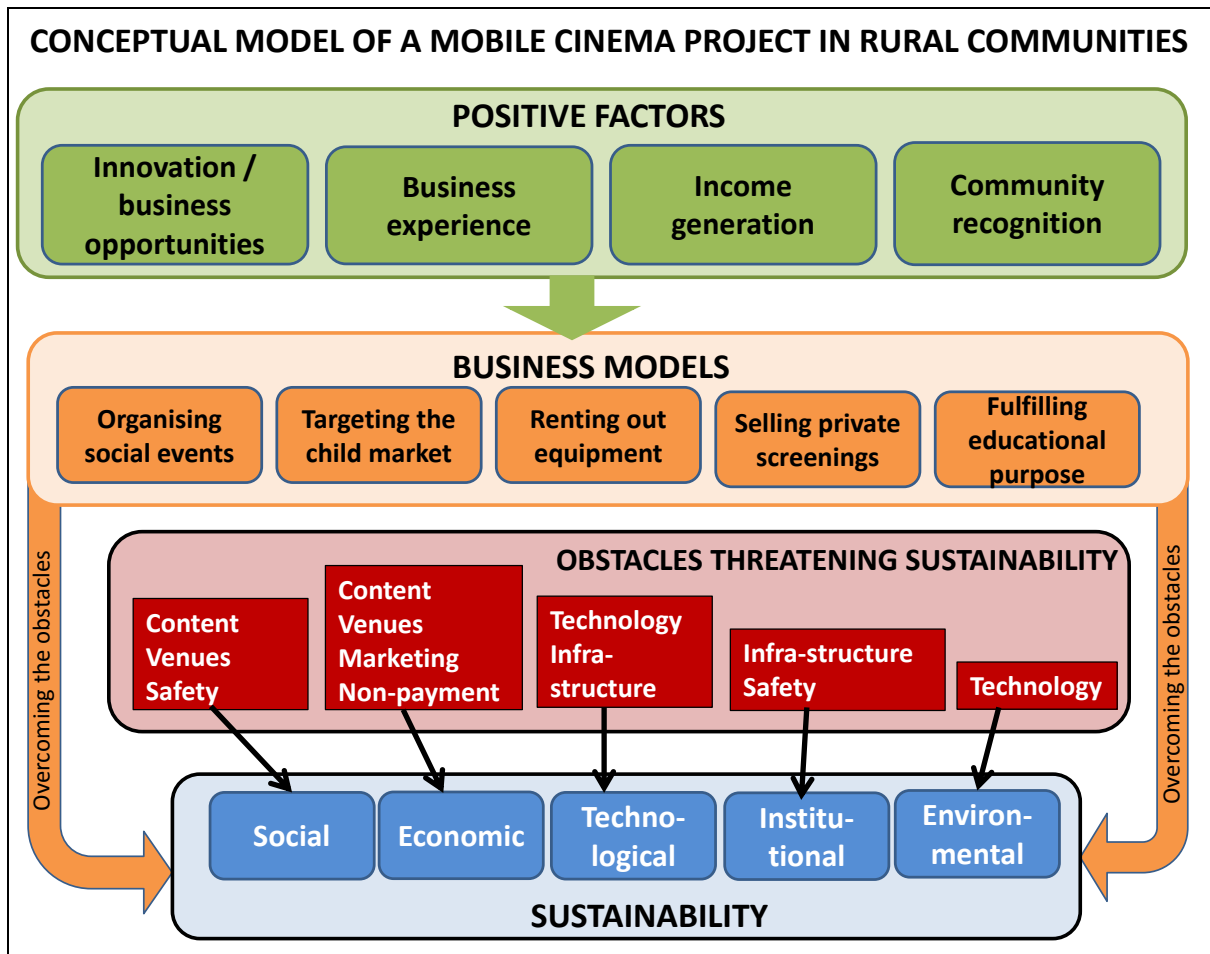
Figure 6.1: Conceptual model of a mobile cinema project in rural communities

The model does not claim to be a general tool that can be used to achieve sustainability in ICT4D projects. It is an attempt to draw together all the elements – both positive and negative - that worked together in the Mosaic 2B project and illustrate how these can lead to business models that can potentially overcome obstacles in the way of sustainability.

Chapter 7. Summary of findings and conclusions

7.1 Introduction

The purpose of this chapter is to discuss the research findings of the Cinema-in-a-backpack project and come up with a conclusion. The researcher will answer the research questions which were defined in Chapter 1 as:

- What is the Cinema-in-a-backpack project and how was it implemented? (Section 7.2.1)
- How did the participating entrepreneurs make use of the mobile technology provided to them? (Section 7.2.2)
- What were the positive experiences and the challenges relating to the Cinema-in-a-backpack project (Section 7.2.3)
- What were the outcomes of the Cinema-in-a-backpack project in terms of:
    1. Business models that emerged (Section 7.2.4.1),
    2. Feasibility of low cost mechanisms to deliver multimedia content to entrepreneurs (Section 7.2.4.2),
    3. Sustainability of the businesses that emerged (7.2.4.3)?

These sub research questions complement the main research question of this dissertation: How can empowerment of entrepreneurs through access to mobile technologies allow for the development of a new business model that will support sustainability of the business?

7.2 Research questions

7.2.1 Sub question 1: What is the Cinema-in-a-backpack project and how was it implemented.

The researcher answered this question in two sections of the dissertation. The first section (Chapter 4) is a discussion of the Cinema-in-a-backpack project and how it was implemented and the second section (Section 7.2.2) partly describes how the Cinema-in-a-backpack was implemented.

106

7.2.2   Sub question 2: How MEs made use of the mobile technology

This section describes the ICTs that were at the MEs' disposal and how the MEs got to utilise these. It describes how the MEs screened their movies and films and other business ventures they carried out.

The equipment used for the Cinema-in-a-backpack was one projector, two speakers, one portable battery and one seven-inch tablet that could fit in a backpack. The MEs used the equipment to start a mobile-cinema business venture.

With the equipment provided, the MEs did screenings from the month of March to the month of August. The female MEs did 58% of the total screenings and the male MEs did 42% of the total screenings. The female MEs averaged 92 screenings per ME compared to their male MEs who had an average of 36 screenings.

The mobile screenings were done from 0600hrs till late. Most of the screenings were done between 1400hrs and 1600hrs and also 1800hrs to 2000hrs which recorded 18% and 19% of the total screenings respectively.

The MEs did 192 screenings for the month of March, 168 screenings in April, 175 screenings in May, 79 screenings in June 79 screenings in July and 90 screenings in August.

As part of their new business models, to maximise on profits, the MEs rented out the projector to clients who would want to do presentations. They would rent out the projector only to the clients as the clients could then go and plug in their own devices into the projector.

7.2.3   Cinema-in-a-backpack positive experiences and challenges (sub question 3)

The Cinema-in-a-backpack positive experiences and challenges were discussed in Section 5.3.2. Below is a brief summary of the challenges and the positive experiences.

7.2.3.1 Obstacles

The obstacles the MEs faced related to:

Venues: the MEs failed to secure venues to do their screenings.
Content: the MEs failed to access the latest content which the audience requested.

Marketing: the MEs failed to fund their marketing efforts.

Equipment: one ME had electricity powered equipment. Because of load-shedding this meant that the ME would fail to screen movies and films.

Technology: the MEs experienced difficulties related to the infostations.

Non-payments: the audience were sometimes not willing to pay.

Safety: the infostations were located in isolated areas and the MEs were concerned about their safety.

7.2.3.2 Positive factors

The positive factors the MEs came across were discussed in Section 5.3.2.2. Below is a brief summary:

Innovative venture: the mobile cinemas were an innovative venture. The communities had not yet experienced this kind of cinemas.

Business experience: the MEs were able to grow their business skills.

Business opportunity: the Cinema-in-a-backpack presented the MEs with a lot of business opportunities.

Community recognition: the community recognised the efforts of the MEs.

7.2.4 The outcomes of the Cinema-in-a-backpack project

7.2.4.1 Business models that emerged (sub question 4)

The researcher discussed this question in detail in Section 6.2. The MEs managed to employ five business models which fit the elements of a business model as discussed by Teece (2010). These are, selecting a product, determining customer benefits, identifying market segments, confirming revenue streams and designing mechanisms to capture value.

The result was that the MEs successfully created new business models. It is viable for MEs to create new business models to try and ensure the sustainability of their business ventures.

7.2.4.2 Feasibility of low cost mechanisms to deliver multimedia content to entrepreneurs (sub question 5)

To answer this research question, the researcher discussed in detail the components which make an ICT4D initiative feasible in Section 2.4 and Chapter 4. The Cinema-in-a-backpack project had the following core requirements: connectivity, low-cost devices, user interfaces and electricity which made it feasible.

The Cinema-in-a-backpack project utilised the Delay Tolerant Networking (DTN) method which ensured connectivity to the Mosaic 2B system. The networking system is described in Section 4.2.2.

For purposes of this project, the cost of the equipment contained in the backpack (Section 4.2.1) was funded and therefore the MEs did not incur any costs regarding sourcing the equipment

The seven-inch tablet had a user interface, the Mosaic 2B player platform (MPP) which allowed the user to connect to the Mosaic 2B system as described in Section 4.2.

109

Section 2 describes the components as having one battery. The equipment used by the MEs was battery powered for it to function.

In conclusion, this project had all core components that were required to implement an ICT4D project and this made it feasible.

7.2.4.3 Sustainability of the businesses that emerged (sub question 6)

The researcher answered this question in detail in Section 6.3. Below is a concluding discussion about the sustainability of the businesses that emerged:

The researcher used a model of sustainability (Section 2.5) which incorporates five factors affecting the communities who are partaking in an ICT4D initiative. This model looks at social, technological, economic, environmental and institutional sustainability. After looking at the factors affecting sustainability, the case study was sustainable in two areas and inconclusive in the other three.

- Socially Sustainable – No
- Technologically Sustainable – No
- Economically Sustainable – No
- Institutionally Sustainable – Yes
- Environmentally Sustainable – Yes

An ICT4D initiative that is sustainable in all five areas of sustainability is regarded as a sustainable project and that project can run for an indefinite period. The Cinema-in-a-backpack project was found not to be socially sustainable and therefore the project should be regarded as unsustainable.

Social sustainability looks at user buy-in and participation. User buy-in and participation means that if the community feels that the smooth running of the Cinema-in-a-backpack project is in their own self-interest, they will seek ways (participation) to ensure that the project does not shut down.

The Cinema-in-a-backpack project will eventually shut down if the number of the viewers significantly drops after they have attended the first screening. Figure 7.1 describes audience loyalty by showing what percentage of the audience only attended once, twice, et cetera. Clearly there was no buy-in from a large portion of the audience.
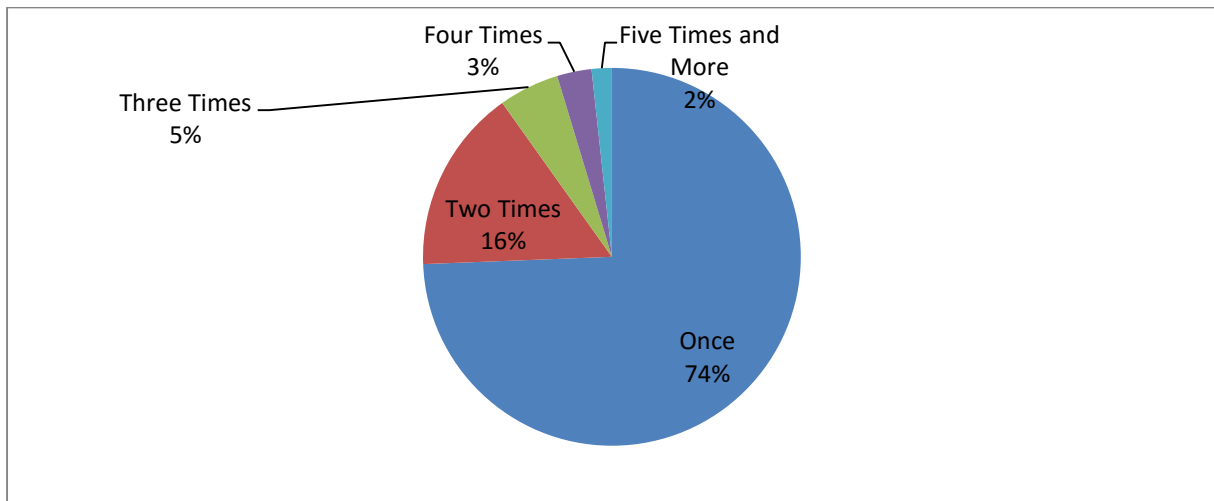
Figure 7.1: Audience loyalty

When the number of viewers starts going down, the revenue generated from the screenings will significantly drop and this may lead to economic unsustainability.

Economic sustainability refers to the capacity of the project to generate enough revenue to meet its maintenance and operational costs. If the project is not able to meet its maintenance and operational costs, this may lead to technological unsustainability.

Technological sustainability focuses on the possibility of the technology to be used for an extended period of time (Pade, et al., 2006; Ali & Bailur, 2007; Misund & Hoiberg, 2003). If there is no money for maintenance of the ICTs, then once the ICTs are damaged, then the project stops.

The ICT4D initiative being unsustainable can affect a host of other areas, but the immediate problem affecting the Cinema-in-a-backpack project is the number of viewers going down.

111

Of the business models created, the researcher concludes that empowering the MEs with ICTs to start business ventures will lead to their entrepreneurial minds developing business models to follow, but this does not guarantee the sustainability of an ICT4D initiative. Sustainability is dependent on five sustainability factors. Those five sustainability factors should be in harmony for an initiative to be sustainable. If there is no harmony between the five factors, then sustainability cannot be achieved. The Cinema-in-a-backpack project was not sustainable because the five sustainability factors were not in harmony. The project was not socially sustainable, which lead to an overall result of the project not being sustainable.

7.3   Other findings

Other interesting findings the researcher came to regarding the Cinema-in-a-backpack project:

1. Employment creation: of the 13 MEs who finished the Cinema-in-a-backpack project, 12 already had other entrepreneurial ventures prior to Cinema-in-a-backpack. By the end of the Cinema-in-a-backpack project, the other entrepreneur was now engaged with the Cinema-in-a-backpack initiative and this became her income generating activity.
2. Innovation: The MEs came up with new business models to build a clientele base, sell their services and make a profit. These business models were, targeting the children's market, selling private screenings, renting out equipment, social events and educative platform. The MEs were also able to build their business skills through this initiative.

An opportunity was found to design new solutions that can address the economic disparities prevalent in developing communities. The results of this study show that ICT4D initiatives can be used to close the gap between developed and less-developed communities therefore addressing critical differences in the world's socio-economic conditions. The five factors of sustainability should be in harmony to ensure sustainability prevails in ICT4D projects.

112

7.4   Final recommendations and conclusions

In conclusion, the Cinema-in-a-backpack project is not sustainable. Looking at the factors that ensure sustainability, the researcher found out that it is not sustainable as three of the five factors are not sustainable.

However, the MEs were able to develop new business models in order to earn revenue. This proves that, MEs can develop new business models that can earn them some revenue if they are provided with mobile technologies to start new business ventures.

The researcher recommends that for future ICT4D projects, the funding organisations should get feedback from the MEs after a certain period of time to ensure that the ICT4D projects run smoothly. If MEs are left to run their own business they might struggle.

References

Ali, M. & Bailur, S., 2007. *THE CHALLENGE OF "SUSTAINABILITY' IN ICT4D - IS BRICOLAGE THE ANSWER?.* Sao Paulo, IFIP Social Implications of Computers in Developing Countries, pp. 1-19.

Ameyaw, S., 1992. Sustainable Development and the Community: Lessons from the KASHA Project, Botswana. *The Environmentalist,* 12(4), pp. 267-275.

Amit, R. & Zott, C., 2001. Value creation in e-business. *Strategic Management Journal,* Volume 22, pp. 493-520.

Arasti, Z., Zandi, F. & Bahmani, N., 2014. Business failure factors in Iranian SMEs: Do successful and entrepreneurs have different viewpoints?. *Journal of Global Entrepreneurship Research,* 4(10), pp. 1-14.

Atieno, L. V. & Moturi, C. A., 2014. Implementation of Digital Village Projects in Developing Countries - Case of Kenya. *British Journal of Applied Science & Technology,* pp. 793-807.

Avgerou, C., 2000. IT and organizational change: an instituionalist perspective. *Information Technology and People,* 13(4), pp. 234-262.

Avgerou, C., 2003. The link between ICT and Economic Growth in teh Discourse of Development". *Organizational Information Systems in the Context of Globalization,* pp. 373-386.

Babu, A., 2005. ICT4D Experiences from Kerala, India. *Media Asia,* 32(3), pp. 135-140.

Borg, W. R. & Gall, M. D., 1989. *Educational Research.* New York: Longman.

Brewer, E. et al., 2005. The Case of Technology in Developing Regions. *IEEE Computer Society,* 38(6), pp. 25-38.

Chepken, C., Mugwanya, R., Marsden, G. & Blake, E., 2012. *ICTD Interventions: Trends Over the Last Decade.* Atlanta, ACM, pp. 241-248.

Chew, H. E., 2012. *THE EFFECTS OF MOBILE PHONES IN SOCIAL AND ECONOMIC DEVELOPMENT: THE CASE OF FEMALE MICROENTREPRENEURS IN CHENNAI, INDIA,* Michigan: UMI Dissertation Publishing.

Chhachhar, A. R., Qureshi, B., Khushk, G. M. & Ahmed, S., 2014. Impact of Information and Communication Technologies in Agriculture Development. *Journal of Basic Applied Scientific Research,* 4(1), pp. 281-288.

Chigona, W., Pollock, M. & Roode, J. D., 2009. South Africa's Socio-Techno divide: a critical discourse analysis of government speeches.. *South African Computer Journal,* Volume 4, pp. 3-20.

Conger, S., 2013. *Knowledge Management in LLiSA ICT4D Projects.* East London, ACM, pp. 225-232.

114

de Britto, C. M., 2011. Sustainable Community Development: A Brief Introduction to the Multi-Modal Systems Method. *Syst Pract Action Research,* Volume 24, pp. 533-544.

Delgadillo, K., Gomez, R. & Stoll, K., 2002. *Community telecentres for development: Lessons from community telecentres in Latin America and the Caribbean.,* Ottawa: IDRC Canada.

Dittrich, Y. et al., 2014. *Participation for Development.* Windhoek, ACM.

Edim, E. A. & Muyingi, H. N., 2010. *A Mobile Commerce Application for Rural Economy development:A case study for Dwesa.* Bela Bela, ACM, pp. 58-66.

Galati, A. et al., 2014. *Mobile - Enabled Delay Tolerant Networking in Rural Developing Regions.* San Jose, IEEE, pp. 699-705.

Hammond, A. L. et al., 2007. *THE NEXT 4 BILLION MARKET SIZE AND BUSINESS STRATEGY AT THE BASE OF THE PYRAMID,* Washington DC: World Resource Institute Internationational Finance Corporation.

Hansen, S. et al., 2011. *Identifying Stakeholder Perspectives in a Large Collaborrative Perspectives in a Large Collaborative Project: An ICT4D Case Study.* Canberra, ACM, pp. 144-147.

Heeks, R., 2002. *Failure, Success and Improvisation of Information Systems Projects in Developing Countries,* Manchester: Institute for Development Policy and Management.

Heeks, R., 2008. ICT4D 2.0: The Next Phase of Applying ICT for International Development. *IEEE Computer Society,* pp. 26-33.

Heeks, R., 2012. Deriving an ICT4D research agenda: a commentary on 'Information and communicatrion technologies for development (ICT4D): solutions seeking problems?'. *Journal of Information Technology,* Volume 27, pp. 339-341.

Hoque, N., Khan, M. A. & Mohammad, K. D., 2015. Poverty alleviation by Zakah in a transitional economy: a small business entrepreneurial framework. *Journal of Global Entrepreneurship Research,* 5(7), pp. 1-20.

Hudson, H., 1999. *Designing research for telecentre evaluation: Aglobal perspective.* Quebec, Far Hills Inn, pp. 149-164.

Joseph, M., 2011. *The Potential of ICTs to Empower Rural Women.* Gaborone, IEEE, pp. 1-9.

Joseph, M. K. & Andrew, T. N., 2009. *Information and Communication Technology policy imperatives for rural women empowerment: focus on South Africa.* Naorobi, IEEE, pp. 1-6.

Khan, W. A., Mian, N. A., Yousaf, S. & Nawaz, Z., 2013. *E-Commerce in Pakistan: Growth Potentials & E-Payment Solutions.* Islamabad, IEEE, pp. 247-252.

Kiggundu, M., 1989. *Managing Organizations in Developing Countries: An Organizational and Strategic Approach.* West Hartford: Kumerian Press.

Kleine, D. & Unwin, T., 2009. Technological revolution, evolution and new dependencies: What's new about ict4d?. *Third World Quarterly,* 30(5), pp. 1045-4067.

Kumar, R., 2005. eChoupals: A Study on the Financial Sustainability of Village Internet centres In Rural Madhya Pradesh. *Information Technologies and International Development,* 2(1), pp. 45-73.

Kumar, R. & Best, M., 2006. Impact and Sustainability of E-governance Services in developing Countries: Lessons Learned from Tamil Nadu, India. *The Information Society,* Volume 22, pp. 1-12.

Kuriyan, R., Ray, I. & Toyama, K., 2006. *Integrating Social Development and Financial Sustainability: The Challenges of Rural Kiosks in Kerala.* Berkeley, IEEE, pp. 121-130.

Kwami, J. D., 2010. *INFORMATION AND COMMUNICATION TECHNOLOGIES FOR DEVELOPMENT AND GENDERED REALITIES IN THE SOUTH: CASE STUDIES OF POLICY AND PRACTICE IN GHANA,* Oregon: UMI Dissertation Publishing.

Leye, V., 2009. Information and communication technologies for development: A critical perspective.. *Global Governance,* Volume 15, pp. 29-35.

Mangold, S., 2012. *http://www.disneyresearch.com/project/mosaic2b/.* [Online] Available at: http://www.disneyresearch.com/project/mosaic2b/

Mansell, R. & Wehn, 1998. *Knowledge Societies: Information Technology for Sustainable Development.* Oxford: Oxford University Press.

Marais, M., 2011. *An analysis of the factors affecting the sustainability of ICT4D initiatives.* Lima, CSIR, pp. 100-120.

Mas, I. & Morawczynski, O., 2009. Designing Mobile Money Services. Lessons from M-PESA. *Innovations,* 4(2), pp. 77-91.

Mawela, T. & Ochara, N. M., 2013. *SUSTAINABILITY OF E-PARTICIPATION THROUGH MOBILE TECHNOLOGIES.* East London, ACM, pp. 131-143.

Meera, J., 2010. *Using Participation and Participatory Approaches to Introduce ICTs into Rural Communities.* Durban, IEEE, pp. 1-10.

Merritt, s., 2012. Lessons and Opportunities in ICT4D: Three things I did not know before I started my research. *XRDS,* 19(2), pp. 46-49.

Misund, G. & Hoiberg, J., 2003. *Sustainable Information Technology for Global Sustainability.* Brno, Digital Earth.

Moraa, H. & Gathege, D., 2013. *How ICT Hubs Models Have Impacted on the Technology Entrepreneurship Development.* Cape Town, ACM, pp. 100-103.

Mosaic 2B, 2013. *Mobile Empowerment for the Socio-Economic Development in South Africa: Annex I. - "Description of Work" Part B,* s.l.: MOSAIC 2B.

Mosaic 2B, 2014. *Mobile Empowerment for the Socio-Economic Development in South Africa,* s.l.: MOSAIC 2B Consortium.

Mosaic 2B, 2015. *MOSAIC 2B.* [Online] Available at: http://mobile-empowerment.org/ [Accessed 20 March 2015].

Mutanu, L., Njuguna, A. & Wambalaba, A., 2013. *Leveraging Women Participation in Entrepreneurship Through Mobile Technology.* s.l., IST-Africa 2013.

Oates, B. J., 2006. *Researching Information Systems and Computing.* One ed. London: SAGE Publications.

Olivier, M. S., 2004. *Information Technology Research A pratcical guide for Computer Science and Informatics.* 2nd ed. Pretoria(Gauteng): Van Schaik PUBLISHERS.

Pade, C. I., Mallinson, B. & Sewry, D., 2006. *An Exploration of the Categories Associated with ICT Project Sustainability in Rural Areas of Developing Countries: A Case Study of the Dwesa Project.* Cape Town, South African Institute for Computer Scientists and Information Technologists , Republic of South Africa, pp. 100-106.

Pade-Khene, C., Mallinson, B. & Sewry, 2011. Sustainable rural ICT project management practice for developing countries: investigating the Dwesa and RUMEP projects. *Information Technology for Development,* 17(3), pp. 187-212.

Pannu , P. & Tomar, Y. A., 2011. ICTD4D: Information Communication Technology for Development. *Media Asia,* 38(1), pp. 63-64.

Park, S. J., 2013. *Opening the Black Box of ICT4D: Advancing Our Understanding of ICT4D Partnerships,* Carlifornia: UMI Dissertation Publishing.

Pitula, K., 2010. *On Requirements Elicitation for Software Projects in ICT for Development,* Montreal: Concordia University Montreal.

Prahalad, C. K., 2004. *The Fortune at the Bottom of the pyramid: Eradicating Poverty Through Profits.* New Jersey: Pearson Prentice Hall.

Proenza, F. J., 2001. "Telecentre sustainability-Myths and opportunities". *Journal of Development Communication,* 12(3).

Sandstrom, C., Huang, T. Y.-w., Sanz-Velasco, S. & Lindmark, S., 2006. *The Swedish Mobile Internet: A study of Entrepreneurship during 1998-2005.* Copenhagen, IEEE.

Selaniko, J., 2011. *What Google Can Teach Us About ICT4D: True Scale, Freemium, Business Models, Fear, and Opportunity.* Bethesda, ACM, p. 1.

Tang, J. et al., 2010. *Analyzing Information Flows and Key Mediators through Temporal Centrality Metrics.* Paris, ACM.

Teece, D. J., 2010. Business Models, Business Strategy and Innovation. *Long Range Planning,* Volume 43, pp. 172-194.

TerreBlanche, M. & Durrheim, K., 1999. Histories of the present: social science research in context. In: M. T. Blanche & K. Durrheim, eds. *RESEARCH IN PRACTICE.* Cape Town: University of Cape Town Press, pp. 1-16.

TerreBlanche, M. & Kelly, K., 1999. Interpretive methods. In: M. T. Blanche & K. Durrheim, eds. *RESEARCH IN PRACTICE.* Cape Town: University of Cape Town Press, pp. 123-146.

Toyama, K., 2009. *ICT4D Research and Potential Sustainability..* Boston, CHI 2009.

Toyama, K., 2011. *Technology as Amplifier in International Development.* Seattle, ACM, pp. 75-82.

Tribe, L., 2011. *Forgetting the 'C' in ICT4D: A Critical Examination of the Global Alliance for ICT and Development,* Ottawa: ProQuest Dissertations and Theses Global.

Unwin, T., 2009. *ICT4D, Information and Communication Technology for Development.* Cambridge: Cambridge University Press.

Van Belle, J. & Trusler, J., 2005. An Interpretivist Case Study of a South African Rural Multi-Purpose Community Centre.. *The Journal of Community Informatics,* Volume 1, pp. 140-157.

Vogel, I., 2012. *Review of the use of 'Theory of Change' in international development,* London: DFID.

Yonazi, J. J., 2012. Exploring Facilitators and Challenges Facing ICT4D in Tanzania. *Journal of e-Government Studies and Best Practices,* Volume 2012, pp. 1-16.

Zhao, J., 2008. ICT4D: Internet Adoption and Usage among Rural Users in China. *Know Techn Pol,* Volume 21, pp. 9-18.

Appendix A: Interview

Entry Interview

Instructions: To be completed by Field Officer by verbally asking the questions to the Entrepreneurs.

1. What is your goal for the cinema?

2. What will you do with any earnings you make from the cinema?

3. What do you see as the greatest risks of this project?

4. What do you see as the greatest opportunities of this project?

Instructions: To be completed by Field Officer by verbally asking the questions to the Entrepreneurs.

Name of Field Manager: _____

Name of Entrepreneur(s): _____

Date: _____

1. Describe your experience with the cinema-in-a-back-pack project? What was positive about your experience? What was negative?

2. With regards to profitability at the end of this project, did you make profit or lose money?

3. What was the most difficult part of this project for you?

4. What lessons did you learn from this project?

5. A. [For Entrepreneurs who decide to leave [project early] What are the reasons that you decided to terminate this project? Of these, which is the primary reason?

5. B. What changes would need to be made in the project to convince you to come back? What kind of extra help would you have liked?

6. Additional comments?

Thank you very much for your participation!

Appendix B: Questionnaires

MOSAIC 2B:
SOCIO-ECONOMIC BASELINE SURVEY QUESTIONNAIRE
Questionnaire 1

Dear entrepreneur,

We are conducting research on the MOSAIC 2B project and are requesting you to participate in the study by taking some time to answer these questions. We want to assure you that the information gathered during this study will be used only for the study purposes and that you will remain anonymous. Please also be informed that you are free to withdraw from the study at any stage if you so wish. However, your opinion is very valuable and we will appreciate your participation. The interview will take only a few minutes of your time.

A. DEMOGRAPHIC INFORMATION

1	Name								
2	Area								
3	Number of people in your household (incl yourself)								
4	Are you the head of your household?	YES 1				NO 2			
5	Gender	Male 1				Female 2			
6	Age	Under 20 1		20-35 2		36-50 3	51-65 4		Above 65 5
7	Marital status	Never married 1		Living together 2		Married 3	Separated 4		Divorced 5
8	How long have you been living in this area?	Less than 1 year 1		1-5 years 2		6-10 years 3		More than 10 years 4	
9	Transport mostly used	Own car 1	Family car 2	Motorcycle 3	Bicycle 4	Taxi 5	Bus 6	Train 7	Walk 8
10	What language does the household speak most frequently at home? Please specify ONLY ONE	Afrikaans 1	English 2	Xhosa 3		Ndebele 4	Zulu 5		Sepedi 6
		Sesotho 7	Setswana 8	SiSwati 9		Tshivenda 10	Xitsonga 11		Other 12
11	How often do you speak English?	Every day 1		Almost always 2	Half of the time 3	Some of the time 4		Hardly ever 5	
12	How long have you lived in your community?								
13	Do you like living in your community?	YES 1				NO 2			
14	If you could choose anything, where would you really like to live?								

	In this community 1	In another community in this province 2	In a bigger town in this province 3	In other types of areas in this province 4	In a big city in the country 5	In another part of the country 6	In another country 7

B. HOUSEHOLD ECONOMIC STATUS

1	What is your occupation?				

2	Is this occupation your only source of income, or do you also earn an income from other sources?	Only income 1	Multiple incomes 3	Other income 3	No income 4

3	How much is your personal income per month (all sources)?	Less than R500 1	R501-R1000 2	R1001-R1500 3	R1501-R2000 4	PLUS R2000 5
4	How much is your household income per month (all sources)?	Less than R500 1	R501-R1000 2	R1001-R1500 3	R1501-R2000 4	PLUS R2000 5

5	Do the current sources of income you have provide enough money to meet your household's needs on a monthly basis?	YES 1	NO 2

6	If NO: What do you do to meet the shortfall in income?	
7	What are the three most important sources of income for your household? (list in order of importance)	1) 2) 3)
8	What do you consider a good income / salary for yourself?	R

9	Please indicate all the sources of income in your HOUSEHOLD (take into account the last 6 months)					
	Wage/ Salary 1	Own business activities 2	Transfers from family/ friends 3	Pension 4	Gambling 5	Child support grant 6
	How many?	How many?	How many?	How many?	How many?	How many?
	Old age grant 7	Foster child grant 8	Disability grant 9	War veteran's grant 10	Care dependency grant 11	Other 12
	How many?	How many?	How many?	How many?	How many?	How many?

10	Please indicate all YOUR PERSONAL sources of income (take into account the last 6 months)					
	Wage/ Salary 1	Own business activities 2	Transfers from family/ friends 3	Pension 4	Gambling 5	Child support grant 6
	How many?	How many?	How many?	How many?	How many?	How many?
	Old age grant 7	Foster child grant 8	Disability grant 9	War veteran's grant 10	Care dependency grant 11	Other 12
	How many?	How many?	How many?	How many?	How many?	How many?

123

11	How important is your business as a source of income for your household?	Very important 1	Somewhat important 2	Uncertain 3	Not too important 4	Totally unimportant 5
12	Please explain why?					
13	Will your household be able to survive without the income that you earn from this business?	YES 1		NO 2		UNCERTAIN 3

14	How much did your household spend last month on the following? Please provide your best estimate in RANDS.				
	Description	Amount		Description	Amount
A	Food and Groceries	R	i	Clothing or footwear accounts	R
B	Accommodation (Rent/Bond, etc.)	R	j	Loan repayments	R
C	Electricity and Water	R	k	Transport (taxi, bus, petrol, repairs, etc.)	R
D	Education	R	l	Transfers to other family elsewhere	R
E	Health	R	m	Phone (Airtime, monthly account, etc.)	R
F	Furniture Accounts	R	n	Entertainment	R
G	Savings (burial society, stokvel, funeral plans)	R	o	Alcohol / Cigarettes	R
H	Clothing or footwear	R	p	Other	R

15	Other than food, what TWO expenses are the most important for you to pay? It could be something not listed above.	
	1	2

124

16	Which of the following FINANCIAL SERVICES do **you** currently use? Tick **ALL** the applicable options and tell us how many you have of each.	Yes	No	How Many?	Company name
A	Personal bank account	1	2		
B	Pension/provident fund or retirement/saving annuity	1	2		
C	Personal / Micro Loan (from a bank like ABSA, Capitec, African Bank, Standard Bank, FNB, Nedbank, BidVest Bank, etc.)	1	2		
D	Microloan from a micro lender (other than the banks)	1	2		
E	Funeral plan	1	2		
F	Bank credit card	1	2		
G	Store credit (e.g. Edgars card)	1	2		
H	Lay-buy	1	2		
i	Life insurance	1	2		
j	Short-term insurance (like insurance on household goods or a car)	1	2		
k	Loyalty programme (any buying programme)	1	2		
l	Money transfers (from one person to another)	1	2		
m	Home loan	1	2		
n	Stokvel/Umgalelo saving scheme	1	2		██████
o	LOAN from the Stokvel/Umgalelo	1	2		██████
p	Borrow money from / lend money to friends and family	1	2		██████
q	Burial society	1	2		
r	Credit at local Spaza	1	2		██████
s	Credit at local shebeen	1	2		██████
t	Mashonisa loan (informal lender)	1	2		██████

17	Which 3 assets (not consumables) do you plan to buy within the next year?	1	2	3

18	How often do you make use of a loan from a micro-lender?	At least once a month 1	Once every 3 months 2	Once every 6 months 3	Once a year 4	Less than once a year 5	Never 6

19	Do you find it challenging to repay your debt every month?	Extremely challenging 1		A little challenging 2		I don't find this challenging 3	

125

20	Where do you buy groceries?							
a	MOST frequently?	Checkers 1	Pick 'n Pay 2	Shoprite 3	Spar 4	Spaza 5	Woolworths 6	Other (specify) 7
b	2nd MOST frequently?	Checkers 1	Pick 'n Pay 2	Shoprite 3	Spar 4	Spaza 5	Woolworths 6	Other (specify) 7
C	3rd MOST frequently?	Checkers 1	Pick 'n Pay 2	Shoprite 3	Spar 4	Spaza 5	Woolworths 6	Other (specify) 7

21	Which of the following shops did you buy from at least ONCE during the last year? Tick all applicable							
	Acker-mans 1	Edgars 2	Jet 3	Mr Price 4	Truworths 5	Foschini 6	Wool-worths (clothing) 7	Pick / Pay clothing 8
	Other clothing stores in my area 9	2nd hand clothing stores 10	PEP stores 11	Game 12	Makro 16	Cash n Carry 14	KFC 15	McDonalds 16
	Wimpy 17	Spur 18	Any Movies 19	Any Fish n Chips place 20	Chicken Lickin 21	Any Pizza place 22	Ellerines 23	Beares 24
	Joshua Door 25	Morkels 26	Town Talk 27	Russells 28	Bradlows 29	Lewis 30	Price n Pride 31	2nd hand furniture stores 32

C. ASSETS

1	Which of the following does the household currently have? Please tick all applicable options.		
a	Radio	Yes 1	No 2
b	Television	Yes 1	No 2
c	DSTV	Yes 1	No 2
d	Motor Vehicle	Yes 1	No 2
e	Bicycle	Yes 1	No 2
f	Motorcycle	Yes 1	No 2
g	Fridge	Yes 1	No 2
h	Freezer	Yes 1	No 2
i	Microwave	Yes 1	No 2
j	Electric/Solar Geyser	Yes 1	No 2
k	Personal Computer (PC) / Laptop	Yes 1	No 2
l	Landline	Yes 1	No 2
m	Mobile phone	Yes 1	No 2
n	DVD / home entertainment system	Yes 1	No 2
o	Electric stove	Yes 1	No 2
p	Lounge suite	Yes 1	No 2
q	Gas stove	Yes 1	No 2

126

r	Washing machine	Yes 1	No 2
s	Generator	Yes 1	No 2

2	What type of dwelling is your **present** homestead? Please specify **ONLY ONE**	Dwelling/house or brick structure on separate stand or yard	1
		Flat in a block of flats	2
		Town/cluster/semi-detached house (simplex, duplex or triplex)	3
		Dwelling/house/flat/room in backyard	4
		Traditional dwelling/hut/structure of traditional materials	5
		Informal dwelling/shack in backyard	6
		Informal dwelling/shack NOT in backyard	7
		Hostels/Dormitories	8

3	How long has your household lived at this dwelling (years only)?	Years		
4	Does the household own or rent this homestead? (Please specify **ONLY ONE**)			
	Own 1	Rent 2	Neither Own nor Rent 3	
5	The land the dwelling is on…			
	belongs to this family/household 1	belongs to the community/chief 2	belongs to other 3	
6	What is the total number of rooms in the dwelling (including kitchen, lounge etc. but excluding bathroom/toilet)?			
7	Are you renting out rooms to some people?	Yes 1	No 2	

D. FREE TIME

1	In your opinion, does entertainment play any important role in your culture?	YES 1		NO 2		UNCERTAIN 3
2	How often do you think people watch movies at home?	Never 1	Few times/ year 2	Almost monthly 3	Weekly 4	Daily 5
3	What do you consider as the major 5 ways in which people prefer to spend their free time in your community?					
4	How do people feel about going to the movies? (the actual cinema)					

Thank you for your time.

127

MOSAIC 2B:
TECHNOLOGY BASELINE SURVEY QUESTIONNAIRE
Questionnaire 2a

Dear entrepreneur,

We are conducting research on the MOSAIC 2B project and are requesting you to participate in the study by taking some time to answer these questions. We want to assure you that the information gathered during this study will be used only for the study purposes and that you will remain anonymous. Please also be informed that you are free to withdraw from the study at any stage if you so wish. However, your opinion is very valuable and we will appreciate your participation. The interview will take only a few minutes of your time.

1	Name	
2	Area	

A. TECHNOLOGY

	How many cell phones are there at present in this household? (Contract & pre-paid)?				
	How many of these cell phones are able to access the internet?				

	What is the make of your personal cell phone?	Android 1	iPhone 2	Windows 3	Other 4	Make?

	How often do you experience network connectivity problems in your area?	Never 1	Hardly ever 2	Sometimes 3	Most of the time 4

5	What do you use your cell phone for? (Mark ALL things you have done)							
	Making calls 1	Receiving calls 2	Saving contact details 3	Sending SMS's 4	Sending MMS's 5	Alarm clock 6	Going on the internet/ emails 7	Playing music 8
	Taking photos 9	Playing games 10	Keeping a diary / reminders 11	Entering competitions 12	Personalise ringtones/ background etc. 16	Making payments 14	Using MIXIT 15	Using social networks e.g. Facebook 16

6	How much money do you spend on YOUR OWN cell phone's airtime per month?	Less than R30 1	R31 – R50 2	R51-R100 3	R100-R200 4	R201-R300 5	More than R300 6

7	How much money do you spend using the cell phone containers per month?	Less than R30 1	R31 – R50 2	R51-R100 3	R100-R200 4	R201-R300 5	More than R300 6

128

8	Do you use email?		Yes 1			No 2	
9	Do you believe that it is important to have access to the internet?		Yes 1			No 2	
10	How much do you pay per month for internet access?	R					

11	Where do you access the internet?						
	Cellphone 1	Work PC 2	Home PC 3	Internet café 4	PC at friends/ family 5	PC at school 6	NA 9

12	What do you use the internet for? (please tick as many as applicable)							
	Email 1	Social networking e.g. Facebook 2	Research/ Information 3	Studying 4	Looking for work 5	Buying and selling 6	Other 7	NA 9

13	What is your level of computer literacy? (choose ONE)			
	I have NOT had ANY training on how to use a computer 1	I taught MYSELF how to use the computer 2	I had computer training at school 3	I had a computer course after school 4

14	How often have you used the following technology devices over the last year?	Never	Few times/ year	Almost monthly	Weekly	Daily
a	A computer (either desktop or laptop)	1	2	3	4	5
b	A phone with internet access	1	2	3	4	5
c	A phone without internet access	1	2	3	4	5
d	A tablet	1	2	3	4	5
e	A data projector	1	2	3	4	5
f	A sound system	1	2	3	4	5
g	A Wi-Fi router	1	2	3	4	5
h	A video camera	1	2	3	4	5
i	A printer / copier	1	2	3	4	5

129

15	When comparing yourself with <u>most other people of your area</u>, how skilled are you when it comes to using the following technologies?	Better than most	Same as most	Poorer than most	Never used
a	Word processing on a personal computer/ laptop	1	2	3	4
b	Presentations in PowerPoint	1	2	3	4
c	Internet use	1	2	3	4
d	Edit text online containing internet links and images	1	2	3	4
e	Email a file to someone	1	2	3	4
f	Participate in a discussion forum on the internet	1	2	3	4
g	Downloading and using apps	1	2	3	4
h	Downloading content (e.g. movies & music)	1	2	3	4

16	How often do you engaged with / used the following either via your cell phone or on a computer?	Never	Few times/ year	Almost monthly	Weekly	Daily
a	Social media like Facebook, Twitter, Google+	1	2	3	4	5
b	Music apps like iTunes or Soundhound	1	2	3	4	5
c	Photo apps like those on your phone or Instagram	1	2	3	4	5
d	Information apps like Pininterest or Google	1	2	3	4	5
e	Messaging apps like Mixit or Whatsapp	1	2	3	4	5
f	Blogs or on-line communities	1	2	3	4	5
g	Financial apps like Paypal	1	2	3	4	5
h	Communication like Skype	1	2	3	4	5
i	Buying or selling like with Junkmail or eBay	1	2	3	4	5
j	Online Banking apps	1	2	3	4	5

17	Have you used a computer and/or the internet for any of the following activities in the last 12 months?		
a	Running your business (contacts, scheduling, book keeping, etc.)	YES 1	NO 2
b	Reading up on business skills	YES 1	NO 2
c	Developing a business plan	YES 1	NO 2
d	Education	YES 1	NO 2

18	In the past two years, have you undertaken professional skills development in the following areas?		
a	Courses on business	YES 1	NO 2
b	Courses on internet use	YES 1	NO 2
c	Courses on basic word-processing, spreadsheets, presentations	YES 1	NO 2
d	Advanced word-processing	YES 1	NO 2
e	Equipment-specific training (projector, laptop, etc.)	YES 1	NO 2
f	Participate in online communities (e.g. mailing lists, twitter, blogs) for professional discussions with other small business owners	YES 1	NO 2

19	To what extent is your personal use of information and communication technology (ICT) adversely affected by the following factors?	Large extent	Some extent	Small extent	Not affected
a	I lack access to a computer				
b	I lack computer skills				
c	I am not interested in using ICT for business purposes				
d	Computer out of date or in disrepair				
e	Personal aversion in ICT as business medium				
f	Personal lack of interest in ICT as business medium				
g	Insufficient technical support available				
h	It is too difficult to integrate ICT use into the business				
i	I am not in favour of the use of ICT in my business				

20	Which of the following statements best describe your personal view of information and communication technology (ICT) in general? Tick any TWO statements that best describe your personal view.	
a	I love all forms of technology; it adds great value to my life	1
b	I find the field of ICT overwhelming	2
c	ICT can be a great asset in the business	3
d	The world of ICT scares micro-entrepreneur	4
e	I see no need for the introduction of ICT in my business	5
f	I would love to learn more about the role of ICT in business	6
g	I am excited about the introduction of new technologies in business	7
h	I have no interest in technology whatsoever	8

Thank you for your time.

MOSAIC 2B:
EMPLOYMENT AND ENTREPRENEURSHIP BASELINE SURVEY QUESTIONNAIRE
Questionnaire 3

Dear entrepreneur,

We are conducting research on the MOSAIC 2B project and are requesting you to participate in the study by taking some time to answer these questions. We want to assure you that the information gathered during this study will be used only for the study purposes and that you will remain anonymous. Please also be informed that you are free to withdraw from the study at any stage if you so wish. However, your opinion is very valuable and we will appreciate your participation. The interview will take only a few minutes of your time.

1	Name	
2	Area	

A. EMPLOYMENT

1	Employment status	Employed 1		Unemployed 2		Self employed 3		Self-employed (looking for full-time employment) 4	
2	During the last 2 months, how many days did you work in total?	Month 1				Month 2			
3	Do you see self-employment as a good way to make money?	YES 1			NO 2			UNCERTAIN 3	
4	What is the upside of self-employment?								
5	What is the down side of self-employment?								
6	Have you ever tried to get employment through employment services?								
7	When was the last time you look for employment outside of your own business?								

8	Level of satisfaction with current job situation	Not satisfied at all								Extremely satisfied	
		1	2	3	4	5	6	7	8	9	10

B. EDUCATION

1	Highest level of education	Never attended school 1	Completed primary school 2	Did not complete primary school 3	Completed secondary school 4	Did not complete secondary school 5	Completed tertiary education (degree/ diploma/ higher certificate etc.) 6	Other (Please specify) 7

2	How eager are you for more training in small business development skills?	Not at all									Extremely
		1	2	3	4	5	6	7	8	9	10

3	What skills do you regard as most important for business owners / entrepreneurs to be successful?	

4	Do you feel that education/training helped you and grow your business?	
	YES (in which ways?) 1	NO (why not?) 2

5	Provide a list of all training programme completed. Which of these training programmes did you benefit from the most? Please explain why

6	Which of these training programmes did you benefit from the most? Please explain why

7	In which area would you like to train most?	

8	Have you attended programmes to develop your business skills?	YES (which programmes?) 1	NO (Why not?) 2

9	If YES, what did you like about these programmes?	

10	If YES, what did you NO like about these programmes?	

133

C.   SMALL, MEDIUM AND MICRO ENTERPRISES

| 1 | For how long have you been running your own business? | Years _____ Months _____ | | |

| 2 | Please list all your business activities: | | | |

3	How often are members of your family/friends involved in your business?	Never	Sometimes	Often	Always
a	Mother	1	2	3	4
b	Father	1	2	3	4
c	Brothers	1	2	3	4
d	Sisters	1	2	3	4
e	The children	1	2	3	4
f	Grandparent(s)	1	2	3	4
g	Friends	1	2	3	4

4	How much time do you spent on an average day in running your business?	Less than an hour 1	1-3 hours 2	3-5hours 3	5-7 hours 4	More than 7 hours 5
5	How successful is your business?	Not at all 1	Below average 2	Average 3	Successful 4	Very successful 5
6	Currently how much money does your business earn per month?	R				
7	What do you use the money earned from the business for?					
8	Do you think your area offers enough business opportunities for small business owners to grow their businesses?	YES 1		NO 2		UNCERTAIN 3
9	Do you think your area offers opportunities to run a cinema business?	YES 1		NO 2		UNCERTAIN 3
10	What are the biggest opportunities you can see for a cinema business?					
11	What are the biggest risks/challenges you can see for a cinema business?					
12	Mechanisms used to find employment (multi-mention)					
13	What is the greatest success of your business?					
14	What is the biggest failure within your business?					

1 5	Given the state of your business at this point in time, please tell us if your business helps you to…	Strongly disagree	Disagree	Agree	Strongly agree
a	have more choices in life	1	2	3	4
b	put food on the table for your family	1	2	3	4
c	ensure education for your family	1	2	3	4
d	have too much transport costs	1	2	3	4
e	gain more respect from your family	1	2	3	4
f	gain more respect in the community	1	2	3	4
g	do the things you plan in life	1	2	3	4
h	contribute to the community	1	2	3	4
i	have too little income	1	2	3	4
j	look for a better job	1	2	3	4
k	start your own business	1	2	3	4
l	have too little time with your family	1	2	3	4
m	access information	1	2	3	4
n	learn new things	1	2	3	4
o	interact with many other people in the society	1	2	3	4
p	save and invest in assets	1	2	3	4
q	Other (specify)	1	2	3	4

Thank you for your time.

Instructions: Field Managers to ask Entrepreneurs the following questions during their weekly or fortnightly visits.

1	Name of fieldworker	
2	Name of entrepreneur	
3	Date	

1) General:

A	How are things going with the cinema?	Not good at all							Excellent		
		1	2	3	4	5	6	7	8	9	10
	Reason:										

B	Has anything changed since we last met?	YES 1	NO 2

2) Marketing:

A	What kind of marketing tactics did you use to reach your audience during this last week/month?				
	1	I will use this again 1	I may try it again to see if I can make it work better 2	I will not use this again 3	Reason
	2	I will use this again 1	I may try it again to see if I can make it work better 2	I will not use this again 3	Reason
	3	I will use this again 1	I may try it again to see if I can make it work better 2	I will not use this again 3	Reason
	4	I will use this again 1	I may try it again to see if I can make it work better 2	I will not use this again 3	Reason

B	Did this work better or worse than previous attempts?	Better 1	Worse 2

136

C	What will help you improve your marketing efforts?				

3) Content:

	What movies did you show and why did you select those?				
A	1	Reason	Very appropriate 1	Somewhat appropriate 2	Not appropriate 3
	2	Reason	Very appropriate 1	Somewhat appropriate 2	Not appropriate 3
	3	Reason	Very appropriate 1	Somewhat appropriate 2	Not appropriate 3
	4	Reason	Very appropriate 1	Somewhat appropriate 2	Not appropriate 3

		LOCAL 1	INTERNATIONAL 2
B	Do local or international content work better for your customers?		

		YES 1	NO 2
C	Would you like to make changes to the content that you currently have available?		
	If yes, what changes would you like to make?		

4) Equipment/Technology:

	How is your equipment performing? (ask for positives and negatives)				
A	Speakers	Very well 1	Quite good 2	Bit problematic 3	Very problematic 4	Reason
B	Projector	Very well 1	Quite good 2	Bit problematic 3	Very problematic 4	Reason
C	Business app on the tablet	Very well 1	Quite good 2	Bit problematic 3	Very problematic 4	Reason
D	Data visualisation tool	Very well 1	Quite good 2	Bit problematic 3	Very problematic 4	Reason
E	DTN distribution system	Very well 1	Quite good 2	Bit problematic 3	Very problematic 4	Reason

5) Innovation:

	Did you change anything since our last check-in? (e.g. new alliances, products/services offered, etc.?)	YES 1	NO 2
A	If yes, what changes did you make?		

	Are you planning to change anything in the near future?	YES 1	NO 2
B	If yes, what changes are you planning?		

6) Closing questions:

Do you feel that you need additional…

		YES	NO
1	business training?	YES 1	NO 2
2	technical training?	YES 1	NO 2

Thank you for your time!

SUMMARY OF INTERVIEW BY THE FIELDWORKER

Do you believe this entrepreneur needs additional…

		YES	NO
1	business training?	YES 1	NO 2
2	technical training?	YES 1	NO 2

Evaluate how the entrepreneur/team is doing and your observations of how they are running their business? What kind of feedback would you give them?

139

Appendix C: Data collection via the MPP

Information already stored that does not form part of the questionnaire	
Event Date	
Venue Name	
Event Location (GPS)	
Screening start time per movie	

Question #	Event / Screening	Question	Type	Options	Controlled By other question #	Controlled Answer
Questions per Event						
1	Event	Venue Type	SELECT ONE OPTION	School; Crèche; Church; Community Centre; Home; Other		
2	Event	Venue Address	TEXT			
3	Event	Did you pay for this venue	SELECT ONE OPTION	Yes; No		
4	Event	Venue cost	RAND VALUE	R	Complete if answered Yes in question 3	Yes
5	Event	Is this a sponsored event	SELECT ONE OPTION	Yes; No		
6	Event	Sponsored amount received	RAND VALUE	R	Complete if answered Yes in question 5	Yes
7	Event	Are you selling tickets per event, screening or both	SELECT ONE OPTION	Event; Screening; Both		
8	Event	Number of tickets sold to children (younger than 18)	NUMBER		Complete if answered Event or Both in question 7	Event or Both

Question #	Event / Screening	Question	Type	Options	Controlled By other question #	Controlled Answer
9	Event	Number of tickets sold to adults (between 18 and 65)	NUMBER		Complete if answered Event or Both in question 7	Event or Both
10	Event	Number of tickets sold to elderly persons (older than 65)	NUMBER		Complete if answered Event or Both in question 7	Event or Both
11	Event	Ticket price: Children (younger than 18)	RAND VALUE	R	Complete if answered Event or Both in question 7	Event or Both
12	Event	Ticket price: Adults (between 18 and 65)	RAND VALUE	R	Complete if answered Event or Both in question 7	Event or Both
13	Event	Ticket price: Elderly (older than 65)	RAND VALUE	R	Complete if answered Event or Both in question 7	Event or Both
14	Event	Number of free tickets	NUMBER		Complete if answered Event or Both in question 7	Event or Both
15	Event	Expense: Electricity/LP Gas	RAND VALUE	R		
16	Event	Expense: Marketing	RAND VALUE	R		
17	Event	Expense: Other sales activities	RAND VALUE	R		
18	Event	Other commercial activities	SELECT ONE OPTION	Yes; No		

141

Question #	Event / Screening	Question	Type	Options	Controlled By other question #	Controlled Answer
19		Why did you not link other opportunities to the screening of the movie?	SELECT ONE OPTION	I find that it is too much trouble to link other opportunities; I don't think I can make that much more money by linking other opportunities; I did not have the time to work on linking other commercial activities to this event	Complete if award No in question 18	No
20	Event	Income: Other sales	RAND VALUE	R	Complete if award Yes in question 18	Yes
21	Event	Income: Partnership	RAND VALUE	R		
22	Event	Equipment worked	SELECT ONE OPTION	Yes; No		
23	Event	Rate venue	SELECT ONE OPTION	Fantastic; Good; Okay; Not that good; Terrible		
24	Event	Will you host another screening (of any movie) at this venue	SELECT ONE OPTION	Yes; Not sure; No		
25	Event	How do you rate your own marketing activities leading up to this screening	SELECT ONE OPTION	It was really good - I plan to repeat these activities in future when I market a movie; I think I should change my approach slightly; I think I should change my entire approach		

142

Ques tion #	Event / Screeni ng	Question	Type	Options	Controlled By other question #	Contr olled Answ er
26	Event	Do you feel confident that you are able to grow this business	SELECT ONE OPTIO N	Yes; Maybe; No		
27	Event	At present do you think that you will be able to make enough money from this mobile-cinema to continue doing this business	SELECT ONE OPTIO N	Yes; Maybe; No		
28	Event	At present are you planning to do more screenings of movies or less	SELECT ONE OPTIO N	More; The same; Less		
29	Event	Of the following options which 3 do you think will be most helpful for you to grow your business	SELECT THREE OPTIO Ns	Technical training on how to use this movie equipment; Marketing training to help develop more ideas on how to encourage people to come to your movie screenings; Marketing assistance to help encourage people to come to your movie screenings; Access to more venues; Access to a different community to work in; Access to more movies; Access to different kinds of movies		
30	Event	Did you see or speak to your field agent this week	SELECT ONE OPTIO N	Yes; No		

143

Question #	Event / Screening	Question	Type	Options	Controlled By other question #	Controlled Answer
31	Event	Have you been interviewed by the field project leader during the last month	SELECT ONE OPTION	Yes; No		
32	Event	Have you requested any form of assistance over the last month from the field agent or the field project leader	SELECT ONE OPTION	Yes; No		
33	Event	If yes, did you receive assistance	SELECT ONE OPTION	Yes; No	Complete if answered Yes in question 32	Yes
Questions repeated per movie (screening) in the event						
34	Screening	Number of tickets sold to children (younger than 18)	NUMBER		Complete if answered Screening or Both in question 7	Screening or Both
35	Screening	Number of tickets sold to adults (between 18 and 65)	NUMBER		Complete if answered Screening or Both in question 7	Screening or Both
36	Screening	Number of tickets sold to elderly persons (older than 65)	NUMBER		Complete if answered Screening or Both in question 7	Screening or Both
37	Screening	Ticket price: Children (younger than 18)	RAND VALUE	R	Complete if answered Screening or Both in question 7	Screening or Both
38	Screening	Ticket price: Adults (between 18 and 65)	RAND VALUE	R	Complete if answered Screening or Both in question 7	Screening or Both

144

Ques tion #	Event / Screeni ng	Question	Type	Options	Controlled By other question #	Contr olled Answ er
39	Screeni ng	Ticket price: Elderly (older than 65)	RAND VALUE	R	Complete if answered Screening or Both in question 7	Scree ning or Both
40	Screeni ng	Number of free tickets	NUMB ER		Complete if answered Screening or Both in question 7	Scree ning or Both
41	Screeni ng	Expense: Electricity/LP Gas	RAND VALUE	R		
42	Screeni ng	Expense: Marketing	RAND VALUE	R		
43	Screeni ng	Expense: Other sales activities	RAND VALUE			
44	Screeni ng	Other commercial activities	SELECT ONE OPTIO N	Yes; No		
45	Screeni ng	Income: Other sales	RAND VALUE	R	Complete if answered Yes in question 44	Yes
46	Screeni ng	Income: Partnership	RAND VALUE	R		
47	Screeni ng	In your opinion, how good was the movie	SELECT ONE OPTIO N	Fantastic; Good; Okay; Not that good; Terrible		
48	Screeni ng	Did the audience enjoy the movie	SELECT ONE OPTIO N	They loved it; They liked it; They were ok with it; They did not like it much; They did not like it at all		
49	Screeni ng	Was the audience the right age for this movie	SELECT ONE OPTIO N	Yes; Not sure; No		

Ques tion #	Event / Screeni ng	Question	Type	Options	Controlled By other question #	Contr olled Answ er
50	Screeni ng	Are you satisfied with the number of people who attended this movie	SELECT ONE OPTIO N	Yes; Somewhat; No		
51	Screeni ng	Was it easy to convince people to attend the screening for this movie	SELECT ONE OPTIO N	Yes; Not really; No		
52	Screeni ng	Were people willing to pay to see this movie	SELECT ONE OPTIO N	Yes; Some were willing; No		
53	Screeni ng	Will you show this movie again to another audience	SELECT ONE OPTIO N	Yes; Not sure; No		

146

Appendix D: Audience satisfaction survey respondents profile

Table D.1: Respondents profile by age and gender

Age	Male	Female	Total	%
Under 7 years old	26	18	44	11%
8 to 12 years old	21	21	42	10%
13 to 18 years old	54	41	95	23%
19 to 34 years old	100	68	168	41%
35 to 50 years old	13	34	47	11%
Over 50 years old	1	16	17	4%
Total	215	198	413	100%
%	52%	48%		

Appendix E: Audience satisfaction survey entertainment

Table E.1: Respondents entertainment preferences by age and gender

Age	Male							Female							Total	%
	Watch TV	Go to Church	Go to the Shabeen	Play Sports	Socialise with Friends	Watch Movies	Other	Watch TV	Go to Church	Go to the Shabeen	Play Sports	Socialise with Friends	Watch Movies	Other		
Under 7 years old	7	1	0	14	0	1	1	4	1	0	6	0	1	0	36	9%
8 to 12 years old	4	1	0	10	0	5	0	11	4	0	0	1	3	2	41	10%
13 to 18 years old	11	3	3	17	10	8	2	13	5	0	3	15	5	0	95	24%
19 to 34 years old	22	7	7	13	20	24	6	19	14	3	7	19	3	3	167	41%
35 to 50 years old	2	1	1	0	2	3	4	10	10	0	1	7	1	5	47	12%
Over 50 years old	1	0	0	0	0	0	0	0	6	0	0	0	2	8	17	4%
Total	47	13	11	54	32	41	13	57	40	3	17	42	15	18	403	100%
%	12%	3%	3%	13%	8%	10%	3%	14%	10%	1%	4%	10%	4%	4%	100%	

Appendix F: Audience satisfaction survey accessing movies

Table F.1: Respondents profile by age, gender and cinema experience

Age	Male			Female		
	Never Been to the Cinema	Once	Many Times	Never Been to the Cinema	Once	Many Times
Under 7 years old	19	7	0	13	4	0
8 to 12 years old	15	5	1	16	3	2
13 to 18 years old	31	18	5	23	14	4
19 to 34 years old	37	27	36	21	20	27
35 to 50 years old	7	2	4	20	10	4
Over 50 years old	0	1	0	15	0	1
Total	109	60	46	108	51	38
%	26%	15%	11%	26%	12%	9%

Table F.2: Respondents profile by age, gender and movie experience

Age	Male				Female				Total	%
	Never Watched Movies in the Home	Once a Month	Once a Week	Almost Daily	Never Watched Movies in the Home	Once a Month	Once a Week	Almost Daily		
Under 7 years old	3	1	15	7	1	1	11	4	43	10%
8 to 12 years old	3	1	11	6	2	1	12	6	42	10%
13 to 18 years old	0	3	17	34	1	5	22	13	95	23%
19 to 34 years old	1	18	35	46	4	14	27	23	168	41%
35 to 50 years old	1	3	6	3	4	12	18	0	47	11%
Over 50 years old	0	0	1	0	5	6	5	0	17	4%
Total	8	26	85	96	17	39	95	46	412	100%
%	2%	6%	21%	23%	4%	9%	23%	11%	100%	

Table F.3: Respondents profile by age, gender and movie experience in their homes

Age	Male					Female					Total	%
	Watch Movies on TV	On DVDs	At Cinema	On My Computer	Other	Watch Movies on TV	On DVDs	At Cinema	On My Computer	Other		
Under 7 years old	18	7	0	1	0	13	4	0	0	0	43	10%
8 to 12 years old	10	5	0	6	0	8	12	0	0	0	41	10%
13 to 18 years old	12	21	1	20	0	15	17	1	7	1	95	23%
19 to 34 years old	20	35	4	39	1	31	24	1	12		167	41%
35 to 50 years old	4	7	0	1	1	28	5	0	1	0	47	11%
Over 50 years old	1	0	0	0	0	14	1	0	0	1	17	4%
Total	65	75	5	67	2	109	63	2	20	2	410	100%
%	16%	18%	1%	16%	0%	27%	15%	0%	5%	0%	100%	

Appendix G: Audience satisfaction survey marketing

Table G.1: Marketing by age and gender

Age	Male						Female						Total	%
	Entrepreneur	Neighbours/Friends	Parents	School/Church	Advertisements	Walk In	Entrepreneur	Neighbours/Friends	Parents	School/Church	Advertisements	Walk In		
Under 7 years old	18	7	0	1	0	0	10	0	0	4	0	1	41	10%
8 to 12 years old	9	6	0	4	0	2	12	2	1	6	0	0	42	10%
13 to 18 years old	23	15	1	7	6	0	16	10	2	4	7	2	93	23%
19 to 34 years old	63	29	0	5	1	2	39	15	1	3	6	3	167	41%
35 to 50 years old	11	1	0	1	0	0	26	1	2	4	0	1	47	11%
Over 50 years old	0	0	0	1	0	0	13	1	0	1	0	0	16	4%
Total	124	58	1	19	7	4	116	29	6	22	13	7	406	99%
%	31%	14%	0%	5%	2%	1%	29%	7%	1%	5%	3%	2%	100%	

Table G.2: Marketing by instrument

Age	Male							Female							Total	%
	Local Radio	Facebook	SMS	WhatsApp	Local Newspaper	Poster	Nothing	Local Radio	Social Media	SMS	WhatsApp	Local Newspaper	Poster	Nothing		
Under 7 years old	0	0	0	0	0	2	24	0	0	0	0	0	0	17	43	10%
8 to 12 years old	0	0	0	0	0	4	17	0	0	0	0	0	0	21	42	10%
13 to 18 years old	0	3	0	9	0	16	27	0	1	0	3	0	11	26	96	23%
19 to 34 years old	3	16	5	39	2	25	19	3	2	4	16	2	13	29	178	42%
35 to 50 years old	1	2	0	0	1	6	5	7	1	0	2	0	6	19	50	12%
Over 50 years old	0	0	0	0	0	0	1	5	0	0	0	3	2	6	17	4%
Total	4	21	5	48	3	53	93	15	4	4	21	5	32	118	426	100%
%	1%	5%	1%	11%	1%	12%	22%	4%	1%	1%	5%	1%	8%	28%	100%	

Appendix H: Audience satisfaction survey loyalty

Table H.1: Loyalty

Age	Male					Female					Total	%
	Once	Two Times	Three Times	Four Times	Five Times and More	Once	Two Times	Three Times	Four Times	Five Times and More		
-Under 7 years old	16	6	0	4	0	11	2	0	4	0	43	11%
8 to 12 years old	16	3	2	0	0	20	0	1	0	0	42	10%
13 to 18 years old	35	11	4	1	1	29	9	2	0	0	92	23%
19 to 34 years old	69	18	5	2	4	54	8	4	0	2	166	41%
35 to 50 years old	11	1	0	1	0	26	5	3	0	0	47	12%
Over 50 years old	1	0	0	0	0	14	1	0	0	0	16	4%
Total	148	39	11	8	5	154	25	10	4	2	406	100%
%	36%	10%	3%	2%	1%	38%	6%	2%	1%	0%	100%	

Table H.2: Viewing

Age	Male				Female				Total	%
	Myself	Partner	Friend	Relative	Myself	Partner	Friend	Relative		
Under 7 years old	19	0	5	2	11	1	5	0	43	11%
8 to 12 years old	3	0	13	5	1	0	14	6	42	10%
13 to 18 years old	20	2	22	7	7	2	20	12	92	23%
19 to 34 years old	41	9	45	5	26	11	27	4	168	41%
35 to 50 years old	7	0	6	0	21	3	3	7	47	12%
Over 50 years old	0	0	1	0	14	0	0	1	16	4%
Total	90	11	92	19	80	17	69	30	408	100%
%	22%	3%	23%	5%	20%	4%	17%	7%	100%	

Table H.3: Audience satisfaction survey respondents' motivation to attend screenings

Age	Male										Female										Total	%
	Movie	Social Gathering	Educational	Curiosity	Status	Taking a Break from	Break from	American Movie	Local Movie	Family Event	Movie	Social Gathering	Educational	Curiosity	Status	Taking a Break from	Break from	American Movie	Local Movie	Family Event		
Under 7 years old	4	0	12	2	0	0	2	0	0	0	0	0	9	1	0	0	1	0	0	0	31	4%
8 to 12 years old	3	5	9	4	2	1	6	1	1	0	4	1	15	1	0	0	1	0	0	0	54	7%
13 to 18 years old	15	26	22	16	2	4	22	0	6	2	15	18	24	14	0	0	15	0	0	0	201	27%
19 to 34 years old	29	50	25	34	4	14	36	3	11	5	22	28	25	28	0	12	16	0	7	4	353	48%
35 to 50 years old	5	4	2	2	0	3	3	0	1	2	9	6	15	7	0	4	3	0	1	1	68	9%
Over 50 years old	0	0	1	0	0	0	0	0	0	0	3	0	11	3	0	5	1	0	0	0	24	3%
Total	56	85	71	58	8	22	69	4	19	9	53	53	99	54	0	21	37	0	8	5	731	100%
%	8%	12%	10%	8%	1%	3%	9%	1%	3%	1%	7%	7%	14%	7%	0%	3%	5%	0%	1%	1%	100%	

Appendix I: MCU screening data

Table I.1: ME Screenings by time of day

ME	Number of Screenings	%	6h00 to 10h00	10h00 to 12h00	12h00 to 14h00	14h00 to 16h00	16h00 to 18h00	18h00 to 20h00	20h00 to 22h00	22h00 and later	Total	null
1	14	2%	1	3	2	2	1	4	1	0	14	0
2	23	3%	0	2	0	2	4	3	3	1	15	8
3	73	9%	2	3	7	15	4	11	5	0	47	26
4	26	3%	1	0	2	1	7	5	3	5	24	2
5	71	9%	4	7	5	4	3	0	2	2	27	44
6	28	4%	1	1	8	3	2	5	2	0	22	6
7	80	10%	2	2	4	11	8	10	11	2	50	30
8	52	7%	0	6	4	6	7	5	14	0	42	10
9	24	3%	0	1	2	1	2	3	7	6	22	2
10	10	1%	0	0	0	1	0	6	0	0	7	3
11	9	1%	0	1	1			1	2	2	7	2
12	146	19%	0	9	11	23	7	19	6	1	76	70
13	139	18%	24	15	9	6	9	9	12	4	88	51
14	88	11%	4	4	5	5	5	4	2	1	30	58
Total	783	100%	39	54	60	80	59	85	70	24	471	312
%			8%	11%	13%	17%	13%	18%	15%	5%	100%	

Table I.2: MEs' screenings by gender

Gender	Number of Screenings	6h00 to 10h00	10h00 to 12h00	12h00 to 14h00	14h00 to 16h00	16h00 to 18h00	18h00 to 20h00	20h00 to 22h00	22h00 and later	Null	Total
Screenings by Male MEs	325	27	29	28	19	36	40	44	18	84	325
Screenings by Female MEs	458	12	24	32	59	27	44	26	6	228	458
Total	783	39	53	60	78	63	84	70	24	312	783
%		8%	11%	13%	17%	13%	18%	15%	5%		

Table I.3: MEs' screenings by month

Gender	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Total
Male	66	74	74	32	36	43	325
Female	126	94	101	47	43	47	458
Total	192	168	175	79	79	90	783
%	25%	21%	22%	10%	10%	11%	100%

Appendix J: Ethics

B 4 Ethical Issues

MOSAIC 2B will tackle a number of ethical issues. The following section pin points them and illustrates the strategy adopted within the project.

B 4.1 Data protection issues

To ensure maximum protection, all information will be dealt with a completely **anonym form** sufficient to comply with the broadest interpretation of personal data defined by the EU Data Protection Directive as it will not contain any information related to personal data. For this MOSAIC 2B will use strict anonym techniques and only data relative to energy consumption will be collected avoiding unnecessary collection and use of any personal data.

B 4.2 Informed consent

The project will involve a number of adult healthy users, selected on a strictly volunteer basis, called to contribute to MOSAIC 2B during test sessions. Users will be made fully aware of all privacy issues. Selected people will be asked to provide their consent prior to being involved in the test. All test people will be required to sign, or otherwise accept (through an electronic form) a declaration stating their awareness on all the related issues.

B 4.3 Privacy and security

EPI will develop strategies to protect user's identities when accessing the MOSAIC 2B services in order to give assurance of user privacy including an assurance of anonymity. This way, whenever required, the privacy and confidentiality of data that contain personal information about individuals or sensitive environment information will be preserved either excluding the access to this sensitive data or providing the means of appropriate filtering.

B 4.4 Gender equality

Additionally MOSAIC 2B will promote gender equality to the best possible extent. The project will give preference to female if equal qualifications prevail among

156

potential candidates or beneficiaries of activities (e.g. selection for involvement in training programmes, etc.). We believe that gender equality issue becomes even more important given the technological focus of the project. For this reason in case of choice among staff with equal qualification preferences will be given to female in order to redress traditional inequities and achieve the best possible balance among the user group. Dealing with gender issues must not only be limited to promotion of women within MOSAIC 2B staff but also promoting better relationships between genders, division of responsibilities and resources between genders as well as implication of work within people's private life. To this extent opportunities for part-time working will be fostered as well as remote work from home will be advocated whenever this could be appropriate, for instance in case of maternities.

B 4.5 Ethical Issues Table

Research on Human Embryo/ Foetus	YES	PAGE
Does the proposed research involve human Embryos?		
Does the proposed research involve human Foetal Tissues/ Cells?		
Does the proposed research involve human Embryonic Stem Cells (hESCs)?		
Does the proposed research on human Embryonic Stem Cells involve cells in culture?		
Does the proposed research on Human Embryonic Stem Cells involve the derivation of		

	YES	PAGE
cells from Embryos?		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

Research on Humans	YES	PAGE
Does the proposed research involve children?		
Does the proposed research involve patients?		
Does the proposed research involve persons not able to give consent?		
Does the proposed research involve adult healthy volunteers?		
Does the proposed research involve Human genetic material?		
Does the proposed research involve Human biological samples?		
Does the proposed research involve Human data collection?		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

Privacy	YES	PAGE
Does the proposed research involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical con-viction)?		
Does the proposed research involve tracking the location or observation of people?	X	14
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL		

| Research on Animals	YES	PAGE
Does the proposed research involve research on animals?		
Are those animals transgenic small laboratory animals?		
Are those animals transgenic farm animals?		
Are those animals non-human primates?		
Are those animals cloned farm animals?		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

Research Involving non-EU Countries (ICPC Countries)	YES	PAGE
Is any material used in the research (e.g. personal data, animal and/or human tissue samples, genetic material, live animals, etc) : a) Collected and processed in any of the ICPC countries?		
b) Exported to any other country (including ICPC and EU Member States)?		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

Dual Use	YES	PAGE
Research having direct military use		
Research having the potential for terrorist abuse		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

158

Appendix L: Focus group interviews

Feedback from the focus group interviews.

Question: What are your positive and negative experiences with the Cinema-in-a-backpack?
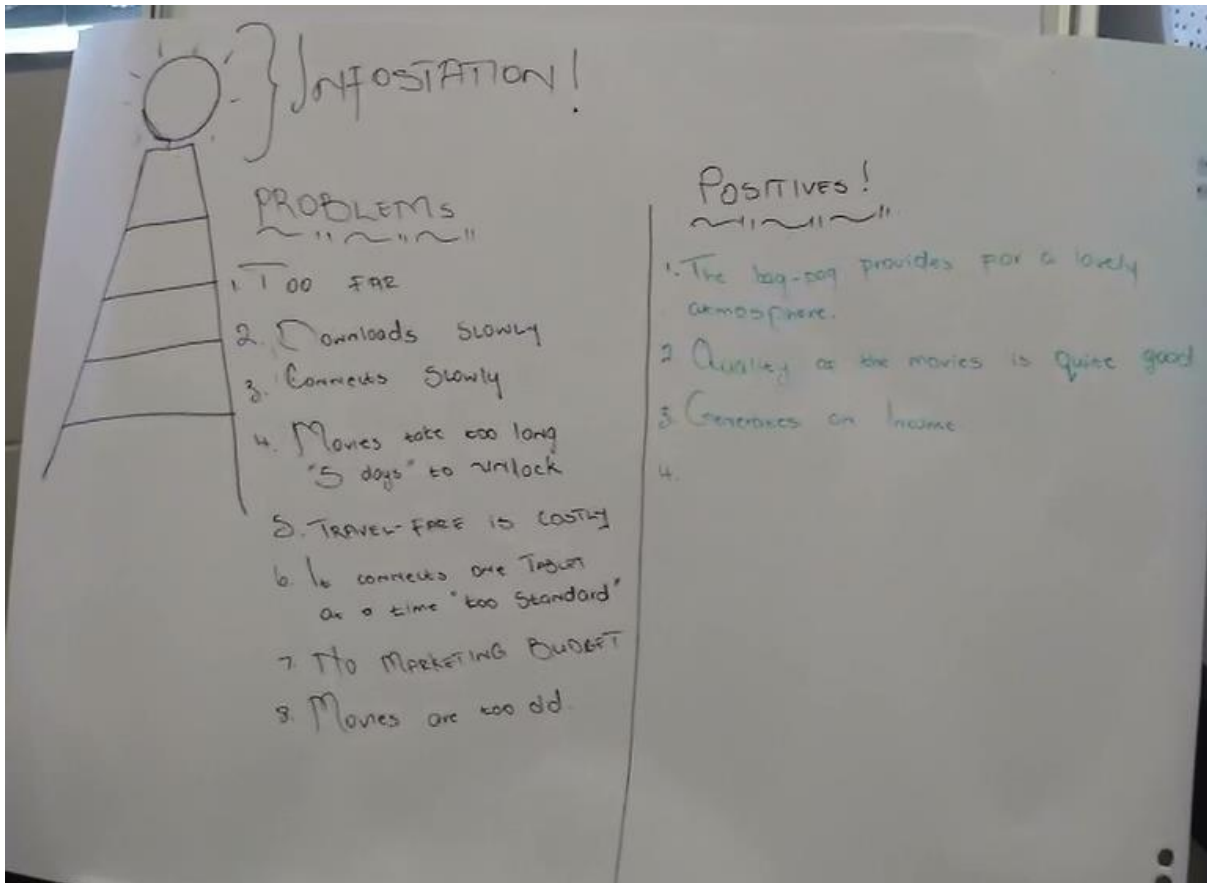
CHALLENGES FACED

1. OUTDATED CONTENT

2. NOT WILLING TO PAY

3. SPEED OF DOWNLOADING MOVIES

4. PARTICIPATION OF AUDIENCE (PICTURES)

5. YOUNGER AUDIENCE, HARD TO GET INFORMATION (e.g NO cellphones)

6. SAFETY AT INFOSTATIONS WHEN DOWNLOADING, EVEN WHEN SCREENING.

7. MARKETING COSTS (POSTERS)

POSITIVE OUTCOMES

1. BUSINESS OPPORTUNITY (NEW MARKET) JOB CREATION

2. WELL RECOGNISED.

3. GAINING EXPERIENCE