The interaction between low-literate youth and ICT in Ethiopia and Malawi

Fieldwork report

*With special thanks to FSCE, AHEAD and YONECO*

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Executive Summary

This report provides a summary of the findings and observations of fieldwork for PhD research that explores the role of ICT in the lives of low-literate youth in Ethiopia and Malawi, for the NGO’s in these countries that offered their support to the field research. During the fieldwork in both countries low-literate youth from disadvantaged backgrounds were interviewed about ICTs, participated in focus groups and interacted with a digital camera. All methods focused on gaining a better understanding of current knowledge, perception and use of ICTs, the role of reading and writing in people’s lives and their future ambitions. This report focuses particularly on the research outcomes as well as other observations that may be of interest to the NGO’s.

The research outcomes are categorized and discussed according to: the contexts of ICT use, the ICT content that is used, the ICT needs of low-literate users and participants’ interaction with the digital camera. For example the most important constraints to ICT use caused by the physical and social context are discussed, as well as the ICTs that were found to be most widespread and most favoured by participants. Furthermore how the representation and language of ICT content influences who are able to use the content is covered, as well as the impact of informal video screenings. Finally, methodological issues relating to ways of finding out about people’s ICTs needs and the challenges this poses are discussed. Other observations that could be of interest to the NGO’s are related to among other things education, sexual habits and gender equality.
1 Introduction
As part of a PhD on 'the interaction between low-literate youth and ICT in Ethiopia and Malawi' that I am undertaking at Royal Holloway, University of London, I spent a period of three months in both Ethiopia and Malawi to collect data for my research. In both countries local NGO's have been very supportive in assisting me during my fieldwork. With this report I would like to thank the Forum on Street Children Ethiopia (FSCE), Action for Health Education and Development (AHEAD) and YouthNet and Counseling (YONECO) for all their help in making my fieldwork a success. The report is meant to communicate some of the findings and observations of my fieldwork that could be of interest to these organisations.

The report is designed as follows:
• First, I give some background to my research and an idea of what I have actually been doing during my fieldwork.
• Second I discuss the outcomes of the fieldwork that specifically relate to the aims of my research.
• Finally, I discuss some other observations that I made during my research that might be valuable for the organisations that kindly let me work with them.
I have not explicitly divided things up into separate sections for Ethiopia and Malawi, but whenever relevant I indicate when things are specific for only one of the two countries.

Where possible I included quotations that are taken from my fieldwork data or field notes to make things more vivid (do note these express how my translators translated the answers from the local language to English, rather than perfect English), indicating the location, age and gender (F/M) of the participant. Most of this document reflects my own observations and thoughts that readers can interpret in their own way and agree or disagree with. I would be very interested in receiving feedback from readers.

2 Background to my research and fieldwork methodologies
Even the most intelligent technology has little value if users cannot use it. The success of a technology is greatly determined by the ease of use for its potential users. In other words: 'If the user can’t use it, it doesn’t work' (slogan of Dray & Associates, Inc.). Each technology design presumes certain user characteristics and skills such as hearing capacity for a radio, hearing and viewing capacity for a television and fingers to type for a keyboard. In case a user is missing any of these characteristics or skills, for example deaf or blind users, adjustments can be made to the technology or content to make it fit to the capacities that the user does have. For blind users this is for example done by replacing visual stimuli with touch based stimuli and for deaf users by replacing sound with visual/textual stimuli.

Many information and communication technologies (ICTs) presume user characteristics and skills that are taken for granted in developed countries, but can be less obvious in developing countries. Literacy skills, such as reading and writing, for example are directly or indirectly required for using certain technologies (e.g. computers). I began my PhD research in the area of Information and Communication Technologies for Development (ICT4D) from an interest in this mismatch between ICTs and literacy skills. However rather than considering the acquisition of literacy skills as the solution to this problem, my interest lies in how technologies can be
successfully adopted by people lacking literacy skills, either by adjusting or redesigning the technologies, or by providing appropriate content.

The aim of my PhD research became ‘to explore the role of ICT in the lives of low-literate youth in Ethiopia and Malawi’ in order to identify ways in which ICTs can contribute to empowering their lives. I chose to focus on youth because they are the users of the future. Further I chose to focus on the African countries Ethiopia and Malawi, because of their high illiteracy rates in the international statistics as well as their geographical locations in Africa (East and Southern) to cover different parts of the continent. Both the terms low-literate and Information and Communication Technologies (ICTs) need some further clarification, because they can be interpreted in many ways. The definition of literacy is highly debated in the academic literature and in the interest of my research I mainly focus the skills of reading and writing; what impact a lack of competence in these skills has on ICT use. I prefer to use the term ‘low-literate’, which includes those with limited literacy skills, rather than ‘illiterate’, which refers only to those completely lacking literacy skills. ICTs signify all technologies that either process information, such as radio and television or that can be used for communication, such as telephone.

There is a wide range of literacy research and literature available. Although I do not go into it in great detail here, there are several things that are interesting to mention. First of all there is no agreement about a definition of literacy or about how to measure literacy. The literature roughly discriminates between two approaches to literacy, namely the autonomous and ideological model or the etic and emic perspective. The autonomous and etic perspective consider literacy as an autonomous variable that is independent of social context, whereas the ideological and emic perspective see literacy as part of cultural wholes and structures of power. Literacy statistics are an example of the autonomous approach in which literacy is measured and compared in quantifiable terms regardless of the context. However, these literacy statistics do give some insight in the characteristics of people who are ‘low-literate’. They tend to be from economically disadvantaged backgrounds and have had limited or no education. Moreover low-literates are more likely to be from Africa, from rural areas and female, in other words worldwide a female from a rural area in Africa is most likely to lack literacy skills.

In both Ethiopia and Malawi I was lucky enough to have the support of the organizations for whom this report is written. I spent 3 months in each country, half of the time in an urban area and the other half in a rural area. In Ethiopia I was supported by Forum on Street Children Ethiopia (FSCE) in urban Nazret and the UK-based Action for Health Education and Development (AHEAD) in rural Shakisso. In Malawi, YouthNet and Counseling (YONECO) supported my work both in urban Zomba as well as rural Ntaja.

There is no straightforward way to classify people in terms of literacy and even if there would be an agreed method to test if people are literate or not, the dilemma is whether it is morally right to exclude people from participation after they have successfully passed the ‘test’ and at the same time stigmatize those who are accepted to participate as ‘illiterate’. Therefore I had to come up with another way to ensure that most of my participants had limited reading and writing skills, namely through the choice of countries as well as the way I approached people for participation. In Nazret I mainly worked with the children in the FSCE program who are often from the street or more disadvantaged neighborhoods; in Shakisso I went to the primary schools and worked with those in the lowest grades; and finally in Malawi I went to the poorest neighborhoods of Zomba and went around the rural areas of Ntaja where during daytime chances were high to mainly find school drop-
outs. Young people between the age of 10 and 20 participated in a combination of qualitative methods, namely semi-structured interviews, focus groups and participant interaction with a digital camera (approximate interview and focus group questions can be found in Appendix 1). The following table shows the total numbers for the different methods:

<table>
<thead>
<tr>
<th>Method</th>
<th>Ethiopia</th>
<th>Malawi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>153</td>
<td>201</td>
</tr>
<tr>
<td>Focus groups (6 participants each)</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Digital camera interaction</td>
<td>32</td>
<td>35</td>
</tr>
</tbody>
</table>

All participants were approached to participate in the research voluntarily and received some explanation about the purpose of my research. I told them that there were no right or wrong answers to the questions, that they could withdraw at any point without reason and that their names would not be used anywhere in my research, unless they explicitly asked for it. I have always been completely open about the intention of my research to participants, although I never mentioned that the research particularly focused on people with limited reading and writing skills.

All the interaction with participants was focused on gaining a better understanding of participants’ current knowledge and use of, and perceptions about ICT, the role of reading and writing in their lives and community, and finally their future ambitions and ideas about future technologies. Both the interviews and focus groups were partly structured around a set of plasticized cards depicting the following technologies (see Appendix 2 for the cards):

<table>
<thead>
<tr>
<th>Telephone</th>
<th>Television</th>
<th>Small radio</th>
<th>Midi set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanner</td>
<td>I-pod</td>
<td>Walkman</td>
<td>Mouse</td>
</tr>
<tr>
<td>PDA</td>
<td>Cassette/tape</td>
<td>Mobile phone</td>
<td>Fax</td>
</tr>
<tr>
<td>CD</td>
<td>Computer</td>
<td>Laptop</td>
<td>Videocassette</td>
</tr>
<tr>
<td>Floppy</td>
<td>Digital camera</td>
<td>Earphones</td>
<td>Printer</td>
</tr>
<tr>
<td>Portable CD player</td>
<td>Keyboard</td>
<td>Video camera</td>
<td>Remote control</td>
</tr>
<tr>
<td>Ghetto blaster</td>
<td>Keyboard</td>
<td>Video camera</td>
<td>Remote control</td>
</tr>
</tbody>
</table>

Interview participants were first asked to divide the cards into two piles with the ones they knew and the ones they did not know. After that I discussed both the ones they said to know as well as the ones they did not know, in terms of what it was, where they had seen it, whether they had ever operated it and whether they had it at home. Finally I asked participants to rank the ones they had more or less identified correctly in preferential order, to understand which were the most and least favored ICTs and why. Subsequently I continued with further interview questions about the role of reading and writing in general and in relation to ICTs, advantages and disadvantages of ICTs, improvements of existing and possible new technologies and finally their talents and ambitions. Depending on the participant the interviews usually lasted between one and one and a half hour.

Although I had a set of questions for the focus groups, they were usually more spontaneous than the interviews. The dynamics with the participants usually determined the direction things went. The focus groups consisted of 6 participants of the same gender in the age range 10-15 or 15-20 and usually lasted 1 ½ to 2 hours.

The interactions with the digital camera evolved throughout the fieldwork. I invited participants to interact with a basic cheap digital camera that I had brought, at first in a controlled environment with me observing and little instruction about the
functionality of the camera, but after a while I became more relaxed with it and with a basic instruction about the functionality of the camera (explaining 4 buttons) I let them go around by themselves without observing what they were doing. After they finished the interaction with the camera, I discussed the pictures or videos they made with them, either on the camera screen or on my laptop.

Apart from these methods my own experiences and observations as well as conversations with people have further informed my research. The next sections examine in more detail some of the fieldwork results both in terms of the research aim as well as other observations I made that could be of use.

3 Research related outcomes
This section focuses on outcomes of my fieldwork that specifically relate to my research aim to explore the role of ICT in the lives of low-literate youth in Ethiopia and Malawi. I have structured the outcomes under three broad themes, namely context, content and needs. Furthermore I go into more detail about participants interacting with a digital camera.

Interaction with ICTs is greatly influenced and shaped by the context in which it takes place and at the same time the interaction has an impact on the context itself. Several types of context can be distinguished, such as social, cultural, physical, organizational, historical, political, but in my research I mainly focus on the social, cultural and physical context in which the interaction with ICTs takes place. I discuss what I have found on how ICT is being used in the specific context of low-literate youth in Ethiopia and Malawi, particularly the constraints that the context is laying on the use of ICT.

Apart from interacting with the (physical) technology, users are interacting with the content of an ICT, such as television, radio and computer programs. Without content most ICTs are useless. Therefore it is not only the technology itself that needs to be usable, but the content needs to be appropriate for potential users as well. In the end it is the content that leaves an impact on its users and possibly change their ideas and perceptions. I discuss what I have found in the field in relation to the appropriateness of content and its impact.

In order successfully to design an ICT or ICT content it is important to have a clear understanding of the abilities and needs of the users. This is not simply a matter of asking people ‘what do you need?’ and then supplying it, because people do not necessarily know what is possible. It is a matter of trying to define who the users are, what they are doing and why they are doing it into possible innovation. I discuss what I have found out in the field with the respect to the needs of my participants.

3.1 Context of use

3.1.1 Most widespread and favoured: radio and mobile phone
I used a set of cards depicting different ICTs to explore both the familiarity with and knowledge of the different technologies as well as whether and what they are used for in the community, by asking whether participants had ever operated the technologies themselves and whether they had them at home. It is important to note here that the notion of ‘home’ is not straightforward. Also the home village where someone is originally from can be considered as ‘home’ even if geographically far away. Furthermore for the street children and domestic workers that I interviewed there were various places that they consider ‘home’. In the same way the notion of
'family' is different from a nuclear household consisting of parents and their children. In the African context 'family' refers to a wider circle of people and as I for example noticed around Shakisso, polygamy is normal in certain areas. Therefore when participants were talking about their 'young mother', 'young father', 'brother' or 'sister' they could be referring to their grandparents, aunt, uncle, cousins or other relatives. For the interaction with ICT this means there is a wide family or community network that can provide access to ICT.

After discussing the ICT cards I asked participants to rank the ones they knew in their preferential order and discuss them. In this way I obtained an understanding of their current interaction with ICT and motivations behind it. From this I found that the radio is the most widespread technology and the mobile phone the most popular. Below I discuss the interaction with these two technologies in more detail.

Radio
The technology that was the best known and most used in both countries was the radio, with or without a recording functionality. This is also the technology that participants had the most access to at home. Approximately 81% of participants in Ethiopia and 78% of participants in Malawi indicated that they have or had in the past access to this technology at home, taking the broad meaning of home into account.

The radio serves as a source of information; it for example brings people news both about their own country as well as about other countries:
- ‘Ghetto blaster: to listen to different type of things, things that are happening in other countries. We don't know them, but we know them through the radio.’ (Zomba, 19, F)

Particularly in rural Ethiopia the radio serves to warn people about potential disasters so that people can flee to elsewhere. A possible explanation for this is that the area around Shakisso is more prone to disasters than the other areas I have worked in. For example in 2006 there was an ethnic conflict going on in the area whereby people got displaced.
- ‘Through radio broadcast, the state can warn us about upcoming wars. So it gives us a kind of signal so we can leave the area.’ (Shakisso, 10, M)

A use of radio I only came across in Malawi is to announce funerals throughout the country. Given that the access to radio is common among the population, this is an effective way of informing relatives who live on a distance:
- ‘You listen to the funeral messages and you can know when your relatives have passed away.’ (Zomba, 16, F)

Apart from gaining information, the radio is used for relaxation by for example listening to music. I found this is something people mainly do when they have free time rather than while doing another task.
- ‘Sometimes when you have free time you can play music and listen to it.’ (Zomba, 14, M)

In Malawi I found that the radio is playing a role in informing people about HIV/AIDS, whereas in Ethiopia this came up more in relation to television programs touching on this topic. However the information that is broadcasted is not necessarily objective and can be influenced by the agenda’s of those facilitating the radio programs. For example, via the radio abstinence is carried out as the most favorable and sometimes even the only way to avoid AIDS:
- ‘You can avoid AIDS by avoiding intercourse. There aren't any other ways to avoid it. That's what they are teaching on the radio.’ (Zomba, 14, M)
Mobile phone
The access participants had to mobile phones at home was lower than with radios. Approximately 20% of participants in Ethiopia and 28% of participants in Malawi indicated that they have or had access to this technology at home, taking the broad meaning of home into account. Further the characteristics of a mobile phone make that it is away with someone some of the time, therefore making it less accessible for others if the phone is not around.

Despite the lower accessibility compared to radio, this technology was the most popular of all those on the ICT cards. In both Ethiopia and Malawi about 39% of the participants put the mobile phone as their favourite technology (in Ethiopia 73% and in Malawi 69% had it in their top three), but note that only those participants who had been able to identify the picture of the mobile phone correctly had it in their ranking.

The most important use of this device is that it enables people to communicate in case of emergency situations, such as announcing the death or illness to relatives far away, asking for help during a financial crisis and calling the police. An explanation for the fact the mobile phone is mainly used for emergency situations could be the poor background of most participants. For those with limited financial resources, emergency situations can justify spending money on buying airtime, but in other situations there might be more pressing needs for the money to be spent on.

Those who can only afford little airtime, can still communicate by means of ‘missed call’/flash or text message. Sending a missed call is a way to tell the other party that you do not have airtime, but want to get in touch, so that the other party can call back if they have airtime. In case the other party does not have airtime either, the communication ends.

- ‘When you have little money, find someone with a cell phone and give them 10 kwacha and make a flash. If the person you flashed has units, they can call you.’ (Ntaja, 18, M)
- ‘If you have little airtime you can just text’ (Zomba, 17, F)

Sending a text message is a cheaper way of communicating than a call. For example, currently in Ethiopia sending a text message costs 0.35 cent, whereas making a phone call from mobile to mobile costs 0.55 (for 0911, 0912, 0913 numbers) to 0.75 (for 0915 and 0917 numbers) cent depending on the number that is being called. However, because most mobile phones do not support the Amharic alphabet, communicating by text message requires knowledge of English (or another language that can be expressed in Roman alphabet) on both sides, which is a barrier for people to use this cheaper possibility of communication. During my stay in Ethiopia, the SMS was blocked. After the last elections in 2005 the Ethiopian government that controls the telecommunication company blocked this service, but since the Ethiopian millennium in September 2007 it has become available again.

With respect to the negative aspects of ICT I came across some conspiracy stories about the use of the mobile phone. I suspect that some of this is inspired by what people experience in real life, but that most of it is influenced by what people see on television and in movies.

- ‘For example if a man has a wife and a girlfriend somewhere and the girlfriend is calling on his mobile phone, this might cause conflicts in the family.’ (Zomba, 14, F)
- ‘Telephone has negative impact, if for example someone has a voice like my father and calls my mother and tells her to come over, he might kill her.’ (Shakisso, 10, F)
3.1.2 Present communication

As their name implicates, ICTs have an impact and change the way people communicate. Participants expressed four main ways in which people currently communicate in both countries: going somewhere by yourself, sending the message through someone, sending a letter, or making a phone call. Each of these methods has its constraints. For example going there by yourself means that you need enough money for the transport if it is not within a walkable distance. For sending the message through someone you need to know a trustworthy party who happens to be going there and is willing to communicate your message. In case you need an answer to your message, there also needs to be a messenger going in the opposite direction who can bring back the answer to you. For sending a letter you need writing skill and otherwise you need to find someone who can write it for you (which might come at a price) and at the same time the person you are sending your message to needs to be able to read the message or have someone to read it to him or her:

- ‘My parents cannot read and write, but when they receive a letter from me, they have to look for someone to read them.’ (Shakisso, 18, F)

Making a phone call can be done either through a fixed or mobile line. In either case a working (mobile) phone network needs to be available on both the calling and receiving side. Furthermore both sides need to have access to a phone and a mobile phone needs to be charged as well. Finally the caller needs to have airtime or money to be able to make the call. If any of these conditions is not fulfilled, no communication can take place.

- ‘Without these technologies I cannot easily inform my relatives about illness, only by going there myself and pay much for transportation. Using mobile costs phone me much less.’ (Ntaja, 15, M)

This quotation illustrates how telephone technology has already influenced communication practices. The phone reduces the distance that a message otherwise physically has to bridge and in that way reduces the time and cost of communication. At the same time it means that the meaning of physical distance changes. Before ICT, bridging a physical distance either by a person or a letter, was a premise for communication. Therefore the physical reach of communication networks was more limited. With ICT this limitation in terms of physical distance has disappeared, which means people’s networks have extended over greater geographical distance than before.

Despite the fact that communication technologies such as the phone can reduce the distance that otherwise needs to be travelled and in that way the speed and cost of communication, it is heavily dependent on the conditions described earlier. For people lacking literacy skills this is a bigger challenge. They are more likely to live in areas without phone coverage and to lack the economic means to afford telephone communication. Further if the mobile network is not functioning, which happened often while I was in Ethiopia, the communication channels are cut. In Shakisso I was able to experience myself how in a time of unrest in the countryside, the mobile network was unavailable until things quietened down. This gives great power to those who control the network, especially if they have a monopoly position as is the case in Ethiopia.

In Malawi there were two competing providers while I was there (Telekom and Celtel) and people who could afford it actually had a SIM card from both providers. One motivation for this is that some areas are better covered by one provider than the other and therefore according to their location people use the provider with the best coverage in that specific location. Moreover calling to people on the same network is
cheaper than calling between networks and therefore swapping SIM cards according to who you are calling pays off.

3.1.3 Contextual constraints
My fieldwork revealed there are six main constraining factors to the use of ICT that can roughly be divided into constraints caused by the physical context and by the social context.

3.1.3.1 Physical constraints
Power supply
In many (rural) areas of Ethiopia and Malawi, one of the biggest physical constraints to using ICTs is a lack of electricity:

- ‘This one is not functioning in countryside, because we do not have electricity.’ (Shakisso, 14, M)

Internationally, most attention about this constraint is focused on the lack of an electricity infrastructure. However, apart from the infrastructure there are other related issues that need to be taken into account, namely availability, safety and affordability.

Even if there is a power infrastructure, the availability of electricity is not always guaranteed. During my stay in Malawi I spent many nights by candlelight, because of power cuts, whereas in Ethiopia I only experienced one short power cut. Currently approximately 7% of the population in Malawi has access to the power grid (in the rural areas approximately 2%) and providing this part of the population with electricity is already posing a challenge, let alone if more people would be connected to the grid. However, it could have been that the season (end of dry season) I was there played a role in my electricity experiences. On a later short visit to Ethiopia I also experienced severe power cuts there and I learned these power cuts were caused by a lack of rainfall due to which the hydro-electric dams were not producing enough electricity. This could have been the reason for the power cuts in Malawi as well.

If there is a power infrastructure and electricity in enough quantity available, there will be enough demand for it. In Ethiopia I visited a rural village near Shakisso that had been promised to be connected to the electricity network. The poles were already there, but the electricity wires had never come. However the prospect of forthcoming electricity had tempted many residents already to purchase a television. This is why in many houses unused televisions were locked away in a cupboard, awaiting the day the electricity arrives. Moreover people in areas without electricity are willing to cross long distances to an electricity source, for example to get their mobile phone charged.

- ‘These technologies, like mobile, need power from electricity, so you have to travel from here to Ntaja.’ (Ntaja, 14, M)

Furthermore, even if an infrastructure and electricity are available, it is not always safe to use. In Ethiopia about 15% of the participants mentioned the dangers of the electricity facilities that can give you an electric shock as being a disadvantage of ICTs, something that I personally experienced when trying to plug in my laptop somewhere. In Malawi on the other hand the facilities seem to be a bit safer, because the danger of electric shocks was only mentioned by 2% of the participants. There could be a relation between the safety of the electricity facilities and the fact that many parents in Ethiopia did not allow their children to touch ICTs. They might want to protect their children from the risk of electrocution.
Apart from the availability and safety of electricity, another obstacle is the cost of electricity, whether from the power grid or batteries. In Ethiopia for example electricity costs around 0.05 cent per kWh and the price of batteries ranges from one to five birr per AA battery, depending on the brand. Someone estimated for me that a small radio with two AA batteries of the lowest quality would run approximately three days of eight hours, whereas with the best quality one it would run about two weeks of eight hours a day. People with limited literacy skills are more likely to be economically disadvantaged and therefore this is a bigger obstacle for them. Several times participants mentioned the costs of batteries or electricity as a disadvantage of ICTs and that technologies had been sold or remained at home unused, because the costs for the power could not be afforded.

- ‘All need a kind of energy costing money.’ (Shakisso, 13, M)
- ‘When the battery runs out you have to search for money to buy another one.’ (Zomba, 19, F)

Therefore in countries where already purchasing the batteries for a radio can be a big financial burden, the costs of the power sources for running an ICT need to be taken into account.

When a power grid is not available there are alternative energy sources for ICTs, such as batteries for smaller ICTs like radios. For the more power-demanding technologies, generators are used, for example as a back up energy source during power cuts or to run video houses in remote areas. Aware of the lack of electricity in their area, when we were discussing possible improvements to existing technologies, participants for example suggested televisions running on batteries:

- ‘Television should also work on battery, so people in rural areas will have access to it.’ (Nazret, 17, F)
- ‘If television wouldn’t only work with electricity, then it could have a big market and you can take it to the countryside where electricity is not available.’ (Nazret, 15, M)

I came across only a few examples of solar power. In Shakisso the educational office had been donated solar panels, but meanwhile they had all been hit by lightning and were not functioning anymore. Apparently there was no knowledge about thunder distracters and therefore nobody thought of equipping the other panels with these after the first ones had been hit.

**Network availability**

Apart from the availability of power, several technologies rely on the availability of transmission and communication networks, such as mobile phones, radio, television and internet. The availability and reliability of these networks can be problematic as I experienced during my fieldwork, particularly in Ethiopia. I am sure that every Ethiopian mobile phone user knows the lady who keeps on repeating the lie that ‘the person you are trying to call is not available at the moment, please try again later’, when in reality it is just the network that is not working.

- ‘If there is no network, mobile phone is useless, and then I use fixed line.’ (Shakisso, 13 M)

Furthermore in Shakisso the goldmine company used to have a big dish that provided the television network for the whole town, but this meanwhile broke down. Therefore currently people could only watch television if they have a satellite dish themselves or otherwise use the television for watching videos/DVDs.
Sustainability
Participants often touched on the low quality and therefore low sustainability of technologies; how easily they break down which incurs the cost of maintenance or replacement.

- ‘If they are broken, you have to spend money to get it repaired.’ (Shakisso, 17, M)

In Ethiopia for example the fluctuating voltages in the electricity network are a reason that televisions to break down and ICTs working on batteries are less likely to be damaged by over voltage. Furthermore there is a lot of smuggling in Ethiopia that brings fake, poor quality versions of good quality brands into the country that are sold for prices similar to the good quality brands, but lack their quality. In the long run, due to maintenance and replacement costs, these less sustainable goods might actually add up to be more expensive than their sustainable counterparts that require less maintenance.

- ‘Sometimes some companies are deceiving people. The same product with good quality is sometimes brought in the market looking the same, but with less quality. Therefore I recommend to just produce durable technologies. In Ethiopia the quality of original and copied cassette is different, but sometimes people are selling copies as if they are original for the same price.’ (Shakisso, 15, M)

- ‘I advice to not bring us second hand material, but the new ones and ones with long durability.’ (Shakisso, 10, M)

3.1.3.2 Social constraints
ICT in place
Several ICTs are only present and therefore known in specific contexts or locations. This is something that is determined by a combination of both physical conditions, such as the ICTs being constrained to locations with electricity or a network, and social conditions that have shaped how and where ICTs are used, such as ICTs being less present in areas where people lack the financial resources to buy them. For example in urban areas ICTs are much more widespread and available than in the rural areas. And within these areas there are specific places where ICTs are more likely to be found. For example around Ntaja participants often indicated ‘at the road’ or ‘in town’ as the places where they had seen a technology. Ntaja is located along a main road and electricity runs along the road. Therefore the ICTs that rely on electricity are mainly located along this road:

- ‘I saw some people were making calls at the road.’ (Ntaja, 10, M)
- ‘At the road someone shows videos.’ (Ntaja, 13, M)
- ‘Someone at the road has it (computer)’ (Ntaja, 11, M)

The video camera was recognized in both countries as something they knew from ceremonies, such as wedding ceremonies or ceremonies in church.

- ‘Camera for wedding ceremonies.’ (Zomba, 14, M)

In Malawi the video camera was also referred to as something seen at presidential meetings and visits.

- ‘Camera for capturing presidential meetings.’ (Zomba, 12, F)

Because video cameras are often operated by a cameraman that is hired for the occasion, the use of cameras is something with a business potential.

- ‘This one is for business, as a cameraman.’ (Nazret, 19, M)

Several participants recognized computers as something they had seen at an office

- ‘I know it, but don’t know the name. I have seen it in the office, but I don’t know the use.’ (Zomba, 20, M)
Others only knew computers and its components as something they had seen in a movie:

- ‘This is computer. I saw it in a movie one day and asked the person next to me what it is.’ (Shakisso, 13, M)

The fact that some only knew computers as something they had seen in movies and action movies being a popular genre, could explain some of the understandings about the functionality of computers.

- ‘Computer has different uses. If someone is stealing, this device can record. If you want to know who is stealing your material you touch the keys and it will tell. If you want to go to the police it can record for you.’ (Nazret, 10, M)

These are just a few examples of how some ICTs are constrained to specific places or situations by physical and social conditions. Therefore those who are less likely to visit these places are less familiar with these ICTs. For example, in the rural areas, women’s lives are more based around their house and direct surroundings, whereas man are more likely to go around and therefore get exposure to ICTs ‘at the road’ or ‘in town’. This might be part of the explanation why the biggest difference in exposure to ICTs is between urban men and rural women.

**Gendered use**

Other than the place of ICTs discussed above, I found other clues that the use of ICTs is gendered. First of all female participants recognized and knew less of the ICTs on the cards than their male counterparts. Furthermore when I enquired where participants had seen technologies they recognized, they referred more to seeing them in the presence of males than with females. Similarly ICTs were more often mentioned as belonging to a male family member than a female family member.

As illustrated by my personal experience of visiting a video show and by the following quotation from a participant, the video shows are a place dominated by male presence.

- ‘Boys go there and watch war movies.’ (Ntaja, 16, M)

The gendered use of ICT reflects how in the rest of society there is also a clear divide between the roles of men and women and what they are expected to do. I learned for example that in Ethiopia women are not expected to ride a bicycle and in general riding a vehicle is done by men, whereas women are at home doing housekeeping work. The following explanation of a female participant about why in her opinion girls do not like to listen to the radio, illustrates how this division resonates in the gendered use of ICTs.

- ‘Because girls don’t like listening to the radio. They don’t have time to listen to the radio. When they are back from school they play netball and then they have to do domestic works, so they don’t have time to listen to the radio.’ (Zomba, 15, F)

In Malawi I collected most evidence indicating the gendered use of ICT and how the social context has declared the use certain ICTs, such as earphones and small radios as the exclusive domain of men.

- ‘These wires are the ones that boys put in their ears and connect with the radio’ (Ntaja, 15, F)

As the following participant in Malawi explains, not respecting these social rules could result in stigmatization and shame:

- ‘When you are using earphones, people will laugh at you at home. Because at home these are only used by boys and not by girls.’ (Zomba, 13, F)

The gendered use of ICTs seemed more strongly defined in rural than in urban areas. And although I found evidence that certain ICTs were considered for the use of men only, I did not come across any ICTs that were considered exclusively for use
by women. In general male participants were more familiar with ICTs and therefore more informative for my research than their female counterparts. For this reason my research outcomes as well as the quotes from participants that I am using throughout this report might have become slightly gendered.

For the educated only
The academic literature discusses how in African countries being educated gives people status. In both countries I found that being educated is further perceived as a criterion for operating ICTs and there is a widespread belief that uneducated people might damage them:

- ‘Educated people can operate television and CD, uneducated people can’t’ (Shakisso, 19, M)
- ‘If a person is not educated he can’t use radio.’ (Zomba, 13, F)
- ‘An uneducated person can’t know how to operate television and might even damage or destroy it.’ (Nazret, 13, F)
- ‘Computers are devices for educated people. Non-educated people can’t use these.’ (Nazret, 14, M)

Being educated is often perceived as synonymous to being able to read and write and the lack of reading and writing skills as an obstacle to using certain ICTs such as computer, television or video camera, which could explain the perception that ICTs are for the educated only. When asking about possible improvements of technologies, some participants therefore suggested technologies that could also be used by people without education.

- ‘Maybe you can produce computers that can also be operated by these who are not educated. Someone who is not educated cannot use the computer.’ (Zomba, 19, M)

Further, especially in Malawi, ‘reading and writing’ was frequently interpreted as reading and writing in English. Therefore even being able to read and write in the national language was considered not sufficient for operating ICTs:

- ‘Someone who can read and write in Chichewa, but not in English will have problems with operating the phone.’ (Zomba, 11, F)
- ‘Someone who can read and write in Chichewa, but not in English can’t use computer or laptop.’ (Zomba, 20, M)

With this perception of ICTs as something privileged for the educated elite, it is not surprising that ICTs have become a status symbol, something to envy other people for, as the following quotations illustrate:

- ‘I admire my friends when they are using mobile phone.’ (Zomba, 14, F)
- ‘Some take it to school just to show off to others and boost their ego.’ (Ntaja, 16, M)

Even if the ICT owners share the use of their ICTs with others, people feel inferior to them and therefore prefer to have the ICT themselves, as the following participant expressed:

- ‘I would like to have television at home. I saw it at neighbours. If I had money, I would like to have this. Instead of going to neighbours, I prefer to have it myself. I would like to be equal with them.’ (Nazret, 14, M)

One of the things that I explored in my interviews was the role that reading and writing played in the lives of participants. I learned that the main uses are for reading and writing letters, to increase job opportunities, to read the newspaper and to gain new and more knowledge. Interestingly not being able to read was seen as prohibiting secret communication:

- ‘If a friend writes me any kind of secret and I cannot read, I have to go to someone else to read for me, which will expose the secret.’ (Shakisso, 10, M)
'If you are not educated, your secrets will be exposed for example if you receive a top secret letter, you have to show to others to read for you.' (Shakisso, 15, F)

Moreover I found that the skill of reading and writing is not necessarily about understanding what is being written or read, but that merely the copying or reading aloud of words is already considered as reading and writing skill.
- 'I read in English also, but I fail to understand what I have read.' (Ntaja, 20, F)
- 'I can only write in English by just copying.' (Ntaja, 14, F)

Apart from the fact that uneducated people were considered unable to use ICTs, I generally experienced a negative bias towards uneducated people lacking reading and writing skills. It was considered that I did not want these people to participate in my research, but rather have ‘the best students from the class’. Sometimes for the drawing exercise of my focus groups, other participants informed me one of the participants had not gone to school and therefore would not be able to participate in the assignment. In Malawi being educated is considered synonymous to being able to hold a pen, which is why people assumed that uneducated people could not participate in the drawing exercise. In practice however, these participants were as able as the others to express themselves in drawing. Only in one occasion I experienced a participant who had never been to school and was not able to hold a pen and therefore not able to produce more than a drawing like that of a toddler.

Communal versus individual use
My fieldwork data suggests a distinction between operating and using technology. With ‘operating’ a technology I mean really touching and influencing the operation of the technology, such as finding a radio channel, whereas ‘using’ means only passively utilizing the technology that has been operated by others, such as watching television or listening to the radio. I found that many participants had been ‘using’ technologies, but had never touched or operated them themselves. For example at the ‘phone buros’ offering phone services, customers give the number to the owner and the number is dialled by the owner. Once the connection is established the customer gets the phone to talk through. In the same way people watch movies in the video houses, but the equipment is only operated by the owners.

A similar distinction can be made with respect to literacy skills in countries with low literacy levels. There are literate people who ‘operate’ the reading and writing skills, whereas others more passively ‘use’ reading or writing skill by having others read and write for them.
- ‘My parents cannot read and write, but when they receive a letter from me, they have to look for someone to read them.’ (Shakisso, 18, F)

This division of labour makes it possible for everyone to be able to ‘use’ literacy skills or ICTs without the need for everyone to be literate or ICT-literate. However, it can also cause disparities between people and further reinforce existing power structures. For example, particularly in Ethiopia, I came across participants that had never operated technologies that they had at home, because parents did not allow them to touch them, afraid they might be broken. I suspect that the costs involved in getting an ICT repaired or replaced is the main motivation for parents to keep their children away from ICTs. Although another motivation could be that children are perceived as unable to operate technology.

At the same time the division of labour demonstrates a communal approach to the use of ICTs rather than an individual one. The video houses where people jointly watch movies rather than alone at home is a typical example of communal rather
than individual use of ICTs. However, the developed countries where ICTs originate from have a much more individualistic approach to ICTs. This is for example demonstrated by the word ‘personal computer’ and statistics on ‘teledensity’ that measures distribution of landline telephones among individuals, rather than for example among families or communities. In Africa where the community plays a more important role, only one telephone in a community might be enough to provide access to the whole community. However, in the ‘Western’ statistics this would look like a disadvantaged community. Therefore when new ICTs for Africa are being designed communal use is something that should be taken into account, rather than just focusing on use by individuals.

Apart from communal use of ICTs fitting the communal way the African society is set up, it can also alleviate the cost of ICT use and the need for individuals to have (ICT) literacy skills to be able to make use of ICTs.

3.2 Content of use

The value of a technology is determined by the content that it gives access to, rather than by the technology itself. A technology for which no content is available has little use value. For example what is the use of a television if there are not any television programs or movies to watch? In the same way the value of reading skill is determined by the reading materials that the skill gives access to, rather than by the skill itself.

Content is something that is produced and consumed, and targeted at a certain audience. However different ‘consumers’ all over the world have different (cultural) characteristics and therefore the same content is consumed in different ways. Furthermore the way in which the content is represented constrains who are able to consume it. For example, the language in which content is presented limits the content to those who master this language. The interaction with the technology is mainly an enabler giving access to the content, but eventually the content is what users consume and has an impact on them and the use context.

Internationally there is a lot of attention on increasing the number of literate people in the world. At the same time, however, there is less attention for producing and providing appropriate reading materials that gives a use and value to these literacy skills. I noticed that in Ethiopia and Malawi there are not many books available other than the bible and schoolbooks and the books that are available are often in English rather than the local language. In a similar way the field of ICT for development is more focused on providing access to the technology, than on producing and providing appropriate ICT content for the technologies that are already there.

This section discusses some of the things I observed during my fieldwork in relation to ICT content.

3.2.1 Content language

The first important requirement for ICT content is that the language it is presented in is compatible with the language proficiency of the user. Both in Ethiopia and Malawi I found that ICT content is often in English rather than a local language, which is posing a problem for people not proficient in this language, as expressed by the following participants:

- ‘When you are watching the news on television and it is read in English, you will not be able to understand what the newsreader is announcing.’ (Zomba, 17, F)
- ‘If they can translate English television programs in Amharic that would be good.’ (Nazret, 13, M)

Because people with low literacy skills are less likely to have been educated in English, they are more disadvantaged. Since English is a language that is mostly mastered by educated people, the domination of English content might contribute to the perception that ICTs are only for educated people as discussed before.

Therefore it is not surprising that when I asked participants for improvements of ICTs they would suggest adjusting from English to the local languages, as illustrated by the following quotations:

- ‘You should be able to understand and read English otherwise it is too difficult to use mobile phone and computer. In order to solve this problem the English should be changed to Amharic, and then the access to use this will be very easy.’ (Nazret, 17, M)
- ‘Most people here do not know how to read & write English, how can they use the technologies that are often in English? Maybe they can also be made in Chichewa or Tambuka.’ (Zomba, 18, M)

However, with the linguistic diversity in Africa the choice for a local language is not straightforward. Most countries have an official or national language, but not all inhabitants are proficient in this language and therefore representing content only in those languages is likely to exclude people.

3.2.2 Content representation

Content can be expressed in several modes of representation, such as oral, visual, textual or audiovisual. As for the language in which content is represented, the mode of representation limits the content to those who are able to process it. For example visual representation excludes blind people and textual representation excludes people without reading skills. Participants in both countries expressed how textual representations are an obstacle for those who cannot read or write:

- ‘If they get a message, they will have problems to read what is on the phone.’ (Zomba, 11, F)
- ‘When there is something written on the television screen you need reading and writing skill.’ (Nazret, 10, M)

In countries with high numbers of low-literate people such as Ethiopia and Malawi, choosing to represent content textually therefore indirectly means excluding people from the content.

- ‘Most people in Malawi are illiterate, if the technologies could be adapted in such a way that also they can use them.’ (Zomba, 18, M)

As the following quotation illustrates, content that is represented textually and in English is a double disadvantage, because it excludes those who cannot read and write as well as those who can only write in the local language.

- ‘For computer, if everything is written in English there, someone won’t be able to read it. Someone who can read and write in Chichewa can’t operate computer. Most of the things there are used in English.’ (Zomba, 11, F)

Apart from the textual mode of representation, ICTs allow for other modes of representation, such as oral, visual or audiovisual, which are more useful for people with low literacy skills. In my fieldwork I used several visual representations such as the ICT cards, participants drawing and the digital camera, and regardless of their education level all participants were able to cope with these. With respect to the representation of ICT content some participants explicitly expressed their preference for audiovisual content, such as the preference of television over radio, because it is displaying both visually and orally, rather than just orally:
‘Radio cannot serve you ‘audio visually’, you can only listen to what is spoken.’ (Shakisso, 11, M)
‘Because on television you see the people who are speaking, with the radio you can’t see the people speaking.’ (Zomba, 19, F)

3.2.3 The impact of the video show

The participants in Malawi drew my attention to the negative impact of the so-called ‘video shows’ and the content that is shown there. Ethiopian participants to a lesser extent expressed themselves about public video places, but I was told there are video shows similar to the ones in Malawi. In this paragraph I mainly draw on my experiences from Malawi.

‘I can be entertained by television & VCD, even though I don’t have them at home. I can pay and get service from somewhere else.’ (Nazret, 16, M)
‘Television: you pay money and watch in the town.’ (Shakisso, 14, M)

A video show can be described as ‘a place where video films are being shown to people in return for payment’. As commented above by participants in Ethiopia, it is a service provided for those who do not have the video technology at home. Any kind of room with provisional seating facilities could serve as a location for a video show. Apart from a location it requires the technology, typically consisting of a television, either a video or DVD player and speakers, as pictured both graphically and photographically by two Malawian participants below:

![Figure 1: the video show technology](images/figure1.jpg)

Since these technologies need power they are more likely found in places where a power grid is available. However also in the rural areas they can function with the help of a generator and fuel.

From what I gathered the main genres shown in Malawi were action, KungFu, Nigerian and pornographic movies. In Ethiopia instead of Nigerian movies, Hindi movies were popular. However I learned that currently Nigerian movies are on the rise in Ethiopia.

It was participants themselves who expressed their concerns about the impact of video shows and the movies shown there. The concerns ranged from staying away from school to go to the video show to stealing money to be able to afford a visit to the video show. I was told that if you visit a video show during the daytime, you could find a lot of visitors in school uniforms with their notebooks. In other words the video shows are attracting and have a negative impact on school attendance as expressed by the following participant:
- ‘Television discourages young people the conscience of schooling, because they start stealing when they are young because they want to watch it but do not have money. I know people who started stealing for that reason. When the children are going to school and they pass the video show and they see a nice movie advertised on the poster and they have some money. Then they will not go to school, but watch the film. When they are back from school, they might see their parents put some money somewhere and they might take it and go and watch another movie the next day instead of going to school. I know many people who do this who are mainly interested to watch video.’ (Ntaja, 16, M)

Apart from the impact on education, most concerns were related to the negative impact of the content that people watch at the video show. The following quotations from participants illustrate the concern about the violence in the movies and the impact it could have when people want to try out what they have seen:

- ‘There are some movies that contain violence that are not good for the children. If the children watch such kind of films they want to try it at home.’ (Zomba, 17, F)
- ‘The video camera has disadvantage, because it can capture all bad activities. Later if you show this to the youngsters they may learn bad activities from what they watch, for example fighting and killing.’ (Shakisso, 15, M)
- ‘On videocassette you can see some things for physical fitness like fighting. This one can make someone not work hard in school, because you can say I will go and watch war films at the show. So that is not good, because you might also start doing things like you have been watching.’ (Ntaja, 11, M)

Other than violent content, participants expressed a concern about sexual content and its impact:

- ‘Students in the urban area, when they are at least 15, they should have a boyfriend or girlfriend to practice the things they observe in movies.’ (Nazret, 16, M)
- ‘Without these technologies the world would have been good, because for example HIV/AIDS is spreading through these things. For example when people have watched movies that should not be shown in public (ma filmu olaula) they might want to try, but they do not know the status of the person they want to try with.’ (Zomba, 18, M)
- ‘I think they watch these kinds of movies to learn the style of how to have sex. They might think that is the way how to do it. They do not realize that it is only acting. Another way to learn about sex is maybe in magazines.’ (Ntaja, 16 M)

Even though pornographic materials are forbidden by law in Malawi, pornographic videos are shown in the video shows. Because it is officially forbidden, people have developed coded ways of announcing their screenings. After I became aware of the wide impact of the video shows and the material shown there, I started asking participants whether they had ever been exposed to pornographic movies and at what age, but knowing it was a sensitive topic I did not go into any further detail about it. Approximately 32% of those I asked, indicated they had been exposed to pornographic materials, some at an age as young as seven or nine years old. However, in reality this figure is likely to be higher, because it only includes the participants who dared to admit, some only after I suggested it could be something that had happened by accident. In several cases participants denied they had been exposed to it, but their uncomfortable body language told me the opposite.

The word pornography best translates in Malawi’s national language Chichewa to ‘ma filimu olaula’, which literally means ‘the movies that should not be shown in public’. However, the Malawian interpretation of what should not be shown in public is much broader than the meaning of ‘pornography’. It was explained to me that the term includes any movie that shows ‘sexual’ interaction, including kissing. Apparently there has even been a public debate about whether James Bond movies should be ‘shown in public’ or not. Therefore I have no information about how sexually explicit the materials that my participants were exposed to actually were; it could have been hard porn movies or more innocent movies with a kissing scene. In either case, even though a kissing scene might not be seen as shocking in other cultures, within Malawian culture it is considered inappropriate. Thus, the video shows have an impact on the sexual morals and as the following participants expressed it could have negative consequences when people want to try what they see:

- ‘If people are watching ‘blue movies’ and because of that get in the mood for sex and there is no woman around, but young children, they might rape them. I know this happened in Lilongwe that a man wanted to try what he saw in the movie.’ (Zomba, 18, M)

More research would be needed to find out the scale and what social impact the ‘ma filimu olaula’ really have, but because it is something illegal that people do not openly talk about, but in indirect, coded ways, it will be difficult to find out its full scale.

The majority of the content shown in the video shows and on television is foreign, as illustrated by the following quotes:

- ‘To watch what other countries are doing.’ (Zomba, 16, F)
- ‘Television broadcasts different things from different countries.’ (Shakisso, 15, F)

Thus, most of the content people are consuming at the video show is foreign and not necessarily appropriate for the local context. Not much research has yet been done on the impact the exposure to this foreign content has on the perceptions of those who watch it. What is for example the impact of Nigerian movies and programs that put a lot of emphasis on prosperity, status and big cars? Furthermore, I noticed that some of my participants were not aware that the movies they watch are staged, but rather thought that what they watched is really happening elsewhere in the world, which might wrongly shape their perceptions about the world, as illustrated by the following quotes:
‘We watch things that are happening in other countries. I like to watch drama, football and wars that are happening. These wars are happening in the whites’ countries. I think there are more wars in whites’ countries than in Africa.’ (Ntaja, 16, M)

‘The fighting you can see in the video shows is really happening somewhere in this world. I think some of them are just made up, but the others are real.’ (Ntaja, 11, M)

Furthermore the drawings below from some participants wishing to have an aeroplane in their dream future, visually shows how perceptions are influenced by the movies. When I asked them how they knew how to draw an aeroplane, these participants, who had probably never seen a real airplane before, explained their drawings were based on what they had seen in movies. I suspect that these participants have been exposed to the image of helicopters in the action movies they have watched and taken these for airplanes.

![Participant drawings of 'aeroplanes'](image)

3.3 User needs

One of the things I explored in my research was the user needs of my low-literate participants in order to inform future design. In practice however I found it challenging to get participants express their ideas and desires to me. In this section I discuss some of the things I found with respect to exploring user needs.

3.3.1 Thinking outside the box

During my fieldwork I felt that in both countries people had difficulty thinking ‘outside the box’: thinking critically and thinking of possibilities beyond what they knew was possible.

‘The girls seem to be mainly talking about things within reach and not about their real dreams. How do I get them to think out of the box?’ (Field notes Ethiopia, 14/11/2006)

This particularly posed a challenge to some of my interview questions about possible improvements to technologies or new inventions. Rather than inventive thoughts, some participants where accepting technologies the way they were or thought the limits of technological development have already been reached:

‘I accept all as they are. All are good.’ (Shakisso, 15, M)
Although unfamiliarity with ICT might have played a role in the ability to imagine improvements or completely new inventions, it did confirm a more general observation that the societies were structured according to fixed thinking patterns that were not to be questioned. Questioning things or thinking outside of the box meant running the risk of being stigmatized or even punished by for example parents or teachers. Moreover it could explain why particularly in Ethiopia I noticed a tendency of people to copy things rather than starting something new. Several people told me that when someone is running a successful business it does not take long before the neighbors start a similar business expecting to find the same success. Therefore it is not uncommon to find for example 15 similar shoe shops next to each other in one street.

In Ethiopia the answers I got to the question about people’s dream job almost seemed standardized; most participants wanted to become either doctors, pilots or teachers. At some point I therefore started asking ‘What would be your dream job if you cannot be a doctor, teacher or pilot?’ but even then some participants persisted to one of them or say they did not know. My translator explained me that in Ethiopia it is common when children go to school, parents say things like ’my son/daughter is now learning to read and write, so he/she will become a doctor/teacher/pilot.’ I checked this explanation with one of the participants, which showed that there is indeed a parental influence involved:

- ‘I would like to be a doctor. My father is always encouraging me, saying that my son will be a doctor.’ (Shakisso, 13, M)

I tried to understand this inability to think outside of the box and what its roots are, because I think it is an impediment to creativity and innovation and therefore to development in general. From my personal experiences and discussion with some African friends, I have developed my personal view about this issue, which I think is to a great extent rooted in the notion of authority. From my friends I learned that in both Ethiopia and Malawi it is considered disobedient for children to ask ‘why’ questions and in that way question the authority of their parents, elders or teachers and could possibly result in punishment. Therefore already from a young age, people are taught not to question authority and take things the way they are, rather than to question or change things. In other words the culture is set up in such a way that people are learned to think inside the box and those who think outside the box run the risk of being stigmatized or punished. I think that stimulating people to dare thinking outside of the box and not stigmatizing people who do so, could make a positive contribution to development in Africa and perhaps ICTs could play a role in this process. For example participants demonstrated more creative and explorative behaviour when working with the digital camera than when answering my interview questions. It could however be that my presence as a white researcher intimidated them and therefore made them more timid, not sharing there real ideas with me, whereas with the digital camera they could move around by themselves without my influence.

### 3.3.2 Dreams and ambitions

As part of my research, I wanted to find out about people’s ambitions and (job) aspirations for the future, to see how ICT could be employed to support these future aspirations. It turned out that especially in Ethiopia this was something participants had never really thought of before, which might be related to the ‘thinking outside the
box’ discussed in the former section. For example, when I asked participants about their talents and ambitions for the future, this is how some responded:
- ‘I haven’t ever thought over this matter.’ (Shakisso, 11, M)
- ‘I never thought about this before.’ (Nazret, 18, F)

I had the feeling that young people were not used to being asked for their opinion or wishes the way I did in my research as illustrated by the following quotation:
- ‘I most liked the questions about my interest. You are the first person to ask me about my interests and feelings, so I am happy to share this with you.’ (Shakisso, 16, F)

As discussed in the former section, in Ethiopia participants often expressed the future aspirations of their parents, rather than their own thoughts. This could be related to the fact that for example in Shakisso participants mentioned ‘obeying my parents’ as one of their talents. Furthermore the dream jobs participants came up with were usually ones that were within reach, in other words ‘inside the box’. For example one participant expressed his passion for acting throughout the interview, but when I asked him about his dream job, he said he wanted to teach English. When I asked him whether he did not prefer to become an actor, he responded as follows:
- ‘I wish I could involve in acting, but you can’t make a good living with this in Ethiopia.’ (Nazret, 16, M)

This illustrates how the limitations of reality influenced people’s dreams. Even asking participants their dream job if they would earn the same good salary with whatever job they chose, did not help to get them reveal their real dreams to me rather than their aspirations within the boundaries of what they thought was possible.

### 3.3.3 Basic versus ICT needs

Despite the difficulty in exploring participants’ needs, my fieldwork data show that basic needs are more important than ICT needs. In the interviews I discussed improvements to existing technologies as well as potential new technologies that would be of use in their country. This turned out to be a challenging question and I rephrased this question several times to evoke more responses. I ended up asking what new technologies they would recommend to a company that had the ability to produce anything they asked for. However, most of the technologies that participants recommended were not related to ICT, but more to basic needs such as machines for building houses, ploughing the land, other agricultural activities and producing and washing clothes.
- ‘I first need a house before I need any of these technologies.’ (Nazret, 16, F)
- ‘Machine for making wells, because a lot of people here in Malawi drink dirty water.’ (Ntaja, 17, M)
- ‘In this country many women are suffering from the smoke while cooking. If some kind of machine can be invented that will do the cooking then the women won’t be harmed.’ (Shakisso, 18, M)

As discussed before ICTs support people in emergency situations, for example to inform relatives about someone passing away, which was often given as a motivation for ranking ICTs high.
- ‘Through radio broadcast, the state can warn us about upcoming wars. So it gives us a kind of signal so we can leave the area.’ (Shakisso, 10, M)
- ‘When there is funeral, they use cellular or radio to send the message to relatives living very far.’ (Ntaja, 15, F)

The value of ICTs primarily for use in emergency situations could be economically motivated. Operating ICTs often requires an investment, for example in terms of electricity, batteries or airtime. Therefore for those with limited economic means it
might be that only emergency situations justify the investment, otherwise there are more pressing basic needs to be taken care of.

Another indication that basic needs overrule ICT needs is the fact that if there is a ‘basic’ need for it, ICTs are sold to pay for example the hospital or school fees, as the following quotations illustrate:
- ‘We sold it to get money to go to the hospital.’ (Zomba, 17, F)
- ‘I sold it, because I wanted to pay my brothers school fees.’ (Zomba, 16, M)

My fieldwork data suggest that although ICTs provide a contribution to the lives of low-literate youth, basic needs such as housing, clothing, food and health are still more pressing. It would therefore be interesting to further explore what role ICTs can play in satisfying these basic needs.

3.4 Digital camera interaction

Apart from the interviews and group discussions another element of my fieldwork was letting participants interact freely with a (cheap) digital camera. At first in Ethiopia I did not give them any information about the object at all and let them completely figure out themselves what to do with it, but this turned out to be challenging (in one case a girl ended up taking pictures with the lens pointing at herself rather than at the object she wanted to capture). Therefore I moved to giving participants a short introduction, mainly explaining the button to capture pictures, to record video, to zoom and to display the pictures already taken on the screen. This was usually enough for anyone, regardless of age, gender, education level, to interact in one way or the other with the camera. After they had taken the pictures, I displayed them on my laptop or the camera screen and discussed them with the maker.

A digital camera is a valuable object in the communities I was working in and therefore in the beginning I was careful about letting participants move around with it, mainly for their own safety. However during the course of my fieldwork according to the circumstances I felt more and more comfortable letting participants go around by themselves with the camera. Particularly when participants were in a trusted environment like their own neighbourhood/community there seemed to be less risk that something would happen. Unfortunately, however, on one occasion in Shakisso, an attempt was made by a group of boys to steal the camera that I had given to one of my participants. They finally did not succeed and were even arrested by the police with the pictures that I had made of them before the event with my own camera.

Most participants were easily able to interact with the digital camera and enjoyed it, which was boosting their confidence. I never forget the expression on the faces of some participants when I handed them the camera;
- ‘He also tells me that when I gave him the camera his heart started beating, because according to him it is not common in Ethiopia to give a camera to a child’ (Field notes Nazret, 14/11/2006)

If there was no reason to think that letting participants go around with the camera might put them in danger, I let them free about where to go and what to capture, rather than following them while with the camera or giving them restricting instructions about what to capture or not, which would have made their behaviour less natural and spontaneous... Therefore it was always a surprise for me to see the kind of pictures they brought back and sometimes it meant they would come back with pictures they would probably not have made if I would have been there observing them with the camera.
Although I showed participants the video recording function of the camera, most of them stuck to making single pictures. Those who explored the recording option were usually more quickly and confidently in understanding the possibilities of the camera. Interestingly, where my own presence with the camera would usually result in a lot of commotion and people wanting to be in the picture, participants moving around with the camera recording were able to do this sometimes almost unnoticed, walking around their neighbourhood with people passing without paying too much attention.

It was interesting to see the impact and results of giving the digital camera to participants to interact with. Regardless of their educational background participants explored and experimented with the camera and making pictures, whereas during the interviews and focus groups their behaviour was less explorative and experimental. The sequence of the pictures they took indicated a learning curve during the course of the interaction. For example pictures of people with their head missing were redone until the full body was captured. An interesting example of what the interaction of low-literate youth with ICT could result in is the picture below. The picture was made by a 19-year old male participant in Shakisso who was looking after cows, never came further than grade 3 because his mother died, indicated he had forgotten how to read and write and apart from radio had never operated any of the ICTs on the cards.

![Figure 4: picture made by participant (Shakisso, 19, M)](image)

When I asked him about the electricity tower in the forefront of the picture, he explained the following:
- ‘I did this to make it more beautiful. I was interested to capture all aspects in the picture (electricity tower and school compound in background) together.’
  (Shakisso, 19, M)

4 Other observations
Apart from the information I gathered specifically for my research aim, I made other observations during my fieldwork. This section discusses some of my observations that are not necessarily related to my research aim, but that might be of interest to your organisations.
4.1 Education

In Shakisso I accessed participants through the schools and therefore I gained insight about the functioning of the schools in that area. I came across students with different backgrounds, ages and capacities packed together in classrooms. Because apart from age I did not have any criteria for choosing participants, such as the ‘best students from the school’ that the teachers wanted to bring me, I was confronted a few times with participating students who had some kind of learning disability. For example on one occasion, a girl who had low intellectual capacities was barely able to answer my questions. Because I coincidentally happened to know her father I could later verify that the girl was indeed mentally retarded, due to complications at birth.

On another occasion a male participant with a hearing impairment participated, who kept on leaning towards my translator when he was speaking and often needed the questions to be repeated. Because this particular boy was older and therefore taller than the rest of his class, he had was seated on one of the last rows in the classroom, which makes it unlikely that he is able to understand what the teacher in front of the class is saying. I am sure that apart from hearing impairment there are also students with sight problems in the back of the classroom not able to read the blackboard. Further I encountered a stuttering participant. I think there is little attention for students with learning disabilities and with the big number of students per class (in Ethiopia an average primary school class consists of about 80 students), it is difficult for teachers to give special attention to individual students. At the same time, however, in some cases with small solutions, such as putting students with hearing or sight problems in front of the classroom, improvements could already be made.

What I further came across that is not difficult to identify were children who were in a school that was teaching in a language other than their mother tongue and therefore did not understand the teacher, which means the learning outcomes are limited. In Ethiopia apart from the national language Amharic there are several other languages (with different scripts) in which school are allowed to teach. It happened for example that one of my participants had already spend three years in school, but was not able to understand simple questions from my translator in the language taught at her school. This girl lived next to the school compound and particularly for girls the proximity to the school plays a role in parent’s choice for a school, because of what could happen on the way to school. Around Shakisso it could take children up to three hours to walk to the nearest school, which could be a motivation for parents not to send their daughters. In Malawi where all my participants were able to speak the national language Chichewa, the language of education seemed less of an issue.

Around Shakisso I sometimes came to schools where one or more classrooms full of students did not have a teacher that day. I learned that when a teacher is absent, regardless of the reason of absence, there is no replacement system. In other words there is nobody to teach the children. And if a teacher is absent for no legitimate reason (see for example passage below), there are not any sanctions in place.

- ‘I would like to be a teacher, because there are some other teachers who just leave in the morning after assembly and just leave the children in the class and go out to drink and smoke chambo. I also had a teacher that did this. Some of them, if they do not drink they do not feel well.’ (Zomba, 13, M)

Knowing that some of the students walk hours to get to school in the first place, a better system of guaranteeing teachers presence would be desirable.
Not only were teachers absent, but students were also absent for various reasons. Due to the way I looked for participants in Malawi, many of them were out-of-school or absent from school. I heard several reasons for absence, although I am conscious that participants did not always expose the true reason, such as going to the video show, to me. Some of the reasons for being absent were: being send back for not contributing to the toilet renovation, not having a uniform, the uniform being dirty, the parents not voting for the school committee, helping with the family business. With respect to out-of-school youth, the major reason mentioned by females to drop out of school was pregnancy and marriage, as for example illustrated by the response from a female participant to the question whether she was in school:

- ‘No, I am married’ (Ntaja, 18, F)

As if the two, school and marriage, exclude each other. In Malawi I only came across one female participant with a child who had not dropped out and was still in school. Another reason for both males and females to not be in school was the inability to pay for the school fees that are charged for secondary education in Malawi.

Due to the nature of how I approached participants via FSCE and the schools around Shakisso, I did not have many out-of-school participants. I did however learn that among the reasons for not sending girls to school, is the parents’ belief that education is not good for girls; that girls who have been to school become prostitutes. It is interesting to note that for female participants who started school at an older age in most cases it had been male family members (e.g. brother, uncle, cousin) who had convinced the parents to send their daughter to school. Hence, it is indirectly the men who are making the difference for girl’s education.

As discussed with respect to reading and writing, I found that learning is not necessarily focused on understanding, but more on reproducing. Nearby schools I heard student choirs repeating their teachers. When I once asked a class whether anyone was able to read the simple English sentences I wrote on the blackboard, one boy was brave enough to come forward and act as a teacher calling out numbers in English after which the whole class repeated him. They were just reproducing what they were used to do with their teachers, namely repeating numbers, rather than that he was reading my sentences.

With respect to the organisations I observed an impact both of the FSCE learning program as well as the YONECO learning program, if only in the shape of an increased self-esteem. Those enrolled in the YONECO learning program, were consequently talking about ’school’ and were proud of their ’enrolment’.

- ’I go to school at YONECO’ (Zomba, 11, F)

### 4.2 Sexual habits

I have already discussed the impact of pornographic movies shown in informal video houses in Malawi. Once I became aware of this, I started to explore sexual issues further if people were open to it. In Malawi I came across the perception that you ‘do not want to eat sweets with the paper still wrapped around it’, which is the excuse being used for not using a condom. Moreover, I learned that proposing to use a condom within a marriage (for example as a means of birth control) could be interpreted as a confession of contracting a sexual transmittable disease somewhere else and therefore not common practice.

In one of the male focus groups around Ntaja in Malawi, five out of six participants were convinced that a woman could not fall pregnant after having sex only once. According to them, it required intercourse at least three times before pregnancy could occur. In the same male focus group the participants were open to admit that they
consider sex as something pleasant. When I questioned whether women like it as well they reasoned they do, because they do not refuse their invitation to meet in the evening (an indirect invitation to have sex). I only touched on these issues with this particular male focus group and therefore I unfortunately do not have any comparative material with the female point of view on this.

4.3 Denial of street children

In Shakisso people were in denial of the existence of street children. I took some street boys that had given their time to participate in a focus group for lunch one day and people working at the local restaurant were telling me that these boys were not street boys, but that their parents had chased them away because of bad behavior. Indirectly they were claiming that it is the children’s own fault, which gives them an excuse to close their eyes and not care about their existence. After one of the boys had just shown me the scars of his father’s physical torture, who had hung him upside down with his legs bound together and his face in the smoke of chilies, and another boy had told how he lost both of his parents as a baby, it was difficult for me to hear the position of the people in the restaurant.

In Malawi where particularly in the rural areas initiation rituals are common, I found these ceremonies could drive children away from their homes onto the streets:
- ‘I live alone; my parents live in the village. They chased me away, because I refused to go to the initiation ceremony’ (Zomba, 11, M)

Furthermore I met with one man in Shakisso who is one of the few to care about the orphans and street children, but learned how his attempts to help them, for example through sending them to school, were being obstructed by gossips that he was exploiting them. Therefore he now needs to obtain official documentation from the local authorities about the child’s status to be able to support them without being accused of exploitation.

4.4 Disguising age

I found it difficult to find out the real age of participants, not only because people did not know their exact age and were relying on what they had been told by their parents but also because they were choosing an age most similar to the age of their peers. In Shakisso when I questioned the accuracy of the age participants gave me or let them anonymously write their age to me on a piece of paper, I found that particularly females initially stated an age lower than their real age. There could be different reasons why people prefer not to reveal their real age. I found for example that older pupils registered at school under a younger age not to be stigmatized.
- ‘My parents advised me to say that I am only 11 in school. If you tell the school your real older age, some people might not be happy.’ (Shakisso, 15, F)

A possible motivation that could explain why girls lower their age is that for females there are certain ages that are desirable for marriage, which could mean the end of their educational career.
- ‘Only boys succeed in education and reach point of completion, girls will meanwhile have gotten married without completing education………Some with a good husband may let her go to school, others with a stupid husband might not let them.’ (Shakisso, 10, F)

Thus, claiming a lower age could be a way to avoid marriage and complete education first.
4.5 Gender equality

In Shakisso I touched on the issue of gender equality in some of the focus groups. At the end of the focus group discussion, particularly female participants expressed their appreciation about discussing the rights of women. The view on this topic seemed to differ between the genders. Female participants agreed that despite the law declaring equality between men and women, the reality is different:

- ‘Generally there are rules and regulations that declare about the equality between men and women. Actually in our society it hasn’t been put into practice, because of ignorance of both men and women. We are struggling to free ourselves from this cultural bondage.’ (Shakisso, 17, F)
- ‘Theoretically we hear that boys and girls are equal, but practically I can see this is not the case’ (Shakisso, 15, F)

Some of the male participants, on the other hand, perceived that also in reality men and women are treated equally:

- ‘According to the law, men and women are equal and also in practice men and women are equal.’ (Shakisso, 18, M, agreement from five out of six participants)

However, contradictory the same male participant later on admitted that the equality law is not workable in the vicinity of the house:

- ‘Men and women are equal according to the law, but maybe this law is not workable in the house’ (Shakisso, 18, M)

Furthermore all the participants in this male focus group were planning to keep their future daughters at home to do the housekeeping work.

Although female participants aspired more gender equality, when I enquired about how they would raise their own children in the future, they themselves reinforced the perception of inequality:

- ‘I will treat my children like my parents nowadays, but I will never violate their rights… If the sons would obey to me, I would treat sons and daughters equally, but I suspect they won’t obey to me, because they will see girls less in ranking than boys by nature.’ (Shakisso, 15, F)

When I was challenging one female focus group to claim the same rights as their brothers who could refuse housekeeping work and go to play football, they explained how disobedience leads to physical punishment:

- ‘I am not as free as my brother, if I will not do the housekeeping work the whip is waiting for me in the evening.’ (Shakisso, 15, F)

All the girls in this focus group indicated they are beaten with anything that serves such as whips, sticks and electricity cables if they disobey. Furthermore the girls indicated they are more likely to receive physical punishment than their male counterparts:

- ‘Girls are just more vulnerable for this whip than the boys. The boys are beaten less than girls.’ (Shakisso 16 & 18, F)

The beating itself also seems to be gendered. All six participants reported a female family member such as the mother or sister performing the beating, whereas only two also reported a male member such as the father or brother. The presence of physical punishment could explain why participants expressed ‘obeying my parents’ as a talent.

4.6 Placebo effect

‘Placebo effect is a substance or procedure a patient accepts as medicine or therapy, but which has no specific therapeutic activity. Any therapeutic effect is thought to be based on the power of suggestion.’ (Wikipedia)
In Malawi I came across a sort of placebo effect, namely that medical treatment is about getting medicine and not getting medicine means not receiving proper treatment. The motivation of some participants to aspire a future career as doctor or nurse was based on the belief that patients are currently not always receiving proper treatment, because they are not been given medicine:

- ‘Doctor, because most of the patients in the hospital don’t receive proper care. Some come back from the hospital without receiving any medicine. So many people have been treated in this way.’ (Zomba, 16, F)
- ‘Nurse, because I want to be helping the people at the hospital. Because people face difficulties with finding medicine in the hospital.’ (Ntaja, 15, F)

5 Conclusions and recommendations

The main aim of this report is to thank the NGOs that have been kind enough to support me during my fieldwork journey by informing them about my research findings. I hope the report provides some new ideas and insights to them about the role that ICT plays in the lives of the low-literate youth that participated in my research in Ethiopia and Malawi. The report addressed the following themes context of use, content of use and user needs. Furthermore some other observations that are not directly related to my research aim were discussed.

ICTs are always used in a certain context that influences their use and at the same time the use of ICTs has an impact on its context of use. My research data shows that the radio is the most widespread ICT, but the mobile phone the most favoured. This means that a good way to reach the public through ICT is by radio message. Considering the popularity of the mobile phone that is however still less widespread, this could become a promising tool to reach the public in the future, for example through text messages.

The context of use can both facilitate as well as constrain the use of ICTs. My research identifies some contextual constraints to the use of ICT caused by the physical and the social context. The physical constraints expressed most frequently by participants were electric power, network and sustainability of the ICTs. Not only the lack of a power infrastructure, but also the availability and affordability of electricity as well as the safety of the infrastructure are issues that need to be taken into account. ICTs can remain unused if people do not have the financial resources to, for example, buy batteries needed to run them. For ICT networks, such as for radio, television and telephone, almost the same constraints as for power can appear. Apart from the network infrastructure or signal lacking, the availability and affordability of the network can limit the use.

Apart from the constraints caused by the physical context, there are some socially constructed constraints in using ICTs. The use of ICTs is gendered, particularly in the rural areas. ICTs are usually owned by male members of the family and certain ICTs were considered exclusively for use by men. Women are less familiar with and get less exposure to ICTs, in part due to the way duties are divided between men and women. Video shows for example are places that are dominated by male presence. Apart from gender, ICTs such as computers are seen as things that can only be used by educated people, in other words people who can read and write. Taking gender and educational level together, this means that rural (uneducated) women are the most marginalised with respect to ICT and urban (educated) men the most advantaged.

Further a communal approach to the use of ICTs might be more suitable for the African context than an individual one, focusing on the use by a community rather than an individual.
than by individuals. This is also how the distinction I made between ICT ‘users’ and ‘operators’ came about. It only requires a few people who can ‘operate’ the technology for a whole community to be able to ‘use’ the technology. Video shows are an example of communal ICT use. Communal use of ICTs can reduce the cost of use as well as the need for everyone to have (ICT) literacy skills to operate the ICTs.

The value of a technology is determined by the content that it gives access to, rather than by the technology itself. A technology without content has little use value. How content is represented and how representative it is for the local context it is used in will influence who are able to ‘consume’ the content. The language of the content as well as the mode of representation are factors that need to be taken into account. I found that currently in Ethiopia and Malawi there is a big role for English in ICT content, which could explain the perception that ICTs are something for the educated who are more likely to understand English than those with little education, meaning those with limited reading and writing skills. However with the linguistic diversity in Ethiopia, Malawi and other African countries, representing the content in the national language will still exclude people not mastering this language. For low-literate people to be able to use content the textual mode of representation should be avoided with oral, visual or audiovisual content being suitable alternatives, provided that it is in the right language.

My fieldwork revealed that video shows and the content that is shown there are having a social impact as well as an impact on the viewer’s perceptions about the world. Most of the content shown there is foreign and the main genres are action, Nigerian and pornographic movies. Further research would be needed to find out the impact that for example porn movies have on the valid sexual morals. Despite the entertainment the video shows are providing to people, in different ways participants expressed how it is also having a negative social impact. However, because the video shows can reach a lot of people (although mostly men) it would be interesting to explore how the concept of the video shows could be used in a positive way, for example by setting up (free) video shows that offer local and educational content as an alternative to the fighting and porn at the video shows. These ‘video shows’ should be equally accessible to men and women.

Finding out about the needs of my participants was a challenge. Participants had difficulty to think critically and of possibilities beyond what they know is possible. Furthermore being asked about their ideas and feelings is something not all participants were used to. However, the main needs that they expressed are basic needs such as housing, education, healthcare and clothing rather than ICT needs. ICTs are actually given up to cover for the costs of basic needs, if the situation asks for it.

In short I would like to conclude with the following thoughts:

- Apart from all the benefits that ICT can bring, the negative impact that it can have and how potential negative impact can be turned around into more positive outcomes, should not be forgotten.
- Local ICT content in local languages is needed, but an important question is who can and will be developing this content.
- Poor and marginalised people have other pressing needs than ICT; therefore it is difficult to determine their ‘ICT needs’. However at the same time it is important to explore how ICT could facilitate in fulfilling their basic and most pressing needs.
6 Appendix 1: Research questions

Interviews

- Could you please split up these cards in the ones that you know and the ones that you do not know? What is it/What do you think it might be? Where have you seen it before? Have you ever operated it yourself? Do you have it at home?
- Please sort these cards from the left to the right starting with the one you would like to have most, regardless of the ones you already have at home
- Why would you like to have [3 most favorable technologies]? What would you use them for?
- Why are you less interested in [3 least favorable technologies]?
- Which of these technologies do you think require reading and writing skills to use them? Why?
- Have you ever experienced difficulties in using these technologies? In what way?
- How often do you use reading or writing in your daily life?
  a. For what purpose do you use reading and writing in your daily life?
  b. Is reading and writing important to you? Why or why not?
  c. Where did you learn to read and write?
- In what ways do you communicate with other people in your environment, for example with people who live in another town?
- What are you good at? What would you still like to learn to be good at?
- Do you think these technologies have any disadvantages? In what way?
- What do you think the world would look like without these technologies?
- If I would be from a company that produces all these technologies and I would ask you for advice how to adapt them for the Malawian market, what would you advice?
- If I would be from a company that can only produce technologies that do not exist yet anywhere in the world, what would you advice for the Malawian market?
- If you would be paid the same salary for any job, what would be your dream job in the future?
- Did you like participating in this research? Which question or task did you like the most and which one the least?

Focus groups

- What would your dream future look like (drawing) if anything you want would be possible?
- What kind of activities do you normally undertake during the day?
- Which activities do you enjoy and why? Which are the ones you do not enjoy?
- What would you still like to learn in the future? And what would you use it for?
- How well can you read or write? How important do you think the ability to read and write is? What kind of activities require reading and writing skills?
- Who knows what is depicted on this card? What is it? What can it be used for? Who has it at home?
  - Radio
  - Television
  - Ghetto blaster
  - Mobile phone
  - Computer
• If all these technologies would disappear from the planet today, which one
  would you like to see back most of all?
• Did you like participating in this focus group? What did you particularly like or
dislike about it?
7 Appendix 2: ICT cards

- Telephone
- Television
- Radio
- Ghetto blaster
- Keyboard
- Mouse
Earphones

Portable CD player

Printer

Scanner

Digital video camera

PDA