

Literacy and ICT:

Social Constructions in the Lives of Low-literate Youth in Ethiopia & Malawi

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I, Marije Geldof confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm this has been indicated in the thesis

Abstract

This thesis explores how literacy and Information and Communication Technologies (ICTs) are socially constructed in the lives of low-literate youth in the context of Ethiopia and Malawi. Literacy and ICTs are becoming more and more interdependent and both are seen as possible solutions for development. However, few studies have qualitatively explored the interaction between the two in contexts where literacy skills are not widespread, such as in Africa. Particularly the perspectives and experiences of low-literate users in such contexts have previously received insufficient attention. The thesis brings together and contributes to the social constructionist perspectives on literacy and ICTs, building in particular on the work of Brian Street and Daniel Wagner as well as Wiebe Bijker, Trevor Pinch and Paul Dourish, according to which literacy and ICT use are social practices that can only be understood in the social context in which they take place.

In the context of four research locations in both urban and rural Ethiopia and Malawi, a qualitative multiple method approach (including interviews, focus groups and digital camera interaction) was employed, which allowed low-literate youth to express themselves both verbally and visually about the role of ICTs in their lives. What their realities reveal about how the use of ICTs is actively shaped by both its users as well as the context of use is organised in three substantive chapters. The first examines the interplay between literacy and ICTs, particularly with respect to language, content representation and shared use. This is followed by an exploration of physical and cultural contextual factors that constrain ICT use, such as electricity and gender. Finally, the needs of low-literate users as well as the way in which they shape ICT use according to their needs are explored.

The thesis shows how the interplay between literacy and ICT use is more complex than just compatibility between literacy proficiency and ICT design. It highlights how ICT use is divided along similar lines to literacy proficiency by characteristics such as gender, language and geographical location. Furthermore, it shows how in an African context ICT design for collective rather than individual use may be more appropriate.

Contents

Abstract.....	3
Contents.....	4
Figures	8
Tables	12
Abbreviations.....	13
Acknowledgements.....	14
1 Introduction.....	16
1.1 Background and Rationale	17
1.2 Research Aims and Objectives.....	19
1.3 Thesis Outline.....	20
2 The Social Construction of Literacy and ICTs.....	22
2.1 Introduction	22
2.2 The Social Construction of Literacy	22
2.2.1 Defining Literacy	23
2.2.2 International Attention on Literacy	27
2.2.3 Situating Literacy Practices.....	31
2.2.4 Literacy Practices in the African Language Environment	35
2.2.5 Literacy Practices in the Electronic Age.....	38
2.3 The Social Construction of ICTs	41
2.3.1 From Design to Use	42
2.3.2 Understanding Users and their Needs.....	45
2.3.3 The Role of Context in Design and Use.....	49
2.3.4 Situating ICTs in the Developing World	53
2.4 The Interplay between Literacy and ICTs	57
2.5 Conclusion	60

3	<i>Evolutionary Methods: the Research Journey</i>	61
3.1	Introduction	61
3.2	Evolution of the Research Design	61
3.2.1	Interviews	63
3.2.2	Focus Groups.....	67
3.2.3	Digital Camera Interaction.....	71
3.3	Sampling Low-literate Youth for Participation.....	75
3.4	Shaping the Research Setting	80
3.5	'Lost in Translation'	85
3.6	Doing the 'Right' Thing in the 'Right' Context	90
3.7	The Evolution of the Researcher's Identity	96
3.8	From Data Collection to Data Analysis	102
3.9	Conclusion	105
4	<i>The Research Contexts</i>	106
4.1	Introduction	106
4.2	Ethiopia.....	108
4.2.1	Nazret.....	115
4.2.2	Shakisso.....	124
4.3	Malawi.....	135
4.3.1	Zomba	142
4.3.2	Ntaja	149
4.4	Conclusion	155
5	<i>The Interplay of Literacy and ICT Practices: 'ICTs are Devices for Educated People'</i>	156
5.1	Introduction	156
5.2	Literacy Revisited	156
5.3	English, the Language of Technology?	166
5.4	Understanding ICT Content	174

5.5	Watching Unknown Realities	178
5.6	Sharing ICT Use	191
5.7	Interactions of Low-literate Youth with Digital Cameras	198
5.8	Conclusion	211
6	<i>The Role of Context in Constraining ICT Use: ‘Earphones are not for Women’</i>	214
6.1	Introduction	214
6.2	Physical constraints	215
6.2.1	Power Supply	215
6.2.2	Broadcast and Communication Networks	225
6.2.3	Durability	235
6.2.4	Geography of ICT Use: ‘At the Road Someone Shows Videos’	238
6.3	Cultural constraints	245
6.3.1	Gendered Uses	245
6.3.2	Respecting Authority	259
6.4	Conclusion	262
7	<i>Constructing the Use of ICTs: Understanding User Needs.....</i>	264
7.1	Introduction	264
7.2	Shaping ICT Use: Perceived Opportunities	264
7.2.1	Improved Communication	265
7.2.2	Emergency	267
7.2.3	Business Opportunities	270
7.2.4	Learning Opportunities	273
7.2.5	Leisure.....	275
7.2.6	Status Symbol	277
7.2.7	Negative Uses	281
7.3	Exploring User Needs	282
7.3.1	Challenges in Identifying Needs.....	283
7.3.2	Fundamental versus Information and Communication Needs.....	286
7.3.3	Thinking of the Future: Participants’ Inventions	290
7.4	Conclusion	294

8 Conclusion	296
8.1 Conceptual Contributions	296
8.2 Methodological Reflections	300
8.3 Empirical Contributions	302
8.4 Challenges and Constraints	304
8.5 Directions for the Future	306
8.6 Concluding reflections	308
Appendix 1: Interview Guide	310
Appendix 2: ICT cards.....	315
Appendix 3: Focus Group Guide.....	320
Appendix 4: Research Database Screenshots.....	324
Bibliography.....	326

Figures

Figure 2.1: ICT use as a social practice.....	27
Figure 3.1: Research interview in Zomba, Malawi	63
Figure 3.2: Participants' card rankings.....	66
Figure 3.3: Focus group in Ntaja, Malawi.....	68
Figure 3.4: Participant who had difficulty holding a pen.....	69
Figure 3.5: Focus group drawing and the interpretations by other participants	70
Figure 3.6: Participants interaction with digital camera.....	71
Figure 3.7: Female participant interacting with digital camera in Nazret.....	73
Figure 3.8: Field research digital camera	74
Figure 3.9: Cows gathered in front of the neighbourhood water point	79
Figure 3.10: Research settings	81
Figure 3.11: Stool in research setting	82
Figure 3.12: Curious spectators	83
Figure 3.13: Cow approaching the research setting	84
Figure 3.14: Camera thieves.....	95
Figure 3.15: Lunch for guests in Ntaja, Malawi	100
Figure 3.16: Becoming an 'insider' on my bicycle	101
Figure 4.1: Research countries in Africa	107
Figure 4.2: Ethiopian coffee ceremony	108
Figure 4.3: Research areas in Oromia region	110
Figure 4.4: Male-dominated classroom in teacher training centre	111
Figure 4.5: DStv business in Guji zone	114
Figure 4.6: Oromia regional state buildings in Nazret.....	115
Figure 4.7: The Addis Ababa-Dire Dawa road through Nazret.....	116
Figure 4.8: Addis Ababa-Djibouti railway in Nazret.....	117
Figure 4.9: Nazret seen from a gari	117
Figure 4.10: Indian taxi in Nazret	118
Figure 4.11: FSCE's non-formal education program.....	119
Figure 4.12: Play Station booth in Nazret	120
Figure 4.13: Telephone services in Nazret	121
Figure 4.14: Nazret through the eyes of participants (1).....	122
Figure 4.15: Nazret through the eyes of participants (2).....	123

Figure 4.16: Shakisso's green scenery	124
Figure 4.17: Market day in Shakisso	125
Figure 4.18: Lega Dembi gold mine near Shakisso	126
Figure 4.19: Transport in Shakisso	126
Figure 4.20: Water supply in Odo Shakisso district	127
Figure 4.21: Research sites around Shakisso	128
Figure 4.22: Research locations in and around Shakisso	129
Figure 4.23: Classroom in Saawaanaa	130
Figure 4.24: Radio stall on market in Shakisso	131
Figure 4.25: Shakisso through the eyes of participants (1)	133
Figure 4.26: Shakisso through the eyes of participants (2)	134
Figure 4.27: Nsima with peas	136
Figure 4.28: YONECO office in Ntaja	136
Figure 4.29: Research areas in Malawi	137
Figure 4.30: Zomba plateau	142
Figure 4.31: Remnants from colonial times in Zomba	143
Figure 4.32: Zomba market	144
Figure 4.33: Telephone business in Zomba	144
Figure 4.34: Barber shop and adjoining DVD rental in Zomba	145
Figure 4.35: ICT repair services in Zomba	146
Figure 4.36: Zomba through the eyes of participants (1)	147
Figure 4.37: Zomba through the eyes of participants (2)	148
Figure 4.38: Muluzi highway	149
Figure 4.39: Tobacco truck passing through Ntaja	150
Figure 4.40: Community gathering points around Ntaja	151
Figure 4.41: Bicycle taxis in Ntaja	151
Figure 4.42: Ntaja through the eyes of participants (1)	153
Figure 4.43: Ntaja through the eyes of participants (2)	154
Figure 5.1: Symbolic communication in Shakisso	160
Figure 5.2: Bus with written destinations in Zomba, Malawi	163
Figure 5.3: English schoolbook in Ethiopia	167
Figure 5.4: Students using ABCD program at FSCE	169
Figure 5.5: Radio with English labels in Ntaja	170
Figure 5.6: Participant's aspiration to become a priest	175
Figure 5.7: Participants' images of the video show in Malawi	179
Figure 5.8: Impressions of video shows in Malawi	180

Figure 5.9: Action movie in FSCE drop-in centre.....	181
Figure 5.10: <i>Gari</i> in Shakisso decorated with Bollywood movie stars.....	183
Figure 5.11: Impression of video show genres in Malawi.....	183
Figure 5.12: Buses named after British football clubs in Shakisso.....	186
Figure 5.13: Popularity football in Nazret	186
Figure 5.14: Participants' drawings of 'airplanes'	187
Figure 5.15: Fighting poses.....	188
Figure 5.16: Shared computer use in FSCE computer lab and drop-in centre	194
Figure 5.17: Video rental shop in Nazret.....	195
Figure 5.18: Advertisement in Shakisso for US diversity visa lottery	195
Figure 5.19: Pictures taken by low-literate participant	199
Figure 5.20: Learning curve of digital camera use	200
Figure 5.21: Screen functionality of the digital camera	200
Figure 5.22: Shared use of digital camera	201
Figure 5.23: Peer learning of digital camera use	203
Figure 5.24: Experimenting with capturing shadows.....	205
Figure 5.25: Participant capturing herself in the mirror	205
Figure 5.26: Inventive self-portrait.....	205
Figure 5.27: <i>'Mother and neighbour who put on their dresses for the picture'</i>	208
Figure 5.28: Examples of ICTs captured by participants.....	210
Figure 6.1: Radio running on batteries in Ntaja.....	217
Figure 6.2: Television cupboards in Shakisso.....	218
Figure 6.3: Battery charge service in Malawi	219
Figure 6.4: Electricity facility in Ethiopia	222
Figure 6.5: Telecommunication penetration in villages in Ethiopia and Malawi	227
Figure 6.6: Satellite in Shakisso.....	228
Figure 6.7: Telephone bureaus in Ethiopia and Malawi	230
Figure 6.8: Telephones with locked keypad in Ethiopia	234
Figure 6.9: ICT repair businesses in Zomba	236
Figure 6.10: Electricity facilities along the road in Ntaja.....	239
Figure 6.11: ICTs for sale at markets in Ethiopia and Malawi.....	241
Figure 6.12: Male visitors at video show in Ntaja	251
Figure 6.13: Popularity of football among men	252
Figure 6.14: Male ICT stereotypes.....	253
Figure 6.15: Video show program in Ntaja.....	255
Figure 6.16: Lashing FSCE guard.....	260

Figure 7.1: Cameraman recording wedding procession in Nazret	271
Figure 7.2: The symbolic value of the telephone.	278
Figure 7.3: White photographer visiting FSCE	279
Figure 7.4: Participant surrounded by functioning and non-functioning ICTs.....	280
Figure 7.5: Examples of agricultural activities	287
Figure 7.6: Examples of participants' inventions serving fundamental needs.....	288
Figure 7.7: ' <i>Very poor and disabled person begging on the street</i> '	292
Figure 7.8: Participant's innovative invention	293
Figure 7.9: Most inspiring inventions from participants	294
Figure 8.1: Pyramid representing correlation between literacy and ICT use.....	299
Figure 8.2: Participant's aspirations for the future in drawing	309

Tables

Table 2.1: Assessment methods used for national literacy statistics	29
Table 3.1: Number of research methods in each research location.....	62
Table 3.2: Technologies depicted on ICT cards.....	66
Table 3.3: Participant characteristics	76
Table 4.1: Percentage of Ethiopian 14 year olds ever enrolled in grade 1 in 2000.	111
Table 4.2: Literacy rates in Oromia region	112
Table 4.3: ICT costs in Nazret.....	121
Table 4.4: ICT costs in Shakisso.....	132
Table 4.5: Telecommunication penetration in Malawi	141
Table 4.6: ICT costs in Zomba	146
Table 4.7: ICT costs in Ntaja.....	152
Table 5.1: Words participants used for television.....	172
Table 6.1: Telephone subscribers in Ethiopia and Malawi	227
Table 6.2: Price SIM card in Ethiopia and Malawi in 2007	227
Table 6.3: Tariff lease 64 kbps line in Ethiopia and Malawi	231
Table 6.4: Cost of ICT repair and purchase in Nazret.....	235
Table 6.5: Number of participants interested in repairing ICTs.....	236
Table 6.6: Contexts of participants' encounters with video camera	242
Table 6.7: Participants' recognition of ICT cards	247
Table 6.8: Number of Malawian participants interested in football and netball	252
Table 6.9: Number of Malawian participants relating to action or Nigerian movies.	256
Table 7.1: Number of participants referring to ICTs for communicating funerals	268
Table 7.2: Number of participants alluding to business potential of ICTs	273
Table 7.3: Number of participants referring to cameras with white foreigners	279
Table 7.4: Number of participants with inventions serving fundamental needs	287

Abbreviations

AHEAD	Action for Health Education and Development
AIDS	Acquired Immune Deficiency Syndrome
BBC	British Broadcasting Corporation
DFID	Department for International Development
DVD	Digital Versatile Disc
EFA	Education for All
ETC	Ethiopian Telecommunications Corporation
ETV	Ethiopian Television
FSCE	Forum on Street Children Ethiopia
GDP	Gross Domestic Product
GPI	Global Peace Index
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technology
ICT4D	Information and Communication Technologies for Development
ITU	International Telecommunication Union
MACRA	Malawi Communications Regulatory Authority
MBC	Malawi Broadcasting Corporation
MPTC	Malawi Posts and Telecommunications
MTL	Malawi Telecommunications Limited
NER	Net Enrolment Rate
NETP	New Education and Training Policy (<i>Ethiopia</i>)
OECD	Organisation for Economic Cooperation and Development
SIM	Subscriber Identification Module
SLEMCO	Southwest Louisiana Electric Membership Corporation
SMS	Short Message Service
SNDP	Sustainable Development Network Programme (<i>Malawi</i>)
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
YONECO	YouthNet and Counselling

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'Alone we can do so little; together we can do so much' – Helen Keller

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'This is it' – Thich Nhat Hanh

1 Introduction

'If the user can't use it, it doesn't work!' (Dray, 2002)

This thesis is fundamentally about the ways in which people with low levels of literacy in Africa interact with new Information and Communication Technologies (ICTs). In the early stages of my research I happily agreed with the above slogan advocated by a consulting firm specialising in user-centred design. However, as my work progressed, I gradually shifted my perspectives, so that I now have reservations about its validity. First of all, the notion of 'the user' is problematic, because it signifies a diverse range of people who are complex and differentiated in their needs, rather than a monolithic group with predictable characteristics (Mackay *et al.*, 2000; Suchman, 2007). Furthermore, the understanding of 'can't use it' is also complicated, as there is no 'correct' use for a technology, but rather many different possible uses (Bijker and Law, 1992; Dourish, 2001a). Finally, even if a user cannot use a technology, this does not necessarily mean that it becomes meaningless, or 'doesn't work', because even a technology that is not in use can be meaningful to people (Hallnäs Redström, 2002). Moreover, if users cannot use a technology in the way that the designers intended, they might find an alternative way to make it work!

This personal transformation symbolises a shift from a technology driven and deterministic perspective towards a social constructionist point of view. Coming from a background in computer science, I have always been fascinated by the usability of technology designs and my PhD started from a particular interest in the mismatch between the design of ICTs that rely on users with literacy skills and the lack of literacy skills that many people have, especially in developing countries. I saw this mismatch as a problem in need of a solution, which could be solved either by equipping people with literacy skills, in other words transforming people to fit the technology, or by designing ICTs that are usable for those lacking literacy skills, in other words transforming the technology to fit the user. However, in the research process I gradually came to realise that the problem, and therefore also the solution, is much more complex than simply adopting literacy or ICT as an end in itself to solve this mismatch, because both ICT and literacy are socially constructed means to an end that are mutually influencing each other and cannot be understood outside their context of use. As a consequence, rather than trying to solve 'the problem', this

thesis sheds light on the interplay between literacy and ICT use through a social constructionist lens.

1.1 Background and Rationale

It is immensely challenging to enhance the basic education, literacy and livelihood of poor people (Wagner, 2001). In January 2002, the United Nations General Assembly proclaimed the period 2003-2012 to be the United Nations Literacy Decade in which the commitment was made to achieve a 50% improvement in adult literacy by 2005, given that there were then 860 million illiterate adults in the world. But what does it mean to be literate in a world fundamentally transformed by technology? In the past the concept of literacy was primarily defined in terms of people's abilities to read and write, but with the emergence of new technologies it has come to encompass a broader range of human competencies needed to access and manage information, analyse and interpret this information, critically evaluate its relevance and credibility, and use information to solve everyday problems (Wagner and Kozma, 2005; Wagner, 2009).

In the context of developing countries, both literacy and ICT receive a great deal of attention as possible means of enhancing development, although strong and unambiguous evidence to justify this attention is lacking (Roberts, 2000; Wade, 2002). Furthermore, this attention often has a deterministic and quantitative nature in which top-down approaches are used to establish increased literacy and ICT use, which serve as the main indicators to measure progress. At the same time, literacy and ICTs are becoming more and more interdependent. However, as Wagner and Kozma (2005: 6) have highlighted, 'the interconnections between literacy and technology are not well understood by policy makers, researchers and practitioners around the world'. My research is a response to this dearth of knowledge and engages with wider discourses about literacy and ICT in the context of developing countries.

The vast literature on literacy and ICT related studies is characterised by a multidisciplinary nature, involving different forms of knowledge production and epistemological perspectives. As indicated at the beginning of this chapter, this thesis forms part of the growing critique about deterministic and technology driven approaches, and builds on social constructionist literatures to literacy and technology development, according to which literacy and ICT use are social practices that can

best be understood in the social context in which they take place (see for example Street, 1984; Bijker *et al.*, 1987; Bijker and Law, 1992; Wagner *et al.*, 1999; Barton *et al.*, 2000; Oudshoorn and Pinch, 2003a). An important contribution of my research is to bring together and contribute to these two bodies of literature as a first step in exploring how these two social constructs are related.

Literacy is a complex concept that has been highly contested in the academic literature for more than half a century without much agreement on its definition or measurement (see for example Hillerich, 1976; Venezky *et al.*, 1990; Ziegahn, 1992; Roberts, 1995). In accordance with the social constructionist perspective, my research particularly builds on the literature that follows the ideological model of literacy that considers literacy as a cultural and social practice (see for example Street, 1984; Wagner, 1993; Barton and Hamilton, 1998; Cook-Gumperz, 2006b). There is a growing interest in ICTs in the literacy arena, but this interest is primarily motivated by the potential of ICTs to enhance the acquisition of literacy skills (see for example Wagner and Kozma, 2005; Wachholz and Meleisea, 2006). At the same time, less is known about how ICTs are transforming literacy practices in developing countries and the role they play in the daily lives of those with limited literacy skills. This lack of empirical evidence or analysis of the actual experiences and effects of ICTs on the lives of low-literate people is something this thesis seeks to address.

Hamelink (1997: 3) defines ICTs as encompassing 'all those technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems'. This broad definition includes both 'older' technologies, such as radio, television and telephone, as well as 'newer' technologies, such as mobile technology and computers (Wachholz and Meleisea, 2006). My research builds on literatures that consider the development of these technologies as a social process (see for example Bijker *et al.*, 1987; Dourish, 2001b; Oudshoorn and Pinch, 2003a; Suchman, 2007). In particular, the thesis responds to a major criticism that much of this literature focuses predominantly on the design phase of technologies, and disregards how they are shaped further during their actual use (Mackay and Gillespie, 1992; Winner, 1993).

ICTs are rapidly changing the world (Castells, 1996) and are increasingly gaining attention in the context of developing countries, which is evident from the rapid expansion of work done in the field of Information and Communication Technologies

for Development (ICT4D) in recent years (see for example Walsham and Sahay, 2006; World Bank, 2006; Heeks, 2008; Unwin, 2009). However, much of this work is top-down and driven by the technology without a good understanding of what people in developing countries really want or need (Unwin, 2009). As a counterbalance, my research seeks to adopt a bottom-up approach in which the perspectives and experiences of low-literate users guide the research agenda (Stoehr and Taylor, 1981; Chambers, 1995). Their particular perspectives and experiences are put in a broader socio-geographical context by relating them to the wider ICT4D literature (see for example Mansell, 1999; Heeks, 2002; Weigel and Waldburger, 2004; Unwin, 2009).

Chapter 2 explores these debates further, and provides a conceptual framework for the thesis, enabling me to address the interplay between literacy and ICTs in a concrete development context. Given my focus on literacy, I specifically chose to work in Africa, the continent that has the lowest literacy levels in the world (UNESCO, 2008). Within Sub-Saharan Africa I was also eager to see whether it was possible to draw generalisations across different social, economic and political contexts, and so decided to focus on both Ethiopia and Malawi, two geographically distant countries but both having low literacy levels. Furthermore, in each country the research is located in both an urban as well as a rural area, because literacy levels are typically geographically divided between the two (Wagner and Kozma, 2005). Additionally, the decision to concentrate on youth was motivated by the fact that they are going to be the users of the future and more likely to embrace new technologies. The results of six months of field research in both countries, in which a qualitative research design allowed low-literate youth to express their views about the role of ICTs in their lives, established the foundation for my analysis of how the interplay between literacy and ICTs is currently being socially constructed in practice.

1.2 Research Aims and Objectives

Against this background and in response to the motivations outlined in this chapter, the main aim of this thesis is to understand the social construction and interplay of literacy and ICTs in the context of Ethiopia and Malawi through the eyes of low-literate youth. Three specific objectives guided the research towards this aim:

- To understand the interplay between literacy and ICT. This includes understanding how low-literate youth think about literacy, engage in literacy practices and use ICTs.
- To understand how the particular context in which low-literate youth live shapes their literacy practices and ICT use. This especially considers how contextual factors influence and constrain these practices.
- To understand the needs of low-literate users and how they actively shape the use of ICTs to fit their needs.

As outlined in Chapter 2, the analytical framework for obtaining this understanding is based on variables correlating with literacy proposed in the literacy literature, such as gender, age, geographical area, education and poverty (Wagner and Kozma, 2005; Wagner, 2009). However, the reality on the ground of exploring these underlying variables is complex; as they are all interdependent factors it is difficult to tease out which factor is responsible for what effect. Furthermore, I am especially interested in how young people construct their ideas as well as letting their voices speak for themselves. Therefore, the thesis greatly lets the inductive data speak for itself, to then relate it to relevant literatures.

1.3 Thesis Outline

The thesis is arranged into seven main chapters. The first of these, *Chapter 2: The Social Construction of Literacy and ICTs*, explores relevant literatures and provides a conceptual framework, which contextualises the subsequent analytical chapters. This framework is based on a social constructionist perspective and brings together two bodies of literature that adhere to this perspective for both literacy as well as ICT. *Chapter 3: Evolutionary Methods: the Research Journey* is concerned with how the research methodology evolved during the research process. It justifies the research design, which consisted mainly of interviews, focus groups and digital camera interaction, in relation to creating a suitable research setting, selecting participants and data analysis. Furthermore, it addresses the challenges of working with a translator, ethical issues and my personal evolution in the research process. *Chapter 4: The Research Contexts* then gives some background about the two research countries Ethiopia and Malawi and the four research locations within them Nazret, Shakisso, Zomba and Ntaja, with a particular focus on literacy and ICTs. The chapter is explicitly enlivened by photographs taken by participants, to illustrate their perspective of these environments.

There are three main analytical chapters. *Chapter 5: The Interplay of Literacy and ICT Practices: 'ICTs are Devices for Educated People'* addresses how the interplay between literacy and ICTs is socially constructed in the research areas, and considers how low-literate participants shaped their interactions with ICTs. The discussion sheds light on participants' understanding of literacy, particularly in relation to ICTs, and their interaction with the research digital camera. The chapter further highlights the importance of the modality and language in which ICT content is represented as well as collective ICT use in relation to individual literacy proficiency. *Chapter 6: The Role of Context in Constraining ICT Use: 'Earphones are not for Women'* highlights the role of context in shaping the use of ICTs by addressing the most significant constraints in the lives of the low-literate participants. The focus of the chapter is confined to physical and cultural constraints and the discussion explicitly seeks to explain different underlying reasons for these constraints. The third analytical chapter, *Chapter 7: Constructing the Use of ICTs: Understanding User Needs*, examines the role of users in shaping the use of ICTs according to their needs by exploring the most important meanings and uses of ICTs in the lives of the low-literate participants. Furthermore, it addresses the process and outcomes of exploring their needs with them.

Chapter 8: Conclusion summarises the main research findings and outlines potential directions for further research. In particular, it attempts to disentangle the complexity of the interplay between literacy and ICTs as a social construction in the light of the analysis provided in the previous chapters.

2 The Social Construction of Literacy and ICTs

2.1 Introduction

This thesis adopts a social constructionist perspective to analyse the role that ICTs play in the lives of low-literate youth in Ethiopia and Malawi. Social constructionism is a theoretical orientation according to which phenomena arise in social contexts and social constructs are concepts or practices created by a particular group (for detailed accounts see Searle, 1995; Hacking, 1999; Burr, 2003). In studies both of literacy and technology, scholars who adhere to this perspective have generated bodies of literature in which literacy and ICT are regarded as social constructs that are situated and develop in social contexts (see for example Street, 1984; Bijker *et al.*, 1987; Bijker and Law, 1992; Wagner *et al.*, 1999; Barton *et al.*, 2000; Oudshoorn and Pinch, 2003a). Within the context of developing countries, where literacy and ICT receive a great deal of attention as possible solutions for development problems, there are important commonalities among the two constructs and moreover they mutually interact with each other.

This chapter brings the two bodies of literature together into a conceptual framework for the specific context of this research. First, it focuses on the social construction of literacy, particularly in relation to the international attention that it has received, the African language environment and the electronic age. Then the focus moves on to the social construction of ICTs, with particular attention to the design process, the role of users and context in this process, and the particular context of developing countries. Finally, the two are brought together to demonstrate their commonalities and interplay.

2.2 The Social Construction of Literacy

'Illiterate is a person who never attended school even if that person can read and write' (UNESCO, 2005: 269).

This contradictory statement is the definition of literacy used by the government of Mali for obtaining their national literacy statistics. It irrefutably demonstrates the complexity of factors that are involved in defining, evaluating and assessing literacy. Building on a social constructionist perspective, this section engages with the debates in the literacy literature to explore this complexity in more detail. It first explores the debates over the definition of literacy and presents the understanding of

literacy used in this research. It then addresses the deterministic nature of the international attention on literacy. Subsequently, it examines in more detail how literacy practices are socially constructed and situated in social contexts, in particular the African language context. Finally, the last subsection considers how the rise of new technologies influences literacy practices.

2.2.1 Defining Literacy

For decades literacy has been a contested term in academic literature for which no 'one size fits all approach exists' (Wagner, 1999b: 7). This section engages with these debates in the literacy literature eventually to arrive at the understanding of literacy that is used in my research. As early as 1956, Gray (1956) pointed out the lack of agreement on a definition of literacy, and there has continued to be a remarkable range of definitions of literacy and illiteracy ever since (Hillerich, 1976; Venezky *et al.*, 1990; Wagner, 1990; Roberts, 1995; OECD, 1997; Bernardo, 2000). The risk of such disagreement is that literacy can come to mean 'whatever people want it to mean' for their own agendas (Roberts, 1995: 419). Typical examples of pertinent definitions are thus:

- 'The ability to intelligently deal independently with recorded symbolic information' (Tuinman, 1978: 229);
- 'Literacy means an adequate spoken vocabulary, reading and writing skills and digital technology skills' (Withrow, 2004: 57);
- 'The ability to read and write, with understanding a short, simple sentence about one's everyday life' (UNESCO, 2005: 29);
- 'A person is functionally literate when he has acquired the knowledge and skills in reading and writing which enable him to engage effectively in all those activities in which literacy is normally assumed in his culture or group' (Gray, 1956);
- 'Literacy is that demonstrated competence in communication skills, which enables the individual to function, appropriate to his age, independently in his society and with a potential for movement in that society' (Hillerich, 1976: 53);
- 'The ability to understand and employ printed information in daily activities, at home, at work and in the community – to achieve one's goals, and to develop one's knowledge and potential' (OECD, 1997: 14).

Common themes in these definitions are skills or abilities, reading and writing of textual representations, and social context. Whereas the first three definitions concentrate predominantly on abilities and skills, the last three are more sensitive to functional utility in the social context, also known as functional literacy: adequate

skills for carrying out the activities required for effective functioning in society (Rogers and Herzog, 1966; Jennings, 2000).

A major debate in the literacy literature is between those who consider literacy as a neutral or objective set of skills (see for example Goody and Watt, 1963; Olson *et al.*, 1985) and those who think of it as a cultural and social practice, dependent on context, power relations and relationships that people form with each other (see for example Street, 1984; Wagner, 1993; Barton *et al.*, 2000; Cook-Gumperz, 2006a). This is for example reflected in Street's (1984) distinction between autonomous and ideological models of literacy, and Wagner's (1993) emic and etic perspectives on literacy. The autonomous model and etic perspective consider literacy as an autonomous variable that is independent of the social context; that skills such as decoding, picture matching and reading instructions on a medicine bottle have the same meaning and cultural functions for all individuals and cultural groups (Street, 1984; Wagner, 1993). Contrastingly, the ideological model that my research adheres to is more culturally sensitive in considering literacy practices to be different from one social context to another; that different types of meaning, social functions and skills are associated with literacy in different societies (Street, 1984; Wagner, 1993). The autonomous model assumes that technical skills can be isolated and cultural aspects can be added subsequently, whereas the ideological model does not neglect the importance of these technical skills or cognitive aspects of literacy skills, but rather sees them as part of cultural wholes and structures of power. Therefore, the ideological model actually subsumes, rather than excludes, the work undertaken within the autonomous model and literacy practices incorporate both emic and etic perspectives (Wagner, 1993; Street, 1999a).

One of the reasons that agreement on a single definition of literacy is difficult, is that literacy studies are relevant to many diverse disciplines within the social sciences, each with their own intellectual culture and norms, which do not necessarily draw on each other's work (Barton and Hamilton, 1998; Boudard and Jones, 2003). Quantitative and positivist traditions rely more on the autonomous model, which allows literacy skills to be measured and compared in quantifiable terms, because it assumes they are independent of social context. In contrast, qualitative and constructionist approaches tend to rely more on the ideological model, which, by viewing literacy as social practices embedded in a social context, asks for qualitative analysis, which does not easily compare across different contexts. A further reason why agreement on a single, universal definition of literacy is difficult is that according

to the latter understanding of literacy, it can only be adequately defined and understood within the context in which it exists (Wagner, 1992). In order to bridge the gap between the different disciplines, some scholars have proposed an intermediary model, in which both 'universal' aspects of literacy that are constant across cultures as well as 'cultural-specific' aspects that vary from context to context, are considered (Scribner, 1999; Boudard and Jones, 2003). However, there is no agreement on what these universal aspects of literacy should be.

The field of 'New Literacy Studies' originates from the ideological model and is based on the idea that reading and writing only make sense when studied in the context of social and cultural practices of which they are but a part (Gee, 2000; Maybin, 2000; Street, 2003; Papen, 2005). Within this field, a pluralist perspective to literacy has developed, which involves the concept of multiple literacies that vary with time and place and are embedded in specific social and cultural practices (Collins, 1995; Street, 1999b; Wagner, 1999b; Collins and Blot, 2003). Although the plurality better caters for diversity than the singular word literacy, at the same time it pluralises the complexity enwrapping the term literacy and makes any competency into a potential literacy. As a result, the term literacy has been adopted in other domains to designate a set of competencies or skills, giving rise to an even broader range of variations on the term literacy (Street, 1999b; Wagner, 1999b). In the ICT domain for example, terms such as digital literacy (OECD, 2000), information literacy (Withrow, 2004), e-literacy, and computer literacy (McMillan, 1996) each serve a particular interest. Furthermore, the danger of this pluralisation is that it creates a new notion of each of the literacies as a fixed and stable thing, but as Kress (1997: 115) has argued: 'it is neither autonomous nor stable, and nor is it a single integrated phenomenon; it is messy and diverse and not in need of pluralising'. My research follows Kress' criticism by only using the plurality of the term 'literacy practices', rather than augmenting complexity by pluralising the fluid term 'literacy'.

To take a position in the 'jungle' of the debates surrounding literacy and narrow down the concept to enable focused analysis (Boudard and Jones, 2003), my research uses an 'ideological' conceptualisation of literacy, which discriminates literacy practices from literacy skills. Although the term 'literacy practices' is widely used in the literacy literature, its meaning is rarely explicitly discussed. An exception is Street (1984; 1999b: 38), who defines literacy practices as 'cultural practices with which uses of reading and/or writing are associated in given contexts'. In accordance with this definition and taking into account that literacy is an integral part

of communicative practices (Rogers, 2001; Cook-Gumperz, 2006a), in this research the term literacy practices is understood as 'communicative practices involving textual representations'. This definition inherently subsumes the use of literacy skills to understand and produce textual representations as part of any literacy practice. In other words, my research primarily considers the skills of reading and writing that are traditionally associated with literacy, rather than a pluralist gallimaufry of possible 'literacies'. The relative dependence on literacy skills within a particular literacy practice is determined by the number of textual representations; the more textual representations, the greater the dependency on literacy skills.

In whatever way literacy is defined, people are typically classified according to a dichotomous scale of 'literate' individuals who master literacy skills versus 'illiterate' individuals who totally lack literacy skills (Lewis, 1953). However, reality is much more complex, because there is no magic point on a single scale where an individual moves from illiterate to literate, but rather a continuous scale representing different degrees of proficiency (Hillerich, 1976; Wagner, 1995, 1999a). Therefore, my research uses the term 'low-literate' to signify individuals at the lowest end of the scale, ranging from those who completely lack literacy skills to those with only limited literacy skills, although there is again no magic point on the scale where an individual moves from literate to low-literate (Wagner, 1993, 1995). My research focuses on how low-literate youth at the lowest end of this scale engage in literacy practices and interact with ICTs, particularly when this interaction is a literacy practice involving textual representations.

According to the ideological model, literacy practices are social practices embedded in a social context, but more specifically they are a complex of communicative language practices (Hanks, 1996; Rogers, 2001; Vincent, 2003; Cook-Gumperz, 2006a). Moreover, as textual representations are always in a particular language, literacy practices are inherently related to language and therefore instances of language practices (Barton, 1994; Herbert and Robinson, 2001). In other words, as graphically represented in Figure 2.1, literacy practices are a subset of language practices, which are a subset of communicative practices, which are a subset of social practices. However, this simplified representation is by no means static, but rather fluid; it is neither rightly scaled nor fixed, but rather varies in each context and is subject to constant change. For example, in developed countries, literacy practices play a more important role in daily life than they do in developing countries (Tuman, 1992a). The use of ICTs is also a social practice (Wagner and Kozma,

2005) that cuts through the different subsets of communicative, language and literacy practices (see Figure 2.1). It is an instance of a literacy practice only when textual representations are involved, which rely on literacy skills to be understood or produced (see shaded area in Figure 2.1). Hence, the design of an ICT as well as its content determines to a great extent whether its use becomes a literacy practice or not. My research particularly focuses on this intersection of literacy practices and ICT use in African contexts.

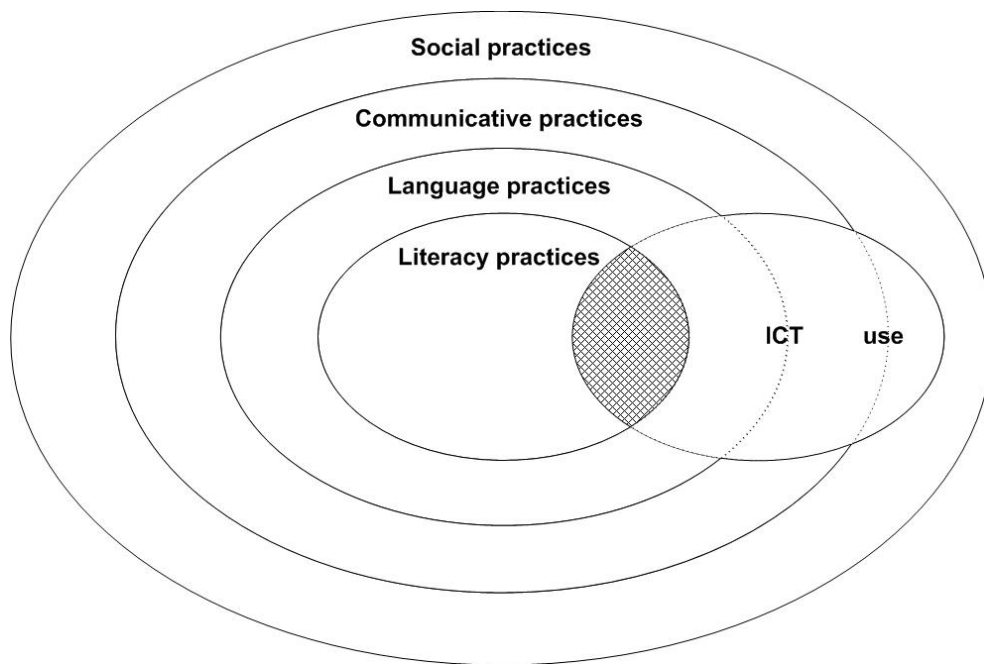


Figure 2.1: ICT use as a social practice (Source: Author)

2.2.2 International Attention on Literacy

This section critically explores the deterministic nature of literacy statistics and the international attention on literacy, to demonstrate the importance of the qualitative and social constructionist approach adopted in this research as a counterbalance. Contemporary ‘development’ practices place considerable emphasis on the enhancement of basic education, literacy and livelihood of poor people (Wagner, 2001). Consequently, there is a lot of international effort and attention on increasing literacy under the assumption that literacy is a basic human need and right that leads to economic as well as social development. However, as Walter (1999: 39) has argued, the blind faith in the transformative powers of literacy skills and the disabling effects of the lack thereof ‘is more a reflection of our own perspective on literacy and the value we place upon it in our daily lives, than a result of empirical research in the developing world’ (see also Wagner, 1990, 1995; Commeyras and Chilisa, 2001).

While scholars in literacy studies remain divided about the relationship between illiteracy and economic and social factors, policy-makers are often less cautious in making bold claims about the value of literacy and the disadvantages of illiteracy (Roberts, 2000). An example of such a bold claim is the 'Declaration on Eradication of Illiteracy in the United Nations Development Decade' that designated illiteracy as a burden:

'This is an issue of vital importance not only to the developing nations who today carry the burden of illiteracy, but also to the entire international community, which cannot stand divided before the doors of its history' (UNESCO, 1964: 1).

Most literacy programmes are based on such problematising claims that oversimplify the problem and stigmatise illiteracy as something abnormal (Collins, 1995; Roberts, 1995; Vincent, 2003). The flawed assumption underlying most literacy programmes is that increasing individual literacy skills as an end in itself automatically leads to increased literacy practices, which eventually leads to development (Canieso-Doronila, 1996). However, this 'autonomous' assumption completely overlooks the social context in which the literacy skills and practices are embedded. This is also reflected in international literacy statistics, which tend to measure literacy skills regardless of whether and how these skills are used in daily life.

The comparability and reliability of the existing international statistics (see for example UNESCO, 2008: , UNESCO Statistics) across time and countries is a major concern, given the lack of a universal definition, classification or measurement (Wagner, 1990; DFID, 2002; Wagner, 2003). Most international statistics rely on data provided by the individual countries, each using its own definition and measurement technique (Wagner, 1990, 1992). A particular issue with these definitions is that, although literacy is inherently related to language, only a few explicitly define the languages in which literacy is measured and therefore mother-tongue literacy can easily be overlooked in these statistics (Downing, 1999). Therefore, different scholars have advocated the inclusion of all indigenous language in national literacy surveys and appending the data with information about language, which has so far been ignored by most international statistics (see for example Commeyras and Chilisa, 2001; Wagner, 2003).

Furthermore, as there are no widely accepted standard and internationally comparable indicators of literacy, the reliability of the different measurement

techniques used to collect the statistical data is questionable (Wagner, 1990, 1995; Robinson, 2005). The following are the most common assessment methods used:

- Self-declaration: asking a simple question ‘are you able to read and write’ (Boudard and Jones, 2003);
- Household declaration: asking members of the household whether someone can read and write (Schaffner, 2005);
- The number of years of schooling, where those with a minimum of 4 years (sometimes 5 years) of schooling are considered as ‘literate’ and those with less are considered ‘illiterate’ (UNESCO, 1999);
- A simple reading test (Schaffner, 2005)

In Ethiopia, for example, the subjective literacy measure is the answer (yes or no) to the question: ‘Is (NAME) able to read and write a simple sentence?’ (Schaffner, 2005: 654). Table 2.1 illustrates how the assessment methods used for the statistical annexes of the EFA ‘Literacy for Life’ report varied among the reported countries (UNESCO, 2005). An issue with the reliability of self-declaration is that individuals might not have the same understanding of what it means to read and write a simple sentence or prefer not to reveal their inability. Furthermore, a drawback of using educational attainment as a measure is that it is possible to obtain literacy skills without attending school or move through the educational system without ever obtaining proficient literacy skills, particularly in countries where the monitoring of educational achievement is limited (Windham, 1999; Hanushek and Wößmann, 2007). The main reason that literacy assessments often rely on such self-assessment questionnaires and/or educational attainment, rather than a direct form of assessment, is that the latter is more difficult to administer and more costly (Commeyras and Chilisa, 2001). Given these difficulties, my research only uses literacy statistics as a rough guideline and does not seek explicitly to classify people in terms of their literacy skills using any of these assessment methods, but rather uses an unobtrusive strategy to ensure that the research sample is representative of low-literate people (see Chapter 3).

Assessment method	Countries
Self-declaration	50
Household declaration	35
Educational attainment proxy	11
Unknown	13

Table 2.1: Assessment methods used for national literacy statistics
(Source: derived from UNESCO, 2005)

The extensive international attention has led to a number of global initiatives that directly or indirectly focus on literacy, such as Education For All (EFA), the Millennium Development Goals, the International Adult Literacy Survey, the United Nations Literacy Decade (2003-2012), the UNESCO Literacy Initiative for Empowerment, the UN Girls' Education Initiative and the UN Decade for Education and Sustainable Development (2005-2014). Furthermore, in January 2002, the United Nations General Assembly proclaimed the years 2003-2012 to be the United Nations Literacy Decade in which the commitment was made to achieve a 50% improvement in global adult literacy by 2015. Wagner (1999a) has argued that the central paradox of such initiatives is that so much effort has been invested and so little knowledge has been gained about how to achieve success. Moreover, most of the international literacy initiatives were launched by different agencies of the United Nations, which is an example of what Limage (1999: 87) called the 'unclear fragmentation of responsibility between a number of UNESCO and non-UNESCO bodies' leading to 'conflicting and duplicating priorities in UNESCO'. Not only is it unclear how all the initiatives relate, such as how they overlap or complement each other, but also having so many different initiatives that are trying to do more or less the same thing, is highly questionable. Furthermore, the fact that similar goals have been stated by the same agencies just about every decade since World War II (see for example UNESCO, 1964) asks for some scepticism towards these commitments (Wagner, 2004). As Robinson (2005) has argued, these initiatives may be no more than rhetoric or window-dressing, or the response of particular political alliances.

As Vincent (2003) has argued, the main motivation behind large-scale international literacy surveys is that policy-makers need to justify these international initiatives and therefore generate measurable progress. Likewise, Roberts (1995: 416) has asserted that 'measurable people are manageable people' and how quantitative measurements serve instrumental, pragmatic and political reasons, for which the illusion of accuracy and legitimacy of 'measurement' is vital. However, as Tacchi (2007: 131) has noted about poverty, 'measurement is largely quantitative and excludes wider meanings and understanding'. Similarly, in particular proponents of the ideological model argue that literacy statistics fail to acknowledge the complexity of literacy in social practice as well as the problematic nature of cross-cultural comparisons (see for example Canieso-Doronila, 1996; Hamilton and Barton, 2000; Wagner, 2003). To date there is little detailed information available about for example local variations and cultural patterns of literacy in the countries surveyed (Barton and Hamilton, 2000). However, studying literacy practices from a socio-

cultural perspective is more challenging and relatively unexplored when it comes to large scale assessment (Commeyras and Chilisa, 2001). According to Wagner (2003), apart from being more costly and difficult to administer, the most important reason why such considerations are sacrificed, is to allow greater international comparison. Even when qualitative methods are used to explore these considerations, policy-makers are likely to dismiss such non-quantifiable evidence as anecdotal and therefore abide the 'comparability' of large quantitative surveys (Hamilton and Barton, 2000; Robinson-Pant, 2004). Moreover, the more qualitative accounts unveil the complexity of literacy practices and how increased literacy skills might not necessarily have the impact the rhetoric suggests, the more difficult it becomes to take all the complexity into account and persuade funders to support literacy programmes (Street, 2003). Given that these same policy-makers have considerable influence in the formalisation of literacy programmes around the world, this explains why these programmes often fail to take the local variations and cultural patterns into account and therefore treat all their beneficiaries as if they are all cast in the same mould and have the same universal needs (Wagner, 2004). To turn this tide, Commeyras and Chilisa (2001) have advocated a middle way in which quantified measurements are informed by findings from qualitative, context-sensitive studies of literacy practices. My research seeks to provide such a qualitative, context-sensitive exploration of literacy practices in relation to the use of ICTs.

2.2.3 Situating Literacy Practices

This section builds on the social constructionist perspective to literacy and discusses some aspects of how literacy practices are socially constructed that are of particular interest to my research. Although literacy practices are very much situated in a specific context, the diffusion of literacy skills in developing countries is nevertheless correlated to a range of interrelated demographic variables, such as age, poverty, educational level, geographical area (urban or rural) and gender (Stromquist, 1999; Egbo, 2000; Commeyras and Chilisa, 2001; Wagner, 2003; UNESCO, 2005; Wagner and Kozma, 2005). As a result, poor rural women tend to be the most disadvantaged compared to rich urban men in terms of literacy proficiency. Although my research takes all these variables into account, it predominantly focuses on the last two variables as analytical constructs, by exploring how the social construction of literacy practices and ICT use correlates with gender and geographical areas.

An important implication of adopting an ideological model of literacy is that literacy practices are studied and understood contextually, as social practices situated in discourses, social relationships and institutional contexts (Freire, 1972; Gee, 2000; Commeyras and Chilisa, 2001; Papen, 2005). As they are embedded in a broad cultural-historical framework and specific cultural practices, there is a constant and complex dynamic interchange between literacy practices and historical, socio-cultural, political and economic dimensions (Collins, 1995; Robinson-Pant, 2005). Thus, literacy practices are fluid, dynamic and changing just as the social context of which they are part of (Barton and Hamilton, 2000). Correspondingly, both literacy skills as well as texts are also deeply embedded within cultural and community values (Purves, 1999). Learning literacy skills therefore is not merely a matter of developing a set of skills, but also of acquiring considerable cultural knowledge about and procedures for comprehending and composing text (Lytle and Landau, 1999). Consequently, it is not possible to determine just from a text itself how it will be used or understood, as responses to what is read are greatly dependent on the culture of the reader (Barton and Hamilton, 1998; Purves, 1999).

Long before the movement from the autonomous towards the ideological model really took off, Lewis (1953) already identified the relativity of literacy, maintaining that literacy is always relative to the needs of a society and hence what a society means by 'illiteracy' depends on the importance of literacy in that society. Consequently, he considered someone's level of illiteracy as 'the extent to which this person falls short of the demands for literacy current in his or her society' (Lewis, 1953: 160). The relativity of literacy is expressed in the variable 'literacy integration' introduced by Bernardo (2000: 460), which is a 'qualitative variable defined as the degree to which a community has made literacy practices essential to the most important activities and practices of the community'. In communities with high literacy integration, such as Western cultures, illiterate persons are more likely seen as not fully contributing and having something 'wrong' with them (Tuman, 1992a; Collins, 1995; Bernardo, 2000). Contrastingly, in communities with low literacy integration illiterate individuals are not necessarily separated from the larger community and can still be productive members of their communities as they have educated themselves through their life experiences (Lytle and Landau, 1999).

The concept of literacy integration can be further subdivided into vernacular and dominant literacy practices (Barton and Hamilton, 1998; Commeyras and Chilisa, 2001). Vernacular literacy practices are the ones that exist in people's everyday lives

and are often learned informally, whereas dominant literacy practices are mostly occurring in institutionalised settings, such as education and law, and are often learned formally. Therefore, dominant literacy practices are more visible and influential than vernacular literacy practices that often go unrecognised. As a consequence, there is a risk that literacy skills primarily applied in vernacular literacy practices remain unacknowledged and those applying them are erroneously labelled as 'illiterate' (Street, 2001). The 'real literacies approach' proposed by Rogers (1999: 221) tries to overcome this by focusing in literacy programmes on literacy practices to solve problems in everyday life, rather than more institutionalised literacy practices that more traditional literacy programmes tend to focus on. My research seeks to be sensitive to the level of literacy integration in the different research contexts and inclusive towards both dominant as well as vernacular literacy practices and their relation to ICT use.

The inevitable relation between literacy skills and literacy practices is not straightforward. Whereas the presence of literacy skills does not necessarily assure widespread literacy practices, at the same time different research has demonstrated how even in the absence of literacy skills individuals successfully engage in literacy practices (Canieso-Doronila, 1996; Barton and Hamilton, 1998). Therefore, Basu and Foster (1998) have introduced a measure of 'effective literacy' in an endeavour to make the conventional measurements of literacy more sensitive to the social context. They distinguish between 'proximate illiterates', as those who have access to literate persons within their household with whom they can share literacy skills, and 'isolated illiterates' as those who lack this access. Moreover, their idea has meanwhile been further refined from just concentrating on interhousehold relations to include the wider social context of intrahousehold relations, such as friends and kin (Gibson, 2001). Their argument is that 'proximate literacy skills' enable those with low literacy skills effectively to engage in literacy practices, which should be accounted for when measuring literacy. This perspective alters the significance of individual literacy skills and offers a different perspective to conventional literacy statistics that are produced by global bodies such as the World Bank and UNESCO. It moves away from seeing literacy development primarily as a matter of advancing individual proficiency and illustrates the importance to keep both individual as well as collective concerns of literacy practices into account (Reder, 1994; Windham, 1999). My research therefore seeks to adopt a more collective approach towards literacy and ICT practices, further to reinforce the limitations of individualistic approaches.

Notwithstanding the potential benefits of collectively sharing literacy skills, it is important to take into consideration how such reciprocity can be subject to unequal power relations (Maddox, 2007). As social practices, literacy practices are inherently related to issues of power (Scribner, 1999; Street, 1999a; Barton and Hamilton, 2000; Rogers, 2001; Street, 2001). Their functions and meanings as well as their impact on social relationships depend on the power structures and belief systems in a given society (Scribner, 1999). Furthermore, literacy is not only rooted in power relations, but it can itself serve as a tool to exercise power; to dominate or liberate subordinate groups. Consequently, literacy skills give a certain power to individuals mastering them and can thus be used as a statement of status and identity, regardless of whether the literacy skills are actually used or not (Hamilton, 2000). Therefore, Papen (2005) pleads for more focus on power issues in local literacy practices; to identify who possesses what literacy skills and what they allow people to do. In a response to this plea, my research explores the role of power and authority in the interplay between literacy practices and ICT use.

Although literacy skills are sometimes used as ends in themselves, they are typically a means to some other end (Barton and Hamilton, 2000). The literacy practices that individuals engage with therefore depend on their perceived livelihood needs and are actively shaped according to these needs (Betts, 2003). Consequently, despite what literacy policies and programmes lead us to believe, aspirations to obtain literacy skills are relative and tend to be motivated by a perceived added value (Downing, 1999; Sibiyana and Van Rooyen, 2005). It is therefore pertinent to ask how much literacy skills really matter for the poor and hungry, whether literacy skills are for example aspired or needed by those who work at farming or herding cattle (Wagner, 1999a; Commeyras and Chilisa, 2001). Robinson-Pant (1994) for instance found in Nepal that literacy programmes, just as green cucumbers, were seen as an unnecessary luxury in times of hardship. This suggests that to be meaningful, literacy programmes must satisfy the learners' needs and motivations to learn literacy skills, for example by focusing on existing literacy practices and creating uses for the literacy skills after the period of learning, such as producing more locally relevant content (Ahmed, 1992; Wagner, 1992; Magalhaes, 1995; Limage, 1999; Scott-Goldman, 2001; Wagner, 2004). My research therefore adopts a bottom-up approach that starts from the needs and priorities of low-literate people, to understand how much literacy skills and the use of ICTs really matter in their lives.

2.2.4 Literacy Practices in the African Language Environment

Literacy is inherently related to language, as being literate means being literate in some language(s) and thus literacy practices are always instances of language practices (Barton, 1994; Herbert and Robinson, 2001). In many developed Western nations, the promotion of one 'national language' has led to the dominant idea that a homogeneous language environment is somehow normal (Hornberger, 1999). However, across Africa, where languages are more diverse, the language environment is more heterogeneous and therefore more complex (Fardon and Furniss, 1993; Prah, 2008). There are estimated to be over 2000 languages in Africa, but given that new languages are still discovered and others with few speakers are dying out, this is a dynamic figure (Heine and Nurse, 2000). Therefore, it is pertinent for my research to consider the role of language in the social construction of literacy practices in these heterogeneous language environments and how this affects the ICT practices taking place in them, particularly those involving textual representations.

At the heart of ongoing debates in language studies there is a similar dichotomy of perspectives as within literacy studies. At one end of the spectrum, language is studied as a neutral and abstract system of symbols, whereas at the other end it is studied as a socio-cultural practice that is dependent on the context in which it is used, such as power relations and relationships between people (Hanks, 1996; Stainton, 1996). This distinction that Hanks (1996) termed 'irreducibility' versus 'relationality' has the same underlying premise as the distinction between the autonomous and the ideological model of literacy. My research adheres to Hanks' approach of language as a communicative practice, which aims at marrying the two by combining the formal properties of linguistic systems with the dynamics of speech as a social activity. This approach embodies a complex relationship between the system of symbols and social contexts in which it is used (Devereux, 1993; Hanks, 1996; Herbert and Robinson, 2001). In other words, both language and context are dynamic and constantly evolving and therefore mutually influencing and changing each other. Hornberger's (2002) metaphor of ecology of language illustrates this fluidity of language by distinguishing three components: language evolution, language environment, and language endangerment. Language evolution means that languages exist and evolve in a linguistic ecosystem with other languages. Language environment refers to the interaction of language with its cultural, socio-political and economic environments. Finally, language endangerment means that

not enough environmental support for a language within the ecosystem puts its existence under threat.

Hornberger (1999: 277) has pointed out that 'although all languages are potentially equal, they are, for social and political reasons, not actually so'. As language is bound up in the power structures of a society, there is a close link between language dominance and cultural power (Crystal, 2003). The politics of language are particularly complex in countries with a heterogeneous language environment where different interests are at stake. Most countries have an explicit language policy defining which language or languages have official status, but the choice of these languages has often been influenced by colonial history, dominant linguistic groups and the importance of a language for economic development (Commeyras and Chilisa, 2001; Wagner, 2003). In many African countries this has resulted in a situation of 'diglossia', where there is a language(s) of wider communication and prestige used in education, industrialisation and by the government, while local languages of low prestige are used for home, family and neighbourhood matters (Yates, 1995; Hornberger, 1999; Herbert and Robinson, 2001; Adegbite, 2004).

Just like other former colonial languages that used to be the means of elite formation and political power, English still plays an important role in the African 'diglossias' (for an account of the historical development of English in Africa, see Schmied, 1991). On the one hand, the domination of English is contested as an expression of neo-colonialism or linguistic imperialism (Phillipson, 1992). On the other hand, it has been argued that especially in heterogeneous language environments English can serve as a 'neutral' language that is equally 'foreign' to all ethno-linguistic groups and therefore does not favour any ethnic group in particular (Yates, 1995). Furthermore, English is not only valued for its functional value, but as a symbol of being educated and employability; it also has a symbolic value of prosperity and giving status to those who know it (Yates, 1995). Different scholars have observed in Africa how English can become a means to express power, because of the status and authority it provides to those who master it (see for example Yates, 1995; Herbert and Robinson, 2001; Rogers, 2001; Adegbite, 2004; Papen, 2005).

The product of literacy is called literature, but a comparable term or concept to refer to the product of purely oral heritage, such as oral stories, proverbs and prayers, does not exist (Ong, 1982). Only a few of the many spoken languages existing today actually have a literature, because no effective way of writing them has been worked

out yet (Green, 1985; van Dyken, 1990). In most societies information previously used to heavily rely on oral skills and be carried in songs, dance and storytelling (Withrow, 2004), but once writing and books were invented, this provided new ways of storing information, communicating and organising knowledge. This slowly caused language practices to shift from oral practices to literacy practices, impacting social, economic, political and religious structures (Ong, 1982). Also within the heterogeneous African language environments history and culture were traditionally preserved through a system of oral transition from generation to generation, composed of dance, music, song and iconographic artistic representations (Green, 1985; Okpewho, 1992). Furthermore, traditional African music contains a range of drum signals, which function as a means of communication, for example to send and relay messages and to summon people.

Literature and literacy practices initially entered African oral cultures through Western influence, as a promotion of Western civilisation and its religious traditions, as well as through Arabic influence in Islamic societies in Northern Africa (Walter, 1999; Murray, 2000; Prah, 2008). The principal advocates for the Western influence were the Christian church and its missionaries (Prinsloo, 1995). Although some indigenous writing systems existed, it was the arrival of Christian missionaries that initiated a shift from oral to print, and thus from oral practices to literacy practices, which was in the first place meant to serve Christian ideals (Molosiwa, 2007; Prah, 2008). For this purpose they translated the Bible and other religious texts into local African languages (notably in Roman alphabet) with the goal for all people to be able to read this religious literature (Okedara and Okedara, 1992; Murray, 2000; Molosiwa, 2007; Prah, 2008). As a heritage of these missionary efforts, until today the scarce literature in African languages continues to be predominantly religious; the Bible is still the most available text in many African languages (Freeland, 1995; Prah, 2008).

Given this scarcity of literature in African languages as well as the sometimes inferior status of these languages due to the 'diglossia', although literacy skills and practices in different languages are potentially equal, for social and political reasons they are not actually so. Consequently, literacy skills and practices in minority, vernacular languages have received little attention and are not always assessed in national literacy surveys, compared to those in dominant languages (Commeyras and Chilisa, 2001; Papen, 2001). Furthermore, there is a continuing debate about teaching mother tongue literacy versus literacy in a national or official language (Wagner, 1995). Proponents of mother tongue literacy argue that it gives greater access to the

most disadvantaged or that it is more effective, because it interweaves with existing linguistic awareness (Downing, 1999; Wagner, 1999b). Opponents argue that there is no point in fostering indigenous mother tongue literacy, given the scarcity of written material in these languages, or that given its symbolic value, literacy in a dominant language can be more empowering than mother tongue literacy (Hornberger, 1999; Robinson-Pant, 2004). However, what is often forgotten in these debates, is the need to engage with people about their actual language needs, as ignoring their wish for literacy in either a dominant language or their mother tongue, is like 'perpetuating their voicelessness and powerlessness' (Yates, 1995: 446). Therefore, my research seeks to take the varying statuses of different languages into consideration and through its bottom-up approach explore the actual language needs.

2.2.5 Literacy Practices in the Electronic Age

There has always been an interrelationship between the evolution of new technologies, major social changes and definitions of what it means to be a literate person (Wagner and Kozma, 2005). The use of ICTs is currently transforming the literacy practices of people in many countries around the world and literacy and technology are more and more becoming interdependent (Abbott, 2002; Wagner, 2005). How these technologies affect literacy practices as well as the understanding of literacy is a pressing question (Tuman, 1992a). This section takes a closer look into the impact of ICTs on literacy practices, particularly focusing on how it is changing reading and writing spaces, how ICTs are creating new literacy practices as well as replacing others and what additional skills become necessary.

For a long time, reading and writing mainly consisted of interaction with printed or written text, but the introduction of ICTs has given a new dimension to reading and writing spaces. The technology of printing primarily facilitates the possibility to establish and maintain an original text. In other words, authors create a text to be reproduced in identical copies and to be sent out to an audience of passive readers (Bolter, 1992). The move from print to computer has enabled new possibilities for the creation and use of text. Although word processors only provide an electronic representation of the familiar typed or printed page, hypertext embodies a completely new reading and writing space with qualities that are fundamentally different from those of previous spaces of handwriting and printing. Hypertexts are texts in which hyperlinks to other texts are embedded and therefore, rather than linear, they are multilinear (Bolter, 1998). Forty years ago Nelson (1992) already envisioned the

concept of hypertext and with that a new idea of literature, but at that time the world did not seem ready to face the revolutionary implications of his new paradigm.

With hypertext, effective reading and writing can only take place on the computer screen, because of the links between elements that takes the reader to next pieces of text, although there are some printed 'books' that try to reproduce this. All texts are occupying the same space and any author can simply add new elements and links to that space. This transforms the act of writing to creating connections, in which authors mainly add new links to previous elements, causing a shift from the individual text to much larger collective texts (Bolter, 1992). This new reading and writing space has had a considerable impact on the culture of literature today, demanding new ways of creating and maintaining text elements and reconsidering the relationships between author, text and reader. Once literature is not a fixed creation anymore, the authority of the single author comes into question. In electronic writing both the reader and the author share in the creation of the text and therefore the responsibility of the result, which means both the reader and text change with each reading (Bolter, 1992).

Another example of how ICTs are changing reading and writing spaces is evident from the use of Short Message Services (SMS), which together with 'missed calls' or 'flashing' provide an alternative to making phone calls (Donner, 2008). These messages have introduced a new reading and writing space that is bounded by the constraints imposed by the mobile phone technology and has consequently led to the development of a special language used in this space (Crystal, 2008). This 'SMS language' or 'texting language' developed as a response to the limited number of characters in an SMS, which forces authors to write economically and inventively (Vosloo, 2009). The resulting language lies on the border between written and spoken language with a more phonetic type of writing and non-conventional use of letters or numbers to encode the phonetic value of their spelling, such as in 'some1' for 'someone' (Kobus *et al.*, 2008). In other words, an SMS message is often an alphabetic approximation of a phonetic expression and requires literacy in this SMS language. However, so far insufficient attention has been paid to how SMS language is used in African languages (for an exception see Deumert and Masinyana, 2008). Moreover, as mobile phone technology does not support all orthographies, in some language environments the vernacular language is phonetically 'translated' into another supported orthography to send SMS messages, often the Roman alphabet.

In other words, this requires additional literacy skills in a different orthography from the users.

Digital reading and writing spaces are characterised by a 'digital language divide' in which English is overwhelmingly dominant, particularly on the Internet (Kenny, 2002; Wagner and Kozma, 2005; Wagner, 2009). English has become the *lingua franca* of the Internet with over 60% of the content represented in this language, although it is the mother tongue of only 10% of the world population and hardly spoken among the poorest in the world (Forestier *et al.*, 2002; Wade, 2002; Crystal, 2003). Consequently, such English reading and writing spaces require users with literacy skills in English. Furthermore, ICTs have not only changed existing reading and writing spaces and introduced new ones, but they also support different modalities to represent and store information (Snyder, 2002). For example, modalities such as audio and video can replace the role previously fulfilled by text and thus existing reading and writing spaces.

As reading and writing spaces change, inevitably literacy practices change as well. First of all, ICTs have introduced new 'silicon literacy practices' or technology-mediated literacy practices that need to be understood within their political, economic, cultural and historical context (Snyder, 2002: 5). Communicating through SMS messages is an example of such a silicon literacy practice. Furthermore, some literacy practices are replaced by other communicative practices that do not rely on literacy skills, because of the alternative modalities offered by ICTs, such as a transition from textual to graphical user interfaces (Dourish, 2001b). Most of the growing interest in ICTs in relation to literacy is focused on the potential of ICTs for literacy education, rather than on their impact on literacy practices (see for example Wagner and Kozma, 2005; Wachholz and Meleisea, 2006). Therefore, little is currently known about how ICTs are actually impacting literacy practices in developing countries, particularly in the daily lives of low-literate people, a gap my research is seeking to address.

Apart from literacy skills in English and other orthographies, the new reading and writing spaces and silicon literacy practices brought about by ICTs can require other additional competencies on top of the more basic skills of reading and writing (Wagner and Kozma, 2005). These include the ability to comprehend and critically analyse all that is read, viewed and listened to; to access, manage, analyse and interpret such information to solve everyday problems; or to understand how different

modalities are combined in complex ways to create meaning (Snyder, 2002; Withrow, 2004). Wagner and Kozma (2005) have usefully subdivided these competencies into the skills that are necessary to manage a technology and the skills required for managing information, such as organising, searching and producing digital information. Consequently, different scholars have advocated extending the understanding of literacy beyond the traditional concept of functional reading and writing, to include these additional competencies (see for example Snyder, 2002; Withrow, 2004). This has led to the emergence of a broad range of electronic literacies, such as digital literacy (OECD, 2000), information literacy (Withrow, 2004), e-literacy and computer literacy (McMillan, 1996). However, as explained in Section 2.2.1, rather than making the term literacy into a repository for all kind of competencies, my research maintains a more restricted definition of literacy as just reading and writing skills, whilst at the same time taking the additional skills that build on these more basic skills into account separately.

2.3 The Social Construction of ICTs

Social constructionist perspectives to the development of ICTs emerged as a widespread critique of technological determinism (see for example Bijker *et al.*, 1987; Feenberg, 1991; Bijker and Law, 1992; Mackay and Gillespie, 1992; Castells, 1996; Kling, 2000; Dourish, 2001b; Oudshoorn and Pinch, 2003a; Suchman, 2007). Technological determinism assumes that technological development transforms society through a linear, autonomous, inevitable and one-dimensional process that is independent of the social context (Pinch and Bijker, 1984; Oudshoorn and Pinch, 2003b). Contrastingly, according to social constructionist perspectives, technological development is a social process in which humans shape ICTs and at the same time humans are shaped by technology (Bijker and Law, 1992; Law and Bijker, 1992; Warschauer, 2003; Löwgren and Stolterman, 2004). In other words, in accordance with the dialectical interaction between society and technology proposed by Castells (1996), the shaping of a technology is also the shaping of a society. This section discusses the process of technology development building on the latter perspective. The first subsection addresses the stages in the process of technology development moving from design to use. Subsequently, the next two subsections take a closer look into two aspects that are of particular importance to my research: the role of context and the role of users and their needs (Luckin *et al.*, 2006). Finally the last subsection discusses how this perspective applies to developing countries.

2.3.1 From Design to Use

Technological determinist approaches to technology development stress the agency of designers over the agency of users and other actors, with the only option for users being to adopt or reject the designer's intended use and meaning (Oudshoorn and Pinch, 2003b). A major criticism of this perspective is that it overlooks the full dynamics of technological innovation, in which users are actively involved in the design of technologies and invent completely new uses and meanings of ICTs or even adjust the design according to their own needs (Silverstone and Haddon, 1998; Dourish, 2001a; Oudshoorn and Pinch, 2003b). In contrast, the social constructionist perspective emphasises that the design process of ICTs is not restricted to the designer's point of view, but also includes the user's point of view (Akrich, 1992; Bijker and Law, 1992). According to this view technology design and use are two sides of the same coin and thus co-constructed (Bannon, 1992; Oudshoorn and Pinch, 2003b). First a technology is shaped by different influences during the design and then eventually reshaped in use, with users acting as (co-)designers (Bannon, 1992; Bijker and Law, 1992). Thus users act as (co-)designers throughout the process, although the boundary between user and designer is fluid, negotiated and constructed (Mackay *et al.*, 2000).

A major criticism of the social constructionist perspective is that it predominantly focuses on the design stage of technologies, on understanding how they are shaped, disregarding the wider social consequences once they have been designed and developed (Kling, 1991; Mackay and Gillespie, 1992; Winner, 1993; Kline and Pinch, 1996). One of the reasons for this lack of attention to social consequences is the notion of stabilisation according to which an ICT eventually stabilises and a predominant meaning and use emerges (Bijker *et al.*, 1987; Bijker and Law, 1992), which completely overlooks how users can still actively shape the use of stable technologies (Mackay and Gillespie, 1992; Oudshoorn and Pinch, 2003b). Thus, although the social constructionist approach opposes technological determinism, they share an exclusive focus on the development of technology, leaving aside what their effects are once they have been produced (Mackay and Gillespie, 1992). Consequently, there is a need for more research on how users interact with ICTs and reshape them in long-term use to inform designers about the consequences of their designs and in that way inform future designs (Kling, 1991; Winner, 1993). My research builds on this criticism and is meant to complement the social constructionist approach by focusing on the consequences of ICTs when they are

used, to show the connection between technological choices and how social life is affected as a consequence.

Adopting a constructionist perspective leads to three non-linear stages of ICT development that never really come to an end, and in each of which users play an active part: the physical design of an ICT, potentially the design of ICT content and the actual use. The physical design of ICTs is tackled in Interaction Design, which is defined as 'designing interactive products to support people in their everyday and working lives' (Preece *et al.*, 2002: v). Interaction design is usually an iterative process of requirements gathering, developing alternative designs, prototyping, implementation and testing, but it is beyond the scope of my research to cover this process in full depth (for more detailed accounts of Interaction Design see Preece *et al.*, 2002; Löwgren and Stolterman, 2004; Benyon *et al.*, 2005). An important aspect of the requirements gathering stage is the identification of user needs, such as who will be using the product, where it will be used and the kind of activities people are undertaking when interacting with the product (Preece *et al.*, 2002). A key problem with this approach, though, is that the identification is still usually undertaken by the team involved in the design, and it is extremely difficult to create appropriate circumstances through which users actually identify their own needs for designers. The next section further elaborates on the understanding of users and their needs as well as their role in the design phase.

Every design is only a single point in a large range of technical possibilities. During the design phase designers anticipate the interests, skills, motives and behaviours of potential future users and materialise these into the design choices for new ICTs (Akrich, 1992). As a result of these design choices, ICTs incorporate assumptions about how they will be used and their 'preferred readings' or built-in-uses may constrain how they are used (Mackay *et al.*, 2000; Robertson, 2006). According to technological deterministic approaches, such as the use of semiotics (de Souza, 2005), ICTs are only successful if designers and their choices have control over the future actions of users, suggesting that the only choice users have is to adopt or reject the use and meaning that were foreseen by the designer (Oudshoorn and Pinch, 2003b). In reality however, designers and their choices do not have absolute control over how an ICT is eventually used, which can turn out to be far from what the designer had imagined (Dourish, 2001a).

ICTs should never be an end in themselves, but are nearly always directed towards a goal (Withrow, 2004). This goal is often related to information or in other words content, as the 'I' in the term ICT alludes to. Most ICTs require the availability of relevant content before they become of real use to users. For example, radio and television have limited use if there are no radio programs to listen to or television programs to watch. Therefore, there is an important role for the design and creation of content in the process of ICT development, although in practice the emphasis is often on technology rather than content (Tacchi, 2007). To be relevant, content should be designed in such a way that it meets the needs of its users from different cultures and languages, and with different abilities (Downing, 1999; Withrow, 2004). Even if an ICT itself has been designed to be of general purpose, it can be customised to a specific context of use by relevant local content (Mackay *et al.*, 2000).

The design choices in the creation of content are primarily of representational nature. First of all, it is helpful if content is in the language of intended users and reflects their cultural practices and values (Downing, 1999; Withrow, 2004). Furthermore, the mode of representation should match the skills of the intended users to decipher it. Compared to print media, ICTs have opened up a whole new range of modalities for information representation, such as oral, visual, audiovisual or a combination of these (Snyder, 2002). Sometimes there is not much of a choice when an ICT only supports one particular modality. However, ICTs are increasingly becoming multimodal, allowing content to be simultaneously represented in different modalities (Kress, 2003). At the same time, ICTs are becoming more and more interactive, creating opportunities for content to be developed by users themselves (Tacchi, 2007). For example, the interaction with television is often limited to switching it on/off and rare use of a remote, whereas the interaction with a computer and its mouse and keyboard is much more interactive (Chand, 2002). In other words, from a one-directional flow of information with users at the receiving end, which is for example typical for radio and television, ICTs have increasingly come to support a bi-directional flow of information, allowing users actively to create information rather than just passively receive it through an ICT (Rasmussen, 1997; Kress, 2003).

Once an ICT has been designed, it is up to its users to shape its actual use. This is not just about the interaction with an ICT, but also about how users actively reshape them according to their needs (Mackay and Gillespie, 1992; Silverstone and Haddon, 1998). There are many possible uses for an ICT, without a 'correct' use, as it can

serve different functions for different users in different contexts (Oudshoorn and Pinch, 2003b). ICTs are always embedded in a particular context of use, which gives meaning to their uses (Roberts, 2000; Dourish, 2001b, 2001a; Oudshoorn and Pinch, 2003b). Thus, the particular use that a user chooses from the many possible uses in a given context, defines its role and meaning for that particular user in that specific context (Tuman, 1992a). For example, not only could another user make a different choice in the same context of use, but the same user could also make a different choice in another context of use. In the next two sections the role of users and context in the actual use of an ICT are explored in further detail.

2.3.2 Understanding Users and their Needs

Understanding users and their needs is a well known stage of the interaction design process (Bannon, 1992; Bergman and Johnson, 1995; Preece *et al.*, 2002) and it is also of great importance when exploring the social consequences of ICT use. However, although the term 'user' is commonplace in the design literature (see for example Preece *et al.*, 2002; Löwgren and Stolterman, 2004; Benyon *et al.*, 2005), its meaning is seldom critically assessed (for exceptions see Silverstone and Haddon, 1998; Mackay *et al.*, 2000; Oudshoorn and Pinch, 2003a; Suchman, 2007). As Mackay *et al.* (2000) explicated, 'users' is a complicated term that is used by different actors in different settings with varying meanings. Therefore, it does not refer to a monolithic group, but to one that is complex and fragmented in nature. As Suchman (2007: 188) pointed out, 'the user singularises what is actually a multiplicity and fails to differentiate actors with very different relations to a given artefact'. My research critically assesses what it means to 'use' a technology and adopts a broad conception of the term 'users', as human beings to whom an ICT fulfils a meaningful role, regardless of whether they actually interact with it.

Understanding the role of users in technological development requires going beyond essentialist views of user identities and thus taking into account the multiplicity and diversity of users, both during the design as well as the actual use of ICTs (Oudshoorn and Pinch, 2003b). Over time users have gradually come to play a more important role in the design process. Historically, the design of ICTs did not always have a good record of considering the actual users, but over time awareness about the importance of obtaining an understanding about 'users' has grown (Bannon, 1992; Benyon *et al.*, 2005). The design process has become more user-centred, meaning that designers put people rather than technology at the centre of the design process (Benyon *et al.*, 2005; Robertson, 2006). However, although users have

been given a larger role in the design process, it is often still a very passive role. User-centred approaches tend to treat users as passive human factors that can be studied in isolation in a laboratory and merely provide information to the designers, for example regarding the evaluation of an existing system (Bannon, 1992; Mackay *et al.*, 2000). For this reason, different scholars have pleaded for a move from 'user-centred' to 'user-involved' design, meaning that the user becomes an active human actor in all the stages of the design process, rather than just a human factor (see for example Bannon, 1992; Mackay *et al.*, 2000). According to Bannon (1992), 'user-involved' design promotes democratization and ensures the resulting computer system meets the needs of the users.

Users do not only play an important role during the design phase, but also afterwards during 'appropriation' or 'domestication' (Mackay and Gillespie, 1992; Silverstone and Haddon, 1998; Laegran, 2003; Oudshoorn and Pinch, 2003b). Appropriation is not just about how users interact with ICTs, but also about how they actively (re)shape them according to their needs (Mackay and Gillespie, 1992). For example, users can innovate new functionalities for already existing technologies, a phenomenon that Feenberg (1999) termed 'creative appropriation' and Löwgren and Stolterman (2004) 'continuing-design-in-use'. Therefore, also during the actual use of ICTs there is a great deal to be learned about users and their needs that can inform future design. The Sony Walkman, for example, was originally designed with two headphone sockets, so that two people could listen to it concurrently. However, in practice it became used more individualistically than originally anticipated and hence the design was eventually altered to only one headphone socket (Urry, 2000). In particular, the following three aspects of appropriation have received special attention in my research: unintended uses and consequences, functional versus symbolic use and resistance and non-use.

First of all, each ICT allows a range of possible uses, some in accordance with the intentions of the designers, others unanticipated (Bijker and Law, 1992; Mackay and Gillespie, 1992; Dourish, 2001a). The typical evaluation of ICT designs predominantly focuses on evaluating the intended uses and pays limited attention to the possible unintended uses. However, the appropriation manifested in unintended uses can actually reveal a great deal about the role and meaning users assigned to an ICT and how they adopted it to their needs (Bijker *et al.*, 1987; Bijker and Law, 1992; Tuman, 1992a). As Dourish (2004: 28) has recognised: 'part of what people

are doing when they adopt and adapt technologies, is creating and communicating new meanings through those technologies as their practices evolve’.

Users are often characterised exclusively by their functional and instrumental relations to ICTs, as a mechanical input-output relation between a person and an ICT (Nardi, 1996; Suchman, 2007). However, besides their instrumental functionality, ICTs also serve symbolic roles that are as important (Mackay and Gillespie, 1992; Silverstone and Haddon, 1998; Moggridge, 2007). Nevertheless, the distinction between functional and symbolic roles is not always unambiguous: a fast car represents both a symbolic as well as a functional role: the speed and the image (Mackay and Gillespie, 1992). The work of Spitulnik (2000) in Zambia offers different examples of symbolic roles played by a radio. For example, owning a radio brought people status that could even be passed on to others. Furthermore, radios served reciprocal relationships and circulated among people like other material possessions, such as sunglasses and cooking utensils. In a similar manner, de Angeli *et al.* (2004) found in India that the ATM was a symbol for rich and educated people, rather than a commodity for everybody. These examples illustrate how besides their instrumental functionality, ICTs have a meaningful presence in people’s lives (Hallnäs Redström, 2002). This was the reason why Hallnäs Redström (2002) has argued for a shift in focus from design for efficient use to design for meaningful presence. My research acknowledges this idea of meaningful presence, by taking both the functional as well as the symbolic relations people had with ICTs into account.

A third aspect of the actual (functional) use of ICTs that often remains invisible and unexplored is resistance and non-use (for exceptions see Kline, 2003; Selwyn, 2003; Wyatt, 2003). One of the underlying reasons for this lack of attention is a deterministic worldview that considers the use of ICTs as a norm that is inherently beneficial and consequently non-use is seen as a deficiency and involuntary act or as a need to be fulfilled (Selwyn, 2003; Wyatt, 2003). This, however, overlooks the possibility that people can voluntarily choose to not use or resist ICTs and that these non-users are also important actors in shaping technological development (Kline and Pinch, 1996; Gunkel, 2003; Oudshoorn and Pinch, 2003b; Wyatt, 2003; Feenberg, 2005). Different scholars therefore warn against the pitfalls of the rhetoric of technical progress in which adoption of new ICTs is the norm and call for more focus on the contested nature of technology (Gunkel, 2003; Selwyn, 2003; Wyatt, 2003).

To challenge the deterministic view, Wyatt (2003: 76) introduced a taxonomy of four different types of non-users that includes voluntary and involuntary aspects: *'resisters'* as people who never used an ICT, because they do not want to, *'rejectors'* as people who for different reasons have chosen to no longer use an ICT, the *'excluded'* as people who have never used an ICT, because they cannot get access, and finally the *'expelled'* as people who have stopped using an ICT involuntarily, for example because of cost or loss of access. Furthermore, she has argued against the notion of use and non-use as another dichotomy, but rather to conceptualise use as a continuum with different gradations that is subject to constant change. There are different possible reasons why people choose not to use an ICT, for example because the ICT is perceived to be unnecessary or not worth investing time in when there is a familiar alternative available that has already proven its worth (Gobbin, 1998; Wyatt, 2003). Non-use often occurs in situations in which intended uses and meanings attached to the ICT during the design do not correspond with the gender relations, cultural values and identities of a specific user group (Kline, 2003; Oudshoorn and Pinch, 2003b). De Angeli (2004) for example found in India that non-users perceived ATM's as an alien technology which did not fit into their lifestyle. Similarly, Roman and Colle (2003) have argued that non-use of telecentres by the targeted local population is often due to a lack of understandable and relevant content. These examples underline the importance of paying attention to non-use and how this provides insights about a current design in relation to users and their needs.

The word 'need' is another term that is commonplace in the design literature without its meaning being sufficiently addressed (see for example Rex Hartson, 1998; Preece *et al.*, 2002; Löwgren and Stolterman, 2004; Benyon *et al.*, 2005). According to Sibiya and van Rooyen (2005), a need can be understood as a gap between what ought to be and what is. This distinction is fundamental to the concept of the 'digital divide'. The digital divide is often characterised as the gap between 'haves' and 'have-nots' in terms of ICT, whereby the latter are defined by what they lack in comparison to the former (Attewell, 2001; Gunkel, 2003). In other words, 'have-nots' are presumed to have a need to become or ought to be like 'haves'. However, as Gunkel (2003) has argued, this distinction presumes ICT as normative and desirable and consequently those without access or capabilities as deficient and lacking. Furthermore, he warned that this dichotomous distinction oversimplifies the situation and neglects the importance of existing variations, which is why he pleaded for an alternative formulation that allows gradations.

Needs are by no means static, but shift as circumstances alter or new opportunities arise (DFID, 2002; Sibiyi and Van Rooyen, 2005). Therefore, 'a needs assessment should not be a 'one-shot' strategy, but a first step in an ongoing learning process' (Roman and Colle, 2003: 93). Furthermore, since the perception of what ought to be, compared to what is, is very much dependent on the eye of the beholder that is influenced by personal and cultural values, needs assessment can be a difficult and ambiguous task. In this context, Sibiyi and van Rooyen (2005) made a useful distinction between 'felt' and 'ascribed' needs, emphasising the different perspectives on needs. A 'felt' need is a need perceived by the person or persons experiencing it, whereas an 'ascribed' need is a need perceived by outside observation, for example by designers or policy-makers. The latter can be subject to manipulation to serve wider political agendas rather than those who they are being ascribed to (Mosse, 2001). In identifying user needs as part of a design process, the needs felt by future users should ideally be concurrent or otherwise at least convergent with the needs ascribed to them by designers. In reality however, despite claims for user-centred approaches, the felt and ascribed needs often diverge. There is a parallel here with a distinction made in development studies between development 'from above' or top-down versus development 'from below' or bottom-up (Stoehr and Taylor, 1981; Chambers, 1994, 1995). The former tends to be driven by ascribed needs, whereas the latter much more takes felt needs as a starting point. One of the dangers of the top-down approaches is that if an ascribed need is imposed on people long enough, they might after a while internalise it as a felt need. My research used a bottom-up approach in which the needs felt by participants served as starting point and hopefully indeed coincide with the needs ascribed to them in this thesis.

2.3.3 The Role of Context in Design and Use

The notion of context has gained increasing attention in research around the interaction between humans and ICTs (Dey, 2001; Dourish, 2001a; Luckin *et al.*, 2007). ICTs are always situated and develop in contexts; they are designed within and for contexts, and are eventually used in contexts (Roberts, 2000; Winograd, 2001). Therefore, context plays an important role both in the design phase as well as during the actual use of an ICT. However, the understanding of what constitutes context is contested and ill-defined (Dey *et al.*, 2001; Greenberg, 2001). This section takes a closer look at the understandings of context, the role it plays in the design phase and the role it has in the actual use of ICTs.

Although the notion of context is widespread across academic literature, there is lack of agreement about its precise meaning and role. Adversative and incompatible understandings particularly exist between different intellectual domains, particularly between positivist and constructionist traditions. Positivist traditions seek objective, independent descriptions of context that abstract from the detail of particular occasions or settings and are often quantitative and mathematical in nature (Dourish, 2004). Contrastingly, constructionist traditions, which are at the heart of my research, are subjective and qualitative in orientation. According to a constructionist notion of context, context is a dynamic construct that changes and evolves over time (Cohen and Siegel, 1991; Greenberg, 2001). Although some contexts are more stable and predictable, others are not. To cite Rasmussen (1997: 64), contexts are 'socially constructed landscapes where individuals interact'. According to his view, places become contexts through the practices that take place in them, just as something becomes a tool through its use. At the same time, these contexts provide meaning to the practices that take place in them (Blumer, 1969). Furthermore, individuals cannot be separated from this socially constructed landscape in which they live and interact, but are rather an inseparable component of the landscape (Cohen and Siegel, 1991; Dourish, 2001b). Individuals actively shape and reshape the landscape through communication and interpretation. As Winograd (2001) has pointed out, context requires a shared interpretation to be effective, because something is not context due to its inherent properties, but rather through how it is interpreted. This means that contexts are constantly produced, renegotiated and defined in the course of interaction and thus subject to continuous interpretation and reinterpretation (Dourish, 2004). As Dourish (2004: 22) has recognised, 'context isn't just 'there', it is something that people do'. Thus, from a constructionist perspective context is a fluid and slippery concept that cannot easily be grasped. For the scope of my research a simplified and therefore more workable notion of context was chosen, originating from Cohen and Siegel (1991) according to whom context considers individuals embedded within social relationships and physical settings, all of which evolve over time.

During the design phase there are two kinds of contexts that play a role: the context that designers themselves are an inseparable part of, and the intended context of use of the future design. The contexts that designers are part of, shape them and their understanding of the world and therefore indirectly influence the design choices that they make; designers are for example configured by their own organizations (Mackay *et al.*, 2000). Furthermore, their design choices will be influenced and

possibly constrained by contextual factors such as state regulations, national political cultures, hegemonic gender relations and costs (Mackay and Gillespie, 1992; Oudshoorn and Pinch, 2003b). During the design process, designers anticipate and make assumptions about the intended context of use and the more familiar this context is to them, the more representative their assumptions and thus their design choices will be.

When ICTs are designed and developed it is not possible to ignore the larger world around the future user and the future system that can constrain or enforce particular design choices. Traditionally, ICTs were designed for confined and well-understood domains of experience, such as users interacting with a computer behind a desk (Winograd, 2001; Dourish, 2004). More recently, however, interest has grown in how ICTs can be better integrated in the contexts in which users live and work. This strand of research is known under different names, such as ubiquitous computing (Yoo and Lyytinen, 2005), context-aware computing (Dey *et al.*, 2001) and embodied interaction (Dourish, 2001b). Although their central ideas are largely similar, a real consensus is lacking (Dourish, 2001a). This shift of focus has brought about a need to reconsider the notion of context.

Most disciplines active in interactive system design, such as computer science, originate from scientific, positivist traditions. Centred around abstractions, their approach is to decontextualise events from the circumstances in which they take place to reveal their abstract essentials (Dourish, 2001a). As a result, context is considered as a representational problem in terms of how it can be encoded and represented. Dourish (2004: 21-22) has distinguished four assumptions underlying this notion of context: 1) it is a form of information that can be known beforehand, 2) it is delineable, 3) it is stable, and 4) context and activity are separable. In other words, there is a notion that systems 'capture', 'represent' or 'model' context (Dourish, 2004). As a consequence, most context-based computing following this tradition is restricted to systems that use some kind of encoded contextual information, for example inferred from sensors, such as spatial location, user identity and proximity of people and devices. However, this understanding is incompatible with the constructionist notion of context and misinterprets the much more complex role of context in human activity (Dourish, 2004).

The understanding of context as a dynamic construct indirectly suggests that it is not possible to construct a correct and stable representation of a context (Greenberg,

2001). Dourish (2004: 22) therefore proposed his opposing perspective to context, for which he redefined the assumptions mentioned above: 1) contextuality is a relational property that holds between objects or activities, 2) the scope of contextual features is defined dynamically, 3) context is an occasioned property, and 4) context arises from the activity. In other words, according to this perspective context arises from and is sustained by an activity itself, and thus without a context there is no action (Dourish, 2001a). It is based on the notion of embodiment, which means that human beings can only act on a system to which they themselves belong (Dourish, 2001b; Feenberg, 2005; Suchman, 2007). As a consequence, this perspective considers context as an interactional problem, rather than a representational problem typical for positivist traditions (Dourish, 2004).

How to tackle this interactional problem successfully and translate it into an ICT design that supports embodied interaction is a question that requires further exploration and future research. Essentially, such ICTs should allow users to negotiate and develop systems of practice and meaning during their interaction with the ICT (Dourish, 2004). Suchman (2007) suggested that rather than abstract depictions of actions, the orderliness of action should be derived 'bottom-up', from local, situated (embodied) activities of actors, in that way placing the real-time, real-space activities before abstractions or theoretical accounts of them. One of the future challenges is therefore to train and inform designers about the elusiveness of context and for them to design ICTs in such a way that they can cope with this changing nature (Greenberg, 2001). This requires coming up with conceptual structures that are broad enough to handle different contexts, sophisticated enough to support essential distinctions and simple enough to serve as a practical base for programming (Winograd, 2001).

Besides the context in which ICTs are designed and the intended context of use they are designed for, the actual use of these ICTs is also situated in a context, which may not necessarily have much resemblance to the intended context of use. The interaction between a user and an ICT always emerges in a context and can therefore not adequately be understood outside this context (Honold, 2000; Dourish, 2001a). Contexts provide meaning to the practices that take place in them, such as people using ICTs to undertake activities (Blumer, 1969; Benyon *et al.*, 2005). In other words, the meaning of an ICT is not inherent in the device itself, but arises from how the ICT is used in the entire fabric of social, political, cultural and economic relations within which it is embedded (Roberts, 2000; Dourish, 2001b, 2004). This

highlights the importance of studying ICTs in their context of use, rather than considering the interaction between the user and the ICT in isolation or in an artificially constructed context of use such as a laboratory setting (Oudshoorn and Pinch, 2003b). At the same time, it is difficult to grasp the full complexity of the web of interdependencies that constitute such fabric.

The main challenge of studying a context of use from a constructionist perspective is the dynamic and fluid nature of context and thus its change over time (Greenberg, 2001). As contexts of use give meaning to ICTs, change of these contexts goes hand in hand with change in the meaning of ICTs. At the same time, the use of ICTs itself changes the context in which it is used (Spitulnik, 2000; Puri *et al.*, 2004). For example, television changed the use and meaning of the living room (Rasmussen, 1997) and communication technologies changed the meaning of geographical distance by making it possible to communicate over long distances without travelling (Rogers, 2003). In other words, the meaning of ICTs and their context of use mutually influence each other and change and evolve over time (Forlizzi, 2007). Therefore, unless studies are consequently repeated over time, they only provide a fixed snapshot that is bound to a moment in time and therefore just a piece of a bigger puzzle.

As Mackay and Gillespie (1992) have pointed out, ICTs lead a double life, one in which they conform to the intentions of designers and interests of power and another which contradicts them, leading to unintended consequences and unanticipated possibilities. These unintended consequences can only be understood within the context in which the ICTs are used (Oudshoorn and Pinch, 2003b). The constant change of context is one of the factors responsible for consequences that were not foreseen during the design phase. Furthermore, when ICTs are introduced in contexts that are very different from the contexts they were originally designed for, unintended consequences and unanticipated uses or non-uses are more likely to occur. This is particularly evident when ICTs developed in the Western world are introduced in the context of developing countries.

2.3.4 Situating ICTs in the Developing World

ICTs are rapidly developing and changing the world in which they are embedded. As drivers of change they have also come to occupy a more prominent place on development agendas. This increasing international effort and attention to the role of ICTs for development is based on the assumptions that ICTs can bring economic and

social development, although evidence to back up this assumption is still scarce (Wade, 2002). Under the umbrella of the term 'Information and Communication Technologies for Development (ICT4D)' different disciplines have meanwhile found shelter as a warrant for studying aspects of ICTs in developing countries (see for example Weigel and Waldburger, 2004; Heeks, 2008; Unwin, 2009). Different scholars have criticised the implicit glorification embedded in this attention for ICT4D, making ICT into something desirable for people to embrace wholeheartedly and thus problematising non-use (Roberts, 2000; Wyatt, 2003). Furthermore, although the '4' in this terms implies the use of ICT as a means to a development end, in practice much work done in this area is exemplary of technological determinism with a focus on ICT as an end in itself (Wade, 2002; Unwin, 2009). This section provides a brief overview of how ICTs are implemented and socially constructed in the context of developing countries. The wider ICT4D literature is further engaged with throughout the analytical chapters in order to place the research findings in a broader context.

Initially, ICTs that were developed and proved successful in the developed world were being replicated in the developing world, in a form of 'technology transfer', with the expectation that one size fits all and therefore similar results would be achieved (Akrich, 1992; Sahay and Avgerou, 2002; Sunden and Wicander, 2006). Implicit in the notion of technology transfer is the expectation that the context of use will adapt to the ICT and thus to the Western values embedded in its design (Sardar, 1999). However, from a social constructionist perspective, which considers technological development as a social process, such a deterministic approach is doomed to failure. The context of use in a developing country can be quite different from the context for which an ICT was originally developed and therefore different contextual constraints will appear and different meanings will be assigned to an ICT, leading to new and unanticipated uses and other unintended consequences (Mackay and Gillespie, 1992). Although blind technology transfer is still common practice, gradually the awareness has grown that local adaptations are often necessary if the ICTs are to be successful. For example, localization of software is meant to adapt cultural elements, such as language and colour, to the specific cultural context of use (del Gado, 1996; Bourges-Waldegg and Scrivener, 1998). However, most attempts at localization still take existing ICTs as a starting point, rather than developing new ICTs completely from scratch for a particular developing world context. The underlying rationale for this approach is mostly economically motivated, as adapting an existing technology is usually cheaper, easier and quicker, than developing a whole new technology from scratch.

One of the major criticisms of many ICT4D initiatives is that they tend to be supply-led and top-down rather than bottom-up and demand-driven, thus neglecting the needs of particularly poor and marginalised people and making them unsustainable once external funding and support run out (Wade, 2002; Unwin, 2009). Consequently, many of these efforts are failing for the same reason products fail in markets everywhere: lack of awareness of what user needs really are, the failure to develop products that meet those needs, and failing to continue relevant product support (Dray, 2005). Moreover, ICTs that are finding their ways to developing countries largely end up with the richer half of the population and do not reach the poor and marginalised, in that way further strengthening the existing inequalities within the countries themselves (Wagner and Kozma, 2005). Therefore, for ICTs to make a difference in the lives of poor and marginalised communities, it is important to start bottom-up from their interests and needs, which is what my research intends to do (Unwin, 2009).

Another criticism of ICT4D initiatives is that they predominantly focus on the challenges of getting technical infrastructure and equipment in place, neglecting the importance of, for example, learning and content (Wagner, 2005; Tacchi, 2007). First of all, the installation of ICT infrastructure alone does not guarantee access or use, but is merely a first step in that direction (UN, 2002). Gerster and Zimmermann (2003) usefully identified three dimensions of access to ICTs: availability, affordability and capability to use them. Whereas availability relates to the physical presence of ICT infrastructures and the opportunity to access these, the other two dimensions are equally important for successful access to ICTs. Furthermore, the predominant focus on providing the 'tools' rather than on developing content for the tools maintains the existing 'content divide' between the over-representation of Western culture and an under-representation of other cultures (Chéneau-Loquay, 2007). Therefore, as Tacchi (2007: 127) has argued, 'there is a need for a shift in thinking away from ICTs as merely infrastructure for the delivery of information, to ICTs as creative tools and communication channels that can be used to create local content and distribute it'. Apart from creating more relevant local content, this would at the same time stimulate a more two-directional flow of information and knowledge between rich and poor countries, instead of the existing one-way flow.

In the same way that international literacy statistics are focused on individual proficiency rather than the 'effective' and therefore more collective literacy, ICT4D statistics are similarly biased towards the individual. Measures such as teledensity

and other ICT indicators define advancement on an individual, rather than a collective level, without taking the social context in which the ICTs are used into account (Forestier *et al.*, 2002; ITU, 2007d). For example, a country in which every community shares one telephone can score low on teledensity, although in practice all inhabitants have (collective) access to a telephone. As James and Versteeg (2007) have pointed out, although mobile phone penetration rates in Africa are very low by the standards of developed countries, the different ways in which the use is shared has increased accessibility even in rural areas. In other words, the impact of mobile phones extends beyond just the number of subscribers, which is furthermore problematic because of people having multiple SIM cards. Therefore, instead of ownership, a better indicator might be the number of people who actually use an ICT, regardless of whether it is theirs or not. However, at present there is little data available that reflects such actual usage (James and Versteeg, 2007). Nevertheless, there is a danger that such an indicator merely introduces a new dichotomy of users versus non-users without any indication about how and to what degree users actually benefit.

As few ICT4D initiatives have proved successful or sustainable and little is known about the effectiveness of the investments in these initiatives, there is a growing interest in monitoring and evaluation, although ongoing monitoring and evaluation as part of practical implementation is still rare (see for example Souter *et al.*, 2005; Wagner *et al.*, 2005). As Unwin (2009: 5) has recognised, without rigorous monitoring and evaluation 'we run the risk of deluding ourselves about the real success of our practices'. However, one of the main challenges is how to best measure the impact of these initiatives. One of the main motivations behind monitoring and evaluation efforts are policy makers seeking to generate measurable progress and successes in order to justify their international initiatives (Vincent, 2003). In their search for measurable progress, they are inclined to follow the figures and indicators generated by positivist and quantitative traditions, which offer comparability. However, from a social constructionist point of view, understanding the social dimensions of technology is crucial in understanding the success and failure of technologies in different contexts, which is best achieved through qualitative research (Bijker *et al.*, 1987). Moreover, quantitative figures often offer a restricted understanding, because they only measure predefined indicators and thus predefined ICT uses, leaving little room for unintended uses of ICTs that might be as or even more successful. Consequently, success is often defined by how well indicators are satisfied, rather than how ICTs are actually used in practice. This

pursuit of success stories is based on an underlying presumption that ICTs are drivers of positive change, in that way obscuring any potential negative impact or misuse (for an exception see Heeks, 2002). Although my research is not explicitly aimed at monitoring and evaluation, by qualitatively exploring both positive as well as negative impacts of actual ICT use, its outcomes provide insight about the success and failure of ICTs in the particular research contexts.

2.4 The Interplay between Literacy and ICTs

Literacy and ICT are 'tools' that have much in common and at the same time are becoming more and more interdependent (Wagner, 2005). This section recapitulates some of the commonalities as well as the interplay between them, serving to provide a conceptual framework for my research. Both literacy as well as ICT related studies are characterised by a multidisciplinary nature, involving different forms of knowledge production and epistemological commitments (Schoenberger, 2001). This sometimes leads to conflicting views, which is most evident from tensions between quantitative, positivist traditions and qualitative, constructionist traditions (Ramadier, 2004). Historically, positivist traditions dominated the view on literacy and ICTs, as evident from the autonomous models of literacy and technological determinism, which consider literacy and ICT as objective, autonomous and inevitable 'tools' that can be studied independent of the context in which they are embedded. As a critique of this perspective, constructionist approaches, such as the ideological model of literacy and the social constructionist perspective to technology development, have gradually gained in popularity (see for example Street, 1984; Bijker *et al.*, 1987). According to these approaches, literacy and ICT use are social practices that cannot be understood outside the social context and relationships they are embedded in and can therefore be different from one context to another. However, although the social constructionist perspective has permeated into academia, practitioners and policy makers often still abide by positivist traditions, which offer comparability through their decontextualised figures.

Both literacy and ICT are seen as solutions that can lead to development, although strong evidence or agreement about how best to achieve success is often lacking (see for example Wagner, 1999a; Street, 2001; Weigel and Waldburger, 2004; Wagner, 2005). This idea has contributed to a glorification of literacy and ICT use that unwittingly accepts universal literacy and technological development as a desirable norm and therefore makes a lack of either into an involuntary deficiency or

abnormality (Collins, 1995; Roberts, 2000; Gunkel, 2003; Oudshoorn and Pinch, 2003b; Wyatt, 2003). Implicit in this glorification is an individualistic notion that strives for individual literacy skills or ICT use as an ultimate goal. However, this completely overlooks the possibility that these practices can also be shared among a group of people or within a community (Basu and Foster, 1998; Mansell and Wehn, 1998; Brewer *et al.*, 2005). Additionally, this deterministic perspective neglects voluntary aspects of the use of literacy skills and ICTs, such as resistance (Robinson-Pant, 1994; Betts, 2003; Gunkel, 2003; Wyatt, 2003). Furthermore, to separate the chaff from the wheat, misleading and stigmatising dichotomies have been created to classify people into two opposing categories, such as literate versus illiterate, written versus spoken (Hillerich, 1976; Collins, 1995), have and have-nots (Attewell, 2001; Gunkel, 2003) and user versus non-user (Oudshoorn and Pinch, 2003b). However, the reality is more complex than such opposing points on a binary scale and therefore different scholars have argued for a continuous scale with specific gradations for both literacy and ICT use (Hillerich, 1976; Gunkel, 2003; Warschauer, 2003).

Another similarity between literacy skills and ICTs is that they are typically used as a means to an end, rather than an end in themselves (Barton and Hamilton, 2000; Withrow, 2004). Their meaning is not inherent in the 'tool' itself, but arises when they are used in practice in a particular context (Dourish, 2001a). People actively (re)shape their use according to their needs and the context provides meaning to these practices, which means that literacy and ICT cannot be understood outside their context of use (Street, 1999b; Honold, 2000). However, as context is constantly subject to change, the meaning of these practices also has a dynamic and fluid nature (Greenberg, 2001). Furthermore, different contextual factors can impose constraints on these practices, for example physical constraints such as geographical dependencies and infrastructure or social constraints, such as cultural perceptions. Additionally, the practices do not necessarily serve a functional meaning, but can at the same time serve symbolic purposes, such as status or reciprocity (Spitulnik, 2000; Papen, 2005). Literacy skills and ICT further derive meaning from the content they are used for, such as reading materials or television programs, which means that the unavailability of relevant content can reduce their use value. In the context of developing countries there is often a lack of relevant local content and at the same time an overrepresentation of Western content, which Chéneau-Loquay (2007) termed the 'content divide' (Roman and Colle, 2003; Wagner and Kozma, 2005).

Critical to the success of both literacy and ICT for development initiatives is that they serve the needs of people; otherwise they run a risk of failure (Ahmed, 1992; Downing, 1999; Wagner and Kozma, 2005; Unwin, 2009). What often happens in practice, however, is that practices that proved to be efficient elsewhere are imported to developing countries (Sahay and Avgerou, 2002). Nonetheless, because 'one size does not fit all', imposing apparently effective tools and expecting to see the same results as elsewhere does not work (Wagner, 1999b; Heeks, 2002). At the same time, many initiatives that do not gratuitously import practices and claim to be taking the needs of people into account through participatory methods, are in practice often top-down and driven by ascribed rather than felt needs (Stoehr and Taylor, 1981; Sibiya and Van Rooyen, 2005). Designers or policy-makers make assumptions about the needs and desires of future learners and users that are not always correct or appropriate, because local meanings and practices may require alternative approaches to those that may appear 'obvious' from outside (Akrich, 1992; Street, 2001; Unwin, 2009). Therefore, in order to better serve the actual needs of people, there is a need for more bottom-up approaches that are based on the felt needs of people expressed through their own voices and view of the world (Chambers, 1995; Unwin, 2009).

Finally, the fundamental transformation of the world by technology does not leave literacy untouched. Besides their commonalities, there is a mutual interplay between literacy and ICTs as graphically represented by the shaded area in Figure 2.1. According to the chosen understanding of literacy practices as 'communicative practices involving textual representations', ICT use becomes a literacy practice when textual representations are involved. ICTs can therefore create new literacy practices when their use involves textual representations, but at the same time they can substitute for other literacy practices as well. Whether the use of an ICT becomes literacy practice is usually a consequence of a design choice to use textual representations, which indirectly imposes a need for literacy skills on its operation. When such ICTs are transferred to contexts where many people lack literacy skills, such as developing countries, this imposes constraints on their use, disadvantaging those without literacy skills. However, at the same time, ICTs can provide new opportunities for people to obtain or improve literacy skills (Brindley, 2000; Wagner and Kozma, 2005). How this interplay between literacy and ICTs is socially constructed in the context of developing countries became the main focus of my research, which eventually led to the aims and objectives discussed in Chapter 1.

2.5 Conclusion

This chapter has presented the conceptual framework underlying this thesis. Most significantly, it has argued in favour of a social constructionist approach to both literacy and ICT practices as social phenomena that are situated and develop in social contexts and are thus best understood within these contexts. By engaging with debates within social constructionist literatures on literacy and technology development and bringing these two bodies of literatures together, it has provided an initial exploration of how these two social constructs are related. Both literacy and ICT are socially constructed and becoming more and more interdependent, but their actual interplay has been insufficiently addressed in previous literatures. They are both claimed as solutions for development, although strong evidence to support such claims is absent. Furthermore, although many assumptions are often made about low-literate people, a good understanding of what their needs really are is lacking. In order to address this lack of understanding, the main aim of this thesis is to understand the social construction and interplay of literacy and ICTs in the context of Ethiopia and Malawi through the eyes of low-literate youth. Such an understanding provides a basis for finding ways in which literacy and ICTs could be used to empower the lives of low-literate youth, whilst working with them in the field and listening to their stories is already a way to empower their lives in itself.

The empirical part of the thesis is organised into three substantive analytical chapters addressing each of the main research objectives. The first analytical chapter begins by examining how literacy and ICT practices were socially constructed and interacted with each other. Subsequently, Chapter 6 focuses on the role of context in this process, by exploring how both the physical and social context shaped and constrained ICT practices. Finally, the third analytical chapter explores the role of users in this process, by examining the needs of low-literate users and most importantly the meanings and uses of ICTs in their lives.

Chapter 3 now concentrates on the research design and illustrates my approach to learning about the role of ICTs in the lives of low-literate youth in Ethiopia and Malawi. It presents the particular methods that were used, the process of sampling and creating a suitable research setting, as well as critically examining some of the challenges of working in an unfamiliar context.

3 Evolutionary Methods: the Research Journey

3.1 Introduction

The metaphor of evolution has come to play a particularly important role in disciplines as diverse as evolutionary computing and economics (see for example Metcalfe, 1998) and applies equally well to the process of doing research. As Eiben and Smith (2003: 1) have noted 'the fundamental metaphor of evolutionary computing relates the power of evolution in nature to a particular style of problem solving – that of trial and error'. However, although evolution is an optimisation process, it does not imply perfection (Fogel *et al.*, 1999). In a similar way, my research has been an evolutionary process in which a deliberate attempt was made to optimise the methods through trial and error at each stage of the process. Doing research and developing a research design was a continuous decision-making process that was far from straightforward or linear, and required flexibility towards unforeseen events and opportunities (Valentine, 2001). As Murray and Overton (2003) have observed, a fine balance between rigidity and flexibility was required. In other words, despite a clear idea of the research aim and methods, I had to be prepared to refine or even let go of plans in the field.

As Baxter and Eyles (1997) have argued, researchers should be explicit about the research process including motivations about for example participant selection, key changes in research direction and analytical procedures. In accordance with this claim, this chapter discusses my research journey and how my methodology and the applied methods evolved over time. The chapter starts with setting out how the main field research methods evolved and the role that visual methods played in them, followed by a discussion about how participants were selected and how a suitable setting for the methods was created. Next, issues related to working with translators and ethical concerns are explored. The subsequent section discusses how I personally evolved over time in my role as researcher and the chapter concludes by discussing how the collected data was analysed.

3.2 Evolution of the Research Design

Valentine (2001: 41) has defined a research design as 'a result of a series of decisions we make that emerge from our knowledge of the academic literature, the research questions we want to ask, our conceptual framework and our knowledge of

advantages and disadvantages of different techniques’. However, as Gray (2004: 23) has pointed out, ‘research designs cannot be pre-specified, but emerge, unroll, cascade or unfold during the research process’. Therefore, although planning ahead was important, it was equally important to ensure flexibility of the research design so that it could be adopted to the circumstances of a particular research setting (Valentine, 2001). This section discusses how my research design evolved throughout the research process and justifies the more important ‘design choices’ that were made on the way.

Directed by the research aims and objectives, my research design focused on developing an understanding of the literacy and ICT practices of participants as well as how these were shaped by the context in which they lived. An important factor influencing the choice of the methods was the limited literacy skills of the participants. Methods using textual representations, such as handing out questionnaires or asking for written consent, were thus not particularly suitable. Furthermore, as Conquerhood (2002) has argued, Western knowledge production privileges the verbal and the written, through scientific analysis, empirical observation and critical reflection. To provide an alternative to this dominant hegemony of ‘textocentrism’, which promotes lettered, literate and text-based ways of knowing, Singhal and Rattine-Flaherty (2006) have suggested that pencil sketches and photos can be important tools to provide rich, descriptive insights into people’s worldviews and realities. Based on this, a triangulation of different qualitative methods was crafted, which allowed my low-literate participants to express themselves both verbally as well as visually to explore the meaning of ICT in their lives (Baxter and Eyles, 1997; Valentine, 1997). The three main methods used in the field research were interviews, focus groups and digital camera interaction, through which I interacted with more than 550 different young people (see Table 3.1). This section discusses the choice for and evolution of these methods in further detail, with a particular emphasis on their visual elements, such as the ICT cards used in the interviews and the drawings made by participants in the focus groups.

	Ethiopia		Malawi		Total
	Nazret	Shakisso	Zomba	Ntaja	
Interviews	72	81	100	101	354
Focus groups	10	8	8	8	34
Digital camera interaction	18	14	18	17	67

Table 3.1: Number of research methods in each research location (Source: Author)

3.2.1 Interviews



Figure 3.1: Research interview in Zomba, Malawi (Source: Author)

Qualitative interviews were the most important method used in this research and generated the bulk of my data (Figure 3.1). Interviews are a form of human interaction in which knowledge evolves through dialogue, with the aim of acquiring qualitative descriptions of participant's lives (Kvale, 1996). As Gray (2004) has pointed out, interviews are a favoured approach when respondents have difficulties with written language, such as my low-literate participants. Another important reason why qualitative in-depth interviews were adopted, was because they can be used in contexts where a researcher considers people as the experts of their own experiences and allows them to speak for themselves about these experiences and the meanings they ascribe to them (see for example Smith, 2001; Valentine, 2001; Darlington and Scott, 2002). Furthermore, an advantage of interviews was that they generated a broad range of information quickly, allowing me to clarify issues and follow up on unanticipated themes (Valentine, 2001; Willis, 2006).

There are different ways to structure an interview, ranging from very structured to completely unstructured, and the choice of interview technique largely depends on the research aims and objectives (Valentine, 1997; Gray, 2004). I chose to use semi-structured interviews, both to create a degree of comparability between the different research locations, but at the same time to give participants a chance to explore issues they felt were important and in that way influence the direction of the discussion (Longhurst, 2003). The interviews were structured around a list of

predetermined questions and themes to be covered, but at the same time there was flexibility to change the questions or the sequence of the questions to follow up on participants' answers (Russell Bernard, 1994; Kvale, 1996).

In accordance with the research objectives, the interview questions were particularly focused on participants' current ICT and literacy practices as well as their future ambitions and ideas about future technologies (see Appendix 1 for the final standardised interview guide). After piloting the initial design of the interview questions with some friends prior to going into the field, they were further attuned and improved during the early stages of the field research. The suggestions made by my translator at the time played a crucial role in this redesign process (see Section 3.5 about working with translators). For example, the initial question 'In what way do these technologies make your life better?' resulted in very little feedback from participants. Once rephrased to 'What do you think the world would look like without these technologies?' this question became the most informative of all. Although there was room for continuous improvement of the questions throughout the field research, the questions were left unchanged after the initial weeks in the field, to ensure that all participants were subjected to as similar an interview experience as possible to ensure a degree of comparability between the two research countries.

The process of selecting interview participants and shaping the research setting before the actual interview took place, are discussed in more detail in Sections 3.3 and 3.4 (see Figure 3.1). Each interview began with a structured introduction after which participants were asked for consent and permission to voice record the conversation (Russell Bernard, 1994). Furthermore, in accordance with the demographic characteristics of literacy and the analytical constructs discussed in Section 2.2, participants were asked for the following personal details: age, gender, mother tongue and other languages spoken, highest class completed, family situation and involvement in income generating activities. The language abilities were meant to get an idea of the language environment and the highest class completed was of particular importance as an indicator of participants' potential literacy skills. Theoretically, the latter could have served to classify participants in terms of literacy, but as discussed in Section 2.2 this was not considered a reliable measure. Furthermore, the information about family situation and involvement in income generating activities served as an idea about the economic circumstances under which participants lived. Although it is more common to ask participants for personal details at the end of an interview, I found that asking them at the beginning of the

interview often helped to put the answers they gave in their particular context. Each interview lasted about one to one and a half hours and they were voice recorded, unless participants objected. However, rather than relying on the recordings, I instead made literal notes of the conversations on the printed interview guides (see Section 3.8 for a detailed discussion about the data analysis).

An important component of the interviews was a set of 26 plasticised ICT cards that I designed. These cards depicted a range of different ICTs and ICT related technologies that were chosen in accordance with Hamelink's (1997: 3) definition of ICTs presented in Chapter 1: 'all those technologies that enable the handling of information and facilitate forms of communication' (see Table 3.2 and Appendix 2). The technologies on the cards were meant to represent a broad variety of technologies, both including 'older' technologies, such as radio and television as well as 'newer' technologies, such as computers and mobile phones and were depicted in a neutral and recognizable way on a white background. Furthermore, also some more recent ICTs, such as I-pods and PDAs were included, just to see how participants would respond to them, even if they were less likely to be familiar with these. For practical reasons the cards were developed prior to the field research, which meant that it was difficult to determine which pictures were going to be the most representative for the way ICTs looked locally. Therefore, an initial card set with two or more different pictures of the same technology was taken into the field and, based on the advice of local people as well as my translator, the most representative set was then selected to be used throughout the rest of the field research. The same card set was used in both Ethiopia and Malawi, again to ensure a degree of comparability between the two research countries. The cards were initially only designed to explore the ICT knowledge of participants by letting them rank the cards according to their preference. However, eventually they became a central point of reference in the other interview questions, because participants were more comfortable talking about the concrete objects on the cards than about the abstract concept of 'technologies'.

To explore participants' ICT knowledge, they were first asked to divide the stock of cards into two, separating the objects they recognised from the ones they did not. Subsequently, starting with the cards they knew, each of the cards was discussed individually in terms of what it was, where they had potentially seen it before, whether they had ever operated it before and whether they had it at home. This exercise also

Telephone	Television	Small radio	Midi set
Scanner	I-pod	Walkman	Mouse
PDA	Cassette/tape	Mobile phone	Fax
CD	Computer	Laptop	Digital video camera
Floppy	Digital camera	Earphones	Portable CD player
Printer	Keyboard	Video camera	Remote Control
Ghetto blaster	Videocassette		

Table 3.2: Technologies depicted on ICT cards (Source: Author)

served to filter out the subset of cards that participants were familiar with. Participants were then asked to rank this subset of cards according to their preference, to provide an understanding of how the different ICTs were valued (see Figure 3.2). However, as the ICTs participants were familiar with varied extensively, ranging from three to almost all 26, each participant got to rank a different subset, which made their rankings difficult to compare. Furthermore, their rankings were motivated by different criteria. For example, some participants put the technologies they already had at home at the end of their ranking, although this did not necessarily mean they did not value them, whereas others were motivated in their ranking by the financial value the ICTs represented. Nevertheless, the rankings still provided insight about overall trends in how ICTs were valued and the motivations participants used for their ranking.



Figure 3.2: Participants' card rankings (Source: Author)

Deciding which of the technologies participants really knew about was not always straightforward and unambiguous. Sometimes participants were not able to name a technology correctly, but from their descriptions it was evident that they were familiar with the technology or mistook it for a similar looking technology. In such cases it

was up to my judgment to decide whether to include them in the subset used for ranking or not. For example, some participants did not recognise the television card, but identified the computer card as a television. As this indicated they were indeed familiar with televisions, the computer card was in such cases included in the subset as if it were a television, without confronting the participants with their failure to recognise the card correctly or excluding television from the ranking at all.

3.2.2 Focus Groups

As a supplement to the data from the in-depth interviews, focus groups were also employed. These guided group discussions were intended to generate additional understanding of participants' experiences and beliefs about their daily activities, literacy skills and ICTs (Morgan, 1998). A particular advantage of focus groups, and therefore the main reason why they were included as part of the multi-method approach, is that they can bring up issues and ideas that would not have emerged without the group interaction (Morgan, 1988; Darlington and Scott, 2002; Tacchi *et al.*, 2003). Furthermore, focus groups help to explore how meaning and experiences are negotiated and contested between participants, which was particularly relevant for understanding how both literacy and ICT practices were socially constructed (Bedford and Burgess, 2001; Valentine, 2001). Another important benefit of focus groups is the extent to which researchers as well as participants learn in the process (Bedford and Burgess, 2001). As one participant remarked (see Section 3.8 for a discussion of the quotation labels):

'In this group discussion we learn from each other. I have my own knowledge about computers and my friends as well, in this group discussion we share our knowledge' (Nazret-20-F).

As with interviews, focus groups can vary from being highly structured to unstructured (Darlington and Scott, 2002). I chose to adopt a semi-structured approach with predetermined questions and themes to be covered, as well as flexibility to deviate from these if necessary (see Appendix 3 for the final focus group guide). In my role as moderator of the group interaction, the challenge was to facilitate the discussion by providing 'stimuli', but at the same time not to dominate or lead the group (Tacchi *et al.*, 2003; Lloyd-Evans, 2006). Each focus group began with a structured introduction after which participants were asked for consent and permission to voice record the conversation. Furthermore, participants were asked for the same personal details as during the interviews (see Section 3.2.1), such as age and mother tongue. Each group consisted of six participants and was a

homogenous as possible by grouping according to gender and age (Conradson, 2005). Sections 3.3 and 3.4 discuss in further detail how participants were selected and how the focus group setting was shaped (see Figure 3.3). Each group discussion lasted for between one and a half and two hours and were voice recorded, unless participants objected (Conradson, 2005). As with the interviews, I made literal notes on the focus group guides, rather than relying on the recordings.



Figure 3.3: Focus group in Ntaja, Malawi (Source: Author)

An important component of the focus groups was the first question in which participants were asked to draw their dream future on a white card to understand more about their aspirations (Singhal and Rattine-Flaherty, 2006). Subsequently, before the drawers revealed the intention behind their drawing, the other group members were asked to interpret the drawings of others, which gave insight into how these drawings were socially constructed (Harper, 1994). This exercise was a good icebreaker with which to start the discussion and although I was worried that particularly older participants might find the exercise tedious, the feedback at the end of the focus groups showed that they actually enjoyed it:

'I particularly liked the drawing; I was stimulated although I can't draw very well. Also how you encouraged us to express our inner feelings was nice. Thank you for it' (FG Nazret-16-M).

Regardless of their literacy skills, all participants were able to express themselves in drawing. Only one participant, who had never been to school and had difficulty to control a pen, struggled with the drawing exercise and did not produce more than a drawing like that of a much younger person (see Figure 3.4).



Focus group participant drawing
(Source: Author)



Resulting drawing
(drawn by Shakisso-?-M)

Figure 3.4: Participant who had difficulty holding a pen

Despite the advantages of focus groups in terms of group interaction, at the same time the group dynamics also had disadvantages. One of the biggest challenges of the focus groups was that as a result of group pressure participants sometimes remained silent about some views or readily agreed with more dominant views in the group (Darlington and Scott, 2002). A particular amusing example of the latter were the interpretations of a participant's drawing by the other focus group members, in which one interpretation triggered a sequence of similar and related interpretations and the drawer eventually agreed with these interpretations (see Figure 3.5). Furthermore, focus groups were less suitable for exploring sensitive topics or talking about personal experiences and feelings (Tacchi *et al.*, 2003). As I observed in my field notes, sensitive topics often led to an expression of embarrassment, mostly laughing, by the other members of the group:

'The girls seem to be ashamed (laugh) when others talk about 'bad' things like chewing khat' (Field notes Nazret, 13/11/06).

Because of these disadvantages, from time to time I questioned the usefulness of employing this methodology:

'Is the focus group a useful methodology for Ethiopia? Due to peer pressure and copying each other it seems that six focus group

participants produce less varied answers than six individual interviews'

(Field notes Shakisso, 11/01/07).

However, the further the field research progressed, the more confident I became with exploring ways to break through these patterns. For example, during one of the last focus groups in Malawi in which the participants were initially very unresponsive to any of the questions, I interrupted the discussion for a short session during which, both I and the participants shook out our bodies while standing in a circle. Even my translator was amazed by the transformation this brought about when the discussion turned into a lively conversation afterwards. Furthermore, I learned more subtly to address sensitive topics and as a consequence one of the last male focus groups in Malawi included a very insightful discussion related to their sexual behaviours.

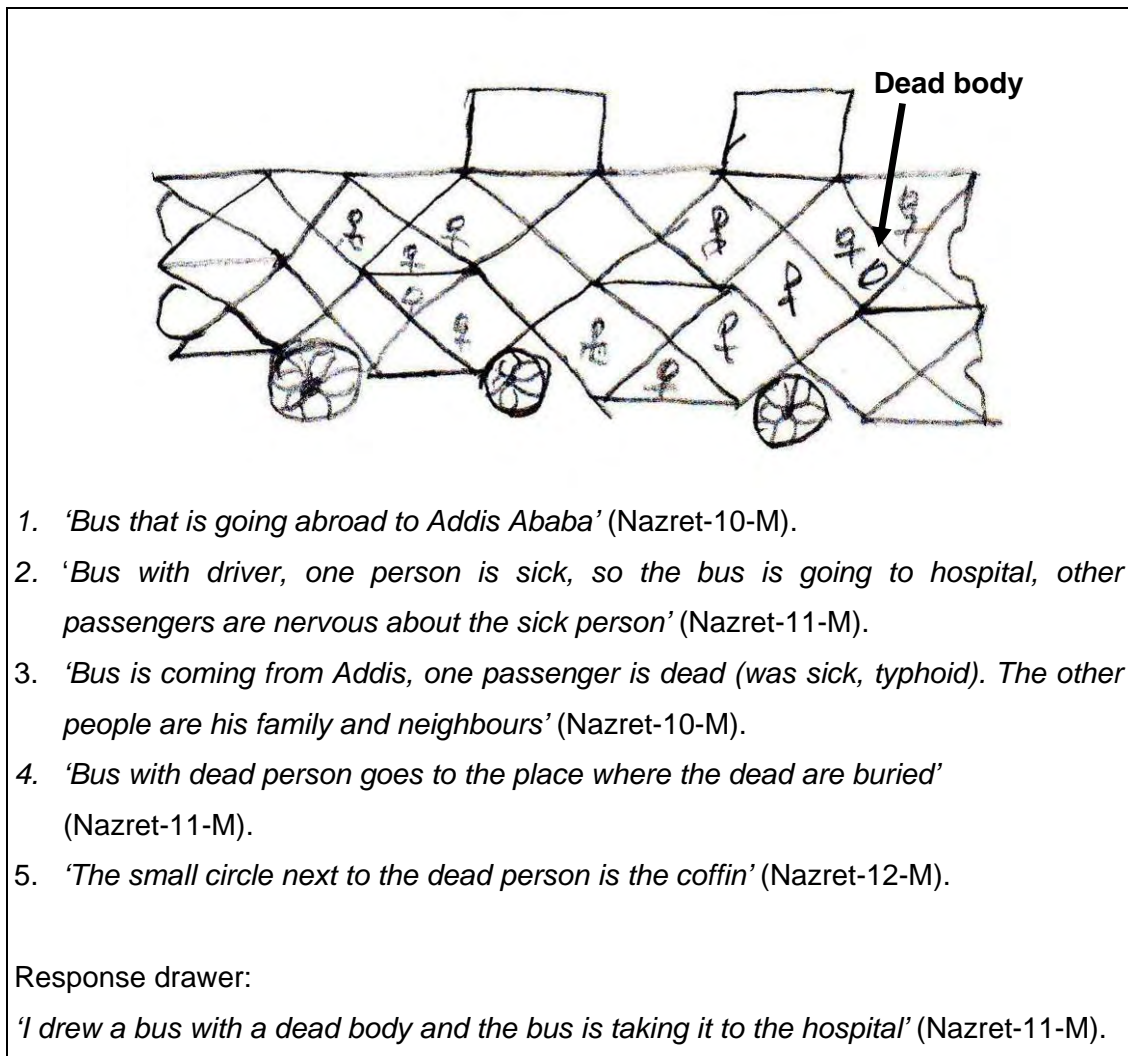


Figure 3.5: Focus group drawing and the interpretations by other participants

(drawn by Nazret-11-M)

Another major challenge was the impact of working with a translator on the dynamics of a focus group (see Section 3.5 about working with translators). Although the use of translators in qualitative research has been widely discussed (see for example Temple and Young, 2004; Bujra, 2006), the impact of working with a translator to conduct focus groups is rarely explicitly addressed. Whereas in interviews the translation became part of the flow of the conversation, in focus groups the language barrier interrupted the flow of the discussion. It was quite a challenge for me and my translator to keep up with the conversation as it unfolded, particularly when different participants were talking at the same time; for my translator to translate as much of what was being said by different participants and at the same time keep track of the discussion and group dynamics and for me to keep track of the discussion via the translation, make notes, observe the group dynamics and at the same time facilitate the discussion by following up on what participants discussed. Consequently, conducting the focus group with a translator became a trade-off between grasping as much of the discussion as possible through the translation, but at the same time not letting the translation interrupt the normal flow of the conversation too much.

3.2.3 Digital Camera Interaction



(Nazret-11-F)



(Ntaja-16-M)

Figure 3.6: Participants interaction with digital camera (Source: Author)

Photographs are socially and technically constructed, both in terms of their making as well as their viewing (Schwartz, 1989; Harper, 1994; Rose, 1996; Clark and Zimmer, 2001; Harper, 2004; McEwan, 2006). A photograph passes through different lenses, first of all the lens of the camera, then the lens of the photographer's eye and finally the lens of the viewer's eye (Kress, 1997). The meaning of a photograph is primarily constructed by the photographer and the viewer, who both hold social positions (Harper, 2004). A photographer creates a frame by choosing what will be included in the picture and what will be outside, in other words deciding one interpretation out of an infinite number of possibilities (Kress, 1997; Harper, 2004; Löwgren and Stolterman, 2004). These choices are influenced by the social and cultural background of the photographer that shaped their way of seeing and understanding the world. The resulting picture therefore only represents one particular way of organising the world (McEwan, 2006). Once the photograph is made, it becomes a receptacle from which individual viewers actively withdraw, rather than passively receive, meaning (Schwartz, 1989). This viewing process is also shaped by a broader social and cultural context and therefore the meaning of a photograph changes in different viewing contexts (Harper, 1994). Viewers interpret photographs differently, particularly if they have divergent cultural backgrounds.

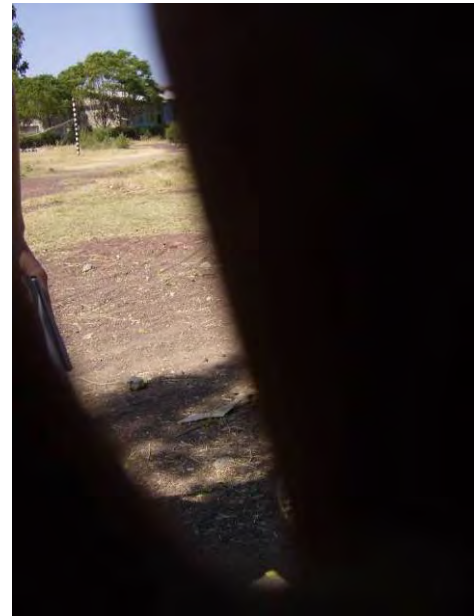
Photography has already been recognised as a useful way to work with low-literate people (Wang and Burris, 1997; Tacchi *et al.*, 2003). For instance, 'participatory photography' is a method in which cameras are put in the hands of people who are encouraged to document and share their reality through photos, sometimes referred to as 'photo voice', 'talking pictures' or 'visual voices' (see for example Wang and Burris, 1997; Clark and Zimmer, 2001; Young, 2001; Darbyshire *et al.*, 2005; Singhal and Rattine-Flaherty, 2006; Benwell, 2007). However, most such research has been undertaken with analogous or disposable cameras, rather than with digital cameras. In my research participants were given opportunities to use a digital camera to explore how they interacted with the technology given their limited reading and writing skills, rather than necessarily with the purpose of sharing their realities through photographs (see Figure 3.6).

The interaction of participants with a digital camera gradually evolved and changed throughout the field research. Initially, participants were given a digital camera to hold without any further explanation. They were simply left to figure out by themselves what to do with it and how to use it, but at the same time they were asked to capture predetermined categories, such as something blue, an object, a

plant and a person. Although this resulted in some interesting observations, such as a girl taking pictures covering the lens that was pointing at her herself with her hand (see Figure 3.7), it was a time consuming process that missed out on participants more freely and usefully interacting with the camera. Moreover, being observed by me and my translator while they were struggling with the camera made some participants observably uncomfortable and might have negatively impacted their self-esteem.



Participant taking picture of boys while covering lens (Source: Author)



Resulting picture (taken by Nazret-10-F)

Figure 3.7: Female participant interacting with digital camera in Nazret

Therefore, based on these initial experiences, subsequent participants received a short explanation about the camera instead. The camera used for the research was a simple point-and-shoot digital camera and participants were only instructed about six main buttons: to switch the camera on/off, capture, record video, zoom and view the pictures on the screen and scroll through them (see Figure 3.8). Furthermore, they were not given any instructions about what categories to capture, but were left free to capture whatever they wanted. Moreover, as my presence as an observer disrupted the behaviour of participants and therefore their interaction with the camera, they were not explicitly observed anymore while capturing images. Therefore, their interaction with the camera was mainly observed at the beginning of the interaction, through the pictures participants made and the discussion about these pictures with them afterwards. One of the benefits of this approach was that

participants came back with pictures of places they might not have visited and pictures they might not have made in my presence (Young, 2001; van Blerk, 2006).



Figure 3.8: Field research digital camera

Although only three participants in Malawi had ever operated a camera before, all of them were able to interact with the digital camera to different degrees, reinforcing the idea that even those with limited literacy skills can successfully interact with this technology. Nevertheless, the video button was only rarely used and primarily by those participants who appeared to be most comfortable with the technology. Sometimes participants mistakenly pressed the video button rather than the capture button and unintentionally recorded a video. These videos provided an unintentional, but valuable medium of observation, particularly because the camera made a beep sound every time a participant tried to make a picture during the recording, which provided insight into how and what they were trying to capture.

Overall, the digital camera interaction resulted in approximately 6000 photographs taken by participants. All their pictures were classified into general categories, such as people (children, adults, male, female), animals and environment (natural, social, inside, outside). Subsequently, they were classified further in accordance with the conceptual categories that emerged during the data analysis. A small selection out of these pictures and the approximately 9000 images that I took myself are displayed throughout my thesis. They were specifically selected to serve as visual evidence to strengthen my written arguments and at the same time their presence in the thesis is an endeavour to counterbalance the dominant hegemony of 'textocentrism'.

3.3 Sampling Low-literate Youth for Participation

The choices that are made in selecting participants, such as who to talk with, where, when, about what, and why, put constraints on the conclusions that can be drawn (Miles and Huberman, 1994). Therefore, this section pays attention to how potential participants for my research were selected for participation. It first explains the eligibility criteria that were used for selecting participants, followed by a discussion of the strategy and methods that were used for sampling participants meeting these criteria and finally weaknesses of the taken approach are discussed.

With a research focus on low-literate youth in the context of Ethiopia and Malawi, the following four main criteria were used for selecting participants: low-literacy proficiency, age (between 10 and 20), gender and geographical area (urban versus rural). Particularly the last two factors strongly correlate with literacy statistics and were therefore important variables used during the data analysis (see Section 2.2). The urban-rural classification used throughout this thesis represented the location where my research took place: urban for Nazret and Zomba and rural for Shakisso and Ntaja. In practice however, when urban participants originated from rural areas or rural participants had exposure to urban areas, their answers were sometimes atypical for the geographical area under which they were 'classified'. The original goal was to interview about 200 youths in each of the two countries with equal distributions among the different selection criteria: half of them in an urban setting and the other half in a rural area, with more or less equal distribution over age and gender. In Malawi this goal was reached with a total of 201 interviews, but due to difficulties with translators and finding participants in Ethiopia only 153 interviews were undertaken. Table 3.3 provides details of the interview sample in terms of age and gender in the different locations.

Assessing participants' literacy skills posed a particular challenge. First of all, due to differing views on the definition and measurement of literacy, there is no straightforward way to classify people in terms of literacy (see Section 2.2). Furthermore, even if there existed an agreed method to test if people were literate or not, the dilemma would have been whether it is morally right to exclude people from participation after they have successfully passed the 'test' and at the same time stigmatise those who were accepted to participate as 'illiterate'. Therefore, an unobtrusive strategy was adopted to ensure that my sample would be representative

Age	Nazret (urban)		Shakisso (rural)		Zomba (urban)		Ntaja (rural)		Total	
	F	M	F	M	F	M	F	M	F	M
10	3	4	6	3	2	4	3	4	14	15
11	4	4	2	7	5	5	4	6	15	22
12	6	1	6	2	5	5	5	5	22	13
13	2	6	3	7	5	4	6	4	16	21
14	4	5	3	4	5	5	4	5	16	19
15	9	1	9	4	3	6	4	6	25	17
16	3	6	5	2	6	3	4	5	18	16
17	2	3	1	7	5	4	5	4	13	18
18	3	3	5	2	6	5	4	5	18	15
19	0	2	0	1	5	1	5	4	10	8
20	1	0	0	0	2	6	5	2	8	8
Other	1	0	0	2	1	2	1	1	3	5
Total	38	35	40	41	50	50	50	51	178	177

Table 3.3: Participant characteristics (Source: Author)

of my target population. Through conscious choices of the places where my research was undertaken and those who were approached to participate, an attempt was made to include as many participants with low literacy skills as possible. According to international statistics, the chosen field research countries have low literacy rates (see Chapter 4), which meant that an arbitrary sample of inhabitants from these countries already contained a high percentage of people with limited reading and writing skills. Furthermore, within these countries my research was done in places where people were more likely to be low-educated and therefore have limited literacy skills, such as street children in Nazret, students from the lowest school grades in Shakisso, youth from disadvantaged neighbourhoods in Zomba and out-of-school youth around Ntaja (see Chapter 4).

The choice of confining my research to youth was motivated by the thought that they are the ICT users of the future. 'Youth' is a complex and fluid concept that is widely debated in the literature and for which no agreed definition exists (see for example Valentine *et al.*, 1998; Valentine, 2003; Langevang, 2008). The United Nations General Assembly in 1985 defined youth as people between the age of 15 and 24, but this definition merely served statistical purposes and did not take into account

how the term youth is socially constructed and therefore varies widely among different countries depending on political, cultural and institutional factors. As Langevang (2008: 2046) has argued, 'young people's lives are situated in a spatial context which is shaping, and being shaped by young people's actions'. For example, young women in Malawi who had children did not consider themselves eligible to participate when I explained that I was looking for young people. This suggested that for them giving birth marked the transition to adulthood, rather than and regardless of their age. However, despite the importance of the existing debates about youth, they are beyond the scope of this thesis, which primarily uses the term 'youth' to indicate young people within the chosen age range.

Although age seemed a straightforward sampling criterion to assess, it was not always well defined or known, nor officially documented in something like a birth certificate. Throughout my field research there were six participants who did not know their age, some who were not sure about their age, and still others who claimed an age that did not seem to reflect their physical appearance. Therefore, some participants in Shakisso were requested to write their age on a piece of paper if their reported age did not seem to reflect their real age, in such a way that their real age was only revealed to me. This uncovered how particularly women gave ages lower than the age they anonymously expressed on paper. As my translator explained, the most important reason for women to hide behind a lower age was to avoid marriage and in that way be able to finish their education, as women were normally expected to get married before a certain desirable age. This was supported by what the following participant explained:

'Even if the parents enrol a girl in school, when they reach puberty age, they will get married' (FG Shakisso-10-F).

As a consequence, age was a slippery concept in the contexts of my field research and therefore the ages of participants were 'reported' ages rather than necessarily their 'real' ages.

Approaches for participant selection fall into two broad categories: probability (random) and non-probability (purposeful) sampling (Baxter and Eyles, 1997; McIntyre, 2005; Neuman, 2006). Probability sampling is most used in quantitative traditions, whereas non-probability is the more common approach in qualitative traditions. In probability sampling each member of a population has the same chance of being selected, whereas non-probability sampling selects participants based on the judgement of the researcher to achieve particular objectives (Henry,

1990). The most frequently used non-probability method is quota sampling (Russell Bernard, 1994; Parfitt, 1997), which was also adopted for this research to select participants according to the eligibility criteria discussed above.

The selection of participants for my focus groups was further helped by snowball sampling (McIntyre, 2005; Ruane, 2005). Once one or two people had agreed to participate, they helped to identify peers of the same gender and age range for participation. Although all participants in a focus group were strictly of the same gender, some flexibility towards the size of, and ages within, the focus groups was employed. None of the focus groups had less than six participants, but when the snowball effect resulted in one or two participants more, or a participant that was out of the age range for that focus group (for example a 14 year old in a focus group of 15-20 year olds), they were welcomed as participants. This flexibility in participant selection involved trade-offs, balances and compromises depending on the circumstances (Miles and Huberman, 1994).

Selecting participants for the digital camera interaction part of my research relied on 'snowballing' from the interviews to this part of the research, meaning that some participants who had participated in an interview were also invited to participate in the camera interaction. The advantage of this approach was that it already gave me an impression of the participant and their familiarity with ICTs beforehand, for example whether they had ever operated a camera before. Moreover, it allowed for the development of some trust between me and the participant before putting something of value like a digital camera in their hands (Darlington and Scott, 2002), as it was difficult for my young participants to understand why they were trusted with cameras in the first place (Young and Barrett, 2001).

In Ethiopia, initial access to participants was gained through gatekeeping organisations that supported my field research (see Chapter 4), which however limited the youth that could be accessed (Miller and Bell, 2002). For example, Forum on Street Children Ethiopia (FSCE) in Nazret provided access to 10-15 year old youths in their non-formal education program and 12-18 year old street girls in their drop-in centre, but they did not work with boys over 15. Therefore, gaining access to the last group required another approach, which was further complicated by the fact that this particular group was often expecting to be paid for their participation. However, none of the participants were paid, but all received a small gift in the form of a postcard and a coloured pen, the latter of which became particularly popular and

often made young people eager to participate (Twyman *et al.*, 1999). My translator in Nazret came up with a 'neighbourhood approach' to enable access to boys over 15. This relied on the help of a man running a water tap point opposite my translator's house (see Figure 3.9), who knew most of the people in the neighbourhood and organised participants coming over to the house of my translator for an interview or focus group. Subsequently, in Malawi I fully adopted a neighbourhood approach to access participants, by going around the neighbourhoods myself and inviting youths to participate.



Figure 3.9: Cows gathered in front of the neighbourhood water point (Source: Author)

As with any approach to selecting participants mine also had its weaknesses. For example, accessing participants via the primary schools in Shakisso meant that out-of-school youth were not included in the sample. As compensation some street boys were invited to participate, but it was difficult to access out-of-school girls, which made the sample not completely representative of low-literate youth. Furthermore, my selection approach in Nazret was biased towards the population that FSCE targeted with their work. For example, 42% of the female participants over 15 were street girls using the FSCE drop-in centre, who were not representative of all girls of that age. Moreover, in Malawi participants were mostly out-of-school youth or absent from school that day for some reason, as a consequence of the neighbourhood approach adopted during daytime. However, in accordance with what Valentine (2001) has argued, the aim in recruiting participants for interviewing was not to choose a representative sample, but rather an illustrative one, in my case low-literate youth.

Further, participants were not actually classified in terms of their literacy skills, because of the unobtrusive approach adopted. Therefore, not much is known about their actual literacy levels, other than judging on the highest grade they completed in school as some international literacy statistics do (see Section 2.2). As a consequence, it is difficult to assess how representative the sample was for low-literate youth and whether the findings were really specific for low-literate youth or whether it applied to youth in general. Ideally, if it would have been possible to classify participants according to their literacy skills, my research would have explored the differences between youth with high literacy skills and those with low literacy skills.

3.4 Shaping the Research Setting

Place plays an important role in shaping the research setting, in other words where an interview or focus group was held made a difference (Christensen, 1993; Valentine, 1997; Darbyshire *et al.*, 2005; Willis, 2006). The setting in which an interview or focus group occurred, including the presence of other people, had an impact on participants and their answers (Devereux and Hoddinott, 1993; Neuman, 2006). Therefore, this section pays attention to how the research setting was shaped throughout the field research, both regarding the place where my research took place as well as the setting within that place.

In choosing the interview location, a private setting was preferable over a public one (Devereux and Hoddinott, 1993; Valentine, 1997). However, due to the different ways in which participants were accessed, in Ethiopia my research mostly took place in public places and in Malawi in private places. In Ethiopia, the research was undertaken in the FSCE compounds in Nazret and school compounds in Shakisso, whereas in Malawi the research mostly took place somewhere around a participant's house. The latter allowed me to talk to participants in their own 'territory', which created a more informal atmosphere and also an opportunity to learn about their environment (Valentine, 1997). Rather than inviting participants to enter my research setting, I invited myself into their setting and created the research setting within that environment, which allowed me to discover and uncover more about the phenomenon of interest (Maykut and Morehouse, 1994).

The school premises in Ethiopia were far from an ideal research setting, because there was a danger that participants perceived my research as an extension of the

classroom with the researcher in the role of teacher and the norms of classroom behaviour applying, such as only speaking when asked a question and only giving correct answers (Holmes, 1998). As commented in my field notes:

'The FSCE compound setting might give children a kind of school feeling and behaviour' (Field notes Nazret, 22/11/06).

However, taking participants outside the compound would have caused other difficulties, such as getting permission for the participant to leave and finding a suitable place outside and near the compound. Therefore, an informal research space was created within the school compounds to compensate for possible classroom behaviour and make participants more interactive and productive (Darbyshire *et al.*, 2005).



Nazret

Shakisso

Figure 3.10: Research settings (Source: Author)

The research setting within the research locations was intended to provide an informal and relaxed atmosphere in which participants could feel comfortable to express themselves freely, particularly with respect to more challenging questions. The interviews and focus groups were normally undertaken outside and out of sight on a big mat, in a quiet, shaded place. Participants lying down during the interview or leaning on each other during a focus group are indications that they indeed felt comfortable (Figure 3.10). Nevertheless, a drawback of sitting on the ground for long periods of time in an unnatural writing position was that it exacerbated my back problems. For this reason, most of the interviews in Shakisso were undertaken on chairs from the schools, which resulted in a more formal and static research setting. A better alternative was the small stool that I used in Malawi to lean and write on from time to time, which helped to relieve my back problems without creating a formal setting (see Figure 3.11). However, this stool affected and became part of my

identity, as it made me known as 'the white woman with the stool' and people enquired what had happened to it if they encountered me without it!



Figure 3.11: Stool in research setting (Source: Author)

Despite attempts to create a research setting where disturbances were minimal (Young and Barrett, 2001), external factors unavoidably influenced or disturbed the research setting. The main disturbances during the field research were caused by external factors, which were either human or natural. In terms of human interference, a first challenge in shaping an informal research setting was caused by the good intentions of people. It happened for example that people brought a chair for me and my translator and assumed that the participant(s) could sit on the ground. They did not regard such an imbalance between adults and young people as problematic. However, despite these good intentions, all interviews and focus groups were undertaken with everyone sitting at the same level.

Furthermore, Valentine (1997) has rightly observed that gatekeepers may guide you only towards particular individuals, such as teachers in Shakisso who offered to select the best students of the school to participate, as if my research was an assignment in which it was important for participants to do well. Perhaps as a consequence, teachers were instructing participants not to fail in the research, in that way reinforcing the classroom behaviour that I tried to avoid:

'Teacher was encouraging girl not to fail when she went with me'
(Field notes Shakisso, 26/12/06).

In addition, their introduction or instruction might have made participants feel forced to participate (Willis, 2006). The following field note for example suggested that the good intentions of people to help my research sometimes had a negative impact on the behaviour of participants and therefore the informal atmosphere of the research setting:

'Boy seems quite shy at the start, perhaps because the drop-in centre leader seems to have ordered the children to participate' (Field notes Zomba, 13/04/07).



Figure 3.12: Curious spectators (Source: Author)

By far the greatest disturbance to the research setting was caused by curious spectators, such as the ones in Figure 3.12. As many scholars have observed, the social setting in which interviews and focus groups take place, including the presence of other people, influences the answers (Devereux and Hoddinott, 1993; Neuman, 2006). For that reason, the research setting was preferably a substantial distance away from other people, to create a sense of privacy for the participants. Unfortunately, this did not prevent people from being attracted to the research setting out of curiosity about what was happening. The disruption ranged from people calling out 'you, you, you, you' to me, to directly distracting or influencing participants:

'Some friends are sitting nearby and are clearly distracting him, so we ask them to go and sit a bit further away' (Field notes Ntaja, 05/06/07).

'While we are undertaking the interview there are several spectators who are discussing that she shouldn't embarrass them and give the right answers' (Field notes Zomba, 24/04/07).

Attempts to send spectators away were rarely successful and the youth kept on trying to find out how far they could go, making it an entertaining game for them. Therefore, the compromise was to let spectators watch from a distance that did not allow them to overhear the conversation, although being watched by their peers was still not ideal in making participants feel at ease in the research setting. Nevertheless, despite such disturbances to the research process, the spectators also contributed to my research in their own ways: by conversations with them, by the food they offered, by posing for pictures and by the fun we had together.

Apart from human interference, the natural environment also caused disturbances to the research setting. Not only humans, but also curious animals sometimes had to be prevented from accessing the research setting, as with the cow in Figure 3.13. Furthermore, heavy rainfall in Shakisso made me realise that undertaking my field research outside the rainy season allowed me to do most of my work in the open air, whereas during the rainy season an indoor research setting would have been required; meaning finding a suitable space and getting permission from the owners to use it. However, a drawback of working outside was that participant rankings of the ICT cards were often blown away by the wind. Furthermore, there were different noises from the environment that interrupted the conversations and therefore the recordings (Willis, 2006), such as a nearby cock crowing loudly, a train passing by and loud music. Additionally, a heavy rain shower that was so loud on the iron sheet roof that a conversation became impossible, made me realise that even indoors it was not safe from the rain.



Figure 3.13: Cow approaching the research setting (Source: Author)

3.5 ‘Lost in Translation’

My research took place in two different countries with a range of different local languages and because it was not possible for me to learn more than a smattering of the most dominant languages in the different research areas, the field research was undertaken with the support of translators. This section discusses the challenges of finding and working with competent translators to facilitate the communication between me as a researcher and the research participants (Temple and Young, 2004). Not only was it difficult to find people with satisfactory language skills, it was even more difficult to at the same time satisfy other desirable characteristics such as age, gender, personality and position within the community.

Ideally a researcher doing field research learns the local language or at least obtains a basic understanding of it, to be able directly communicate directly with research participants and to avoid ‘meaning’ getting lost in translation (Smith, 1996; Strauss and Corbin, 1998; Veeck, 2001). However, practically this is not always feasible, as learning a language is a data collection exercise in its own right and the time and energy invested in obtaining the language skills needs to be weighed against collecting other types of data (Devereux, 1993). Moreover, ‘successful communication is not necessarily a matter of the researcher and informant simply using a common language’ (Gade, 2001: 376), but requires an understanding of everyday uses and structure of communication in addition to knowledge of vocabulary (Devereux, 1993; Temple and Young, 2004). Particularly in the linguistic diverse contexts of my research, with participants reporting competency in 16 different Ethiopian and Malawian languages, it was not feasible for me to learn all the three dominant local languages, which was the main motivation for working with translators instead. I only obtained a very basic understanding of these languages and grasped some key words that were essential for my research, particularly related to ICTs, which even enabled me to correct my translators from time to time.

A first challenge was finding a competent translator, who was available to work for me throughout the period of my field research. The different NGOs that served as gatekeepers (see Chapter 4) helped to identify potential candidates and also advised me on a reasonable payment for translation services. These potential candidates were then invited to participate in a trial interview to evaluate their suitability as a translator. The most important evaluation criterion was their language skills, both in English as well as in the required local language(s). Especially in Ethiopia where

English is not widely mastered and spoken, the choice of potential candidates was therefore limited. Furthermore, whereas a translator proficient in the national language Amharic was sufficient in Nazret, in Shakisso a translator proficient in both the national language Amharic as well as the local language Oromo was required, particularly for communication in rural areas outside the town. Nevertheless, once a young man still had to be excluded from participation, because, apart from his mother tongue Sidamo, he only possessed very limited Amharic skills, which made communication difficult. In this case, I did not go as far as Gade (2001), who once crossed three language barriers in Ethiopia when he had someone interpreting from Afar to Tigrinya, a second from Tigrinya into Amharic and finally a third from Amharic into English.

In Malawi, where English is more widely spoken, finding a good translator was less of a challenge. Furthermore, all Malawian participants preferred to communicate in the national language Chichewa, although my translator spoke the local language (Yao) common around Ntaja as well as another local language (Tumbuka). This indicated that their local language served for communication exclusively within the community and Chichewa for communication with outsiders like me and my translator (Hornberger, 1999). About 5% of Malawian participants were, as much as their skills allowed, even able to communicate with me in English; my own native language is Dutch.

In the daily practice of my field research, I addressed my questions to participants in English, which were then translated into the local language and their answers back into English by my translator. In this way I played a more active role in the conversation than when my translator had asked participants pre-formulated questions from paper and only translated their answers to me, as if he was the one talking to them and briefing me on their answers. An advantage of working with a translator in this way was that I had direct contact with respondents, but at the same time retained some flexibility (to write and think) during the interviews (Devereux and Hoddinott, 1993; Heyer, 1993). During the conversations I was multitasking by asking questions, observing the body language of participants, listening to the communication between translator and participant, writing down the answers, reflecting on the answers and if necessary asking new questions or further explanation (Willis, 2006). During focus groups this multitasking was more challenging, because participants were responding disorderly and therefore it was

often impossible to keep track of the translation, making notes and reflecting on the answers at the same time (see Section 3.2.2).

There is extensive literature on the role of the researcher in field research (see for example Kobayashi, 1994; Robson, 1997), often originating from feminist research and therefore focusing on the role of being female (see for example the issue on 'Women in the Field' in *The Professional Geographer*, 1994, 46 (1)). At the same time, there is insufficient attention for the impact of male gender or translators in the field, exceptions being McKeganey and Bloor's (1991) work on the influence of male gender on field research relations and Twyman *et al.*'s (1999) reflections on the importance of the positionality of translators in the research process. As the presence of translators from the same culture as the participants potentially had a bigger impact on them, than myself as an outsider, there is a need to pay attention to how a translator's characteristics, such as gender, age, personality and their position within the community, have potentially impacted the research outcomes (Devereux and Hoddinott, 1993).

As 'all knowledge is gendered' (McKeganey and Bloor, 1991: 195), not only my own gender, but also that of my translators had an impact on my research participants and therefore the research outcomes. The research was mostly undertaken with the help of male translators, with the exception of 12 interviews and four focus groups in Ethiopia translated by a female translator. The main motivations for working with male translators was that, as English speakers were more likely to be men than women, they were easier to find (Bujra, 2006) and at the same time it created a 'gender balance' with my own female gender. How the male gender of my translators impacted on participants and their behaviour, especially women and young girls (Devereux and Hoddinott, 1993), was particularly evident from the response of one participant, when I encouraged her to feel free to express her ideas:

'I don't feel ashamed of you because you are of the same gender, but I feel more ashamed towards him' [male translator] (Shakisso-15-F).

Furthermore, working with youth in countries where elders were seen as an authority, it was important to take the age of a translator into account, which was why a potential translator in his fifties was politely refused. The three translators that I eventually worked with were all younger than me (28, 28, and 22 years old). Moreover, as the youth participating in my research were in Shakisso accessed via schools, the role of my translator as a teacher in one of the schools in town was also

taken into account. To prevent his role as a teacher from interfering with his role as a translator, his school was excluded from my research.

The impact of the behaviour and personality of a translator on research participants has rarely been explicitly addressed in any literature. Devereux and Hoddinott (1993) set out some desirable characteristics of good research assistants, but primarily in terms of a job description rather than personality. However, in my experience the personality traits of translators were at least as important as their language skills in obtaining information from participants as well as maintaining a healthy relationship during the intensive time of the field research. In trying to create an environment in which participants felt free to express their ideas, the behaviour of a translator was of great importance. As Gade (2001) has noted, participants were in the end often more in tune with the translator than with me, particularly because they shared the same cultural understanding.

The field research started with some bad experiences with translator personalities. My first translator was a male who behaved dominantly and aggressively towards both me and the participants. This might have been due to the psychological problems that he later turned out to have:

'Already quite quickly the translator started to annoy me. His English wasn't that great and even with my limited knowledge of Amharic I could easily notice that he was not translating what I was saying and putting in his own interpretations. Often I got answers that did not really reflect what I had asked and when I then reacted a bit puzzling, he aggressively started shouting to me 'don't you understand, don't you understand'. Overall he was a very dominating guy' (Field diary Nazret, 10/11/06).

A second attempt resulted in a female translator who behaved as a strict school teacher raising correcting fingers towards participants if she thought that they had not given an appropriate answer, probably because she wanted to show me she was doing her job well.

'Especially when a child is not answering a question correctly she is expressing a very penalising "ts, ts, ts" and at the same time raising a disapproving finger' (Field diary Nazret, 17/11/06).

Fortunately, it was third time lucky, and I found a good translator, who other than translating made useful contributions to my research in general. He helped to rephrase questions and became the kind of co-researcher with whom I shared my

research ideas and decision making in a way that Robson (1997) wished for during her field research.

Not only the personality, but also the translator's culture played a role in the way they translated. According to (Lefevere, 1992: 14), 'Translations are not made in a vacuum. Translators function in a given culture at a given time. The way they understand themselves and their culture is one of the factors that may influence the way in which they translate'. Or as Bujra (2006: 175) put it, 'translators are not simple ciphers without political or social views of their own'. As a consequence, the translator's own perception can distort the words of either or both participant and researcher (Gade, 2001). This was particularly the case with my translator in Shakisso, who had a tendency to act as an interpreter rather than a translator of participants' answers. However, he sometimes misinterpreted their answers, particularly those concerning the potential of new technologies. Therefore, the use of the term 'interpreter' (see for example Devereux, 1993; Heyer, 1993) that is used in the literature interchangeably with the term 'translator' (see for example Gade, 2001; Watson, 2004), is somewhat misleading.

Several scholars have argued that meaning and the nuances of language can get lost in translation (see for example Smith, 1996; Strauss and Corbin, 1998). However, this loss of meaning was outweighed by the extra meaning gained through information and insight about participants' answers and behaviours that translators provided. For example, the following invention that one of the participants came up with got a very different meaning when my translator explained that it featured in a famous Ethiopian movie:

'This machine can evaporate the water and make rain again'
(Nazret-19-M).

The information from my translator revealed that instead of coming up with something new as I had originally thought, this participant was reproducing something he already knew. Furthermore, even though finding local people competent in English and the necessary local language(s) was particularly difficult in rural Ethiopia, I only worked with translators who were familiar with the local area and who were therefore able to provide valuable 'insider knowledge' (Robson, 1997: 70). As Gade (2001) has argued, the bonus of working with local translators is that they are fantastic sources of information about the social and cultural context. Moreover, the local translators served as 'gatekeepers' (Neuman, 2006: 387) to the local area. For example, my translator in Shakisso was familiar with the local authorities.

Likewise, my translator in Malawi had previously been working around Ntaja and without his knowledge of the surroundings we would have definitely become lost.

All the issues discussed in this section made working with translators a complex, but at the same time rewarding exercise. They have been absolutely key to the direction and success of my field research (Wilson, 1993). Without their help I would not have gained as much insight, and moreover on my own I would have faced many more difficulties that I would not have known how (culturally) to resolve.

3.6 *Doing the 'Right' Thing in the 'Right' Context*

'Our individual well-being is intimately connected both with that of all others and with the environment within which we live.... Our every action, our every deed, word, and thought, no matter how slight or inconsequential it may seem, has an implication not only for ourselves, but for all others, too' (Dalai Lama, 2001: 41).

As Valentine (2001) has argued, ethics should always be at the heart of any research design, because they underpin what we do and influence what kind of questions we do or do not ask. According to Wilson (1993), researching in an 'ethical manner' is for the reader to learn about the voices and actions of as many people involved. Rather than applying rules it is an ongoing process of trade-offs, negotiation, balances and compromises of competing goods and threatening bads (Miles and Huberman, 1994), as I personally experienced during the field research. This section discusses the ethical perspective that was adopted in my research and subsequently discusses some of the ethical challenges that were faced during the field research. As there is not enough room to cover all of the negotiations, balances and compromises, only a few of the more noteworthy ethical dilemmas and how they were dealt with are discussed: the ethics a researcher is subjected to, autonomy of participants, youth and informed consent and guilty knowledge.

There are many perspectives on research ethics and there are clear tensions between them, both practical and theoretical, which can be utilised to negotiate a way through the demands of research (Edwards and Mauthner, 2002). At the heart of the debate is the question whether there are universal ethical principles to be followed or whether ethical principles depend on the context and the values of specific communities (Dreyfus and Dreyfus, 1990; Rasmussen, 1990; Kvale, 1996;

Morrow and Richards, 1996; Hay, 1998; Edwards and Mauthner, 2002). Different terminologies for these two opposing positions include universalism versus communitarianism (Rasmussen, 1990), and ethical absolutist versus situational relativist (Morrow and Richards, 1996). Different occasions during the field research demonstrated that what was 'right' in one context was not necessarily 'right' in another context, and similarly what was 'wrong' in one context was not necessarily 'wrong' in another context, which supported the contextual position to ethics. As Madge (1997) has rightly observed, what is ethical research for a person from England, might not be ethical to a person from Gambia. Deciding what was the 'right' thing to do in the unfamiliar context of the field research was therefore a challenge.

In the contextual ethical position the personal integrity of the researcher, the interaction with the studied community and the relation to their ethical values are essential, with the researcher internalising moral rules on the way (Kvale, 1996). Adhering to the contextual position, Dreyfus and Dreyfus (1990) depicted a learning process in which the researcher moves through different stages from novice to expert; a learning curve that I personally experienced during my research. Initially, I was anxious about not doing the 'right' thing in the unfamiliar context of the field and therefore being blamed for undertaking unethical research. I was constantly evaluating whether what I did was ethical or not, which initially prevented me from acting naturally for some time. Once I understood more of the local context and ethics, my confidence about how to deal with ethical dilemmas grew.

Our ethical position is influenced by our own moral, social, political and cultural location in the social world (Mauthner *et al.*, 2002), which greatly determined my position upon arrival. It soon turned out that my Western morals did not always comply with the local ethics, for example with respect to gift exchange. As Wilson (1993: 193) has noted, 'Westerners often have difficulty in understanding the local principles of gift exchange, confusing them with Western concepts of generosity'. In Ethiopia I learned that showing my gratitude by means of a gift, was according to the local ethics not appreciated. One person explained this to me as follows:

'A. told me that it is not common in Ethiopia to give many gifts, also not when you are invited for dinner. You are just being invited without the expectation of giving something back' (Field notes Addis Ababa, 02/11/06).

Nevertheless, I tried to find a balance between respecting the local ethics on gift exchange and my own morals of bringing a small gift to express my appreciation.

For example, in rural Malawi local people often served me and my translator lunch unannounced and on advice of my translator I thanked them with a kilo bag of sugar. In Malawi sugar was a relatively expensive and luxury product that most people in the rural areas could not afford to buy and was therefore an expensive commodity.

Widdowfield (2000) has drawn attention to a lack of appreciation for the two-way relationship between researchers and the research process. The attention is mostly focused on the way a researcher affects the research process as opposed to how the researcher is affected by the process itself. In a similar way, literature on ethics mainly focuses on one direction of the research interaction, namely the ethical behaviour from the researcher towards those who are studied. However, research interaction flows in two directions and therefore the researcher is also subject to the ethical behaviour of others. As reported in my field diary at an early stage of my field research:

'In research training we have learned that it is not ethical to become friends with someone just because they have access to data you might need for your research. But what if it works the other way around? If people are only interested in me because I have access to something they are interested in?' (Field diary Nazret, 16/11/06).

On several occasions people behaved very friendly towards me, as it later turned out because they were expecting something in return from me. Moreover, I suspected that some people in Shakisso were obstructing my research, in the hope that I would offer them a financial compensation to stop them doing so. Particularly regarding the permission for my translator to leave his regular teaching job, issues kept on reoccurring during the first four weeks of my stay, often leaving me without a translator. Aware of my ethical position as a researcher, I remained friendly and accepted what was happening all this time, but eventually exploded in anger about the situation. Surprisingly, the issue was then resolved within half an hour, leaving me with contradictory feelings. On the one hand, such an explosion earlier on in the process could have saved me a lot of trouble, but at the same time my angry behaviour felt completely inappropriate. Thus, this complex dilemma of the position of a researcher, who is subject to the unethical behaviour of others and how to respond in such situations, deserves more attention in the literature.

As Cassell (1980) has advocated, it is important for researchers to have respect for human autonomy during field research. A conversation with two fellow Europeans in

Ethiopia made me reconsider my own position towards the autonomy of participants. The two challenged the ethics of my research, particularly exposing participants to something they might not know, such as ICTs. This was a delicate dilemma, because although there was something to say for their point of view, at the same time it violated people's autonomy to decide for themselves. As I reflected in my field diary afterwards:

'Who do we think we are, thinking that we can decide for other people what is best for them or not? Furthermore in terms of ICT, is it fair to deny people exposure to new technologies only because they don't know them or maybe never in their live get access to it? Regardless of the impact, I don't think that exposing them is less ethical than deciding for them they shouldn't know about it' (Field diary Nazret, 04/11/06).

This extract from my field diary is similar to Cassell's (1980: 36) critique about 'investigators who wish to keep their hosts "pure" or "untainted" by the modern world, even when those studied are anxious to obtain the techniques, ideas, and goods of that world'. She emphasised that such an attitude merely takes the values of the researcher rather than the people into account and in that way violating their autonomy.

Undertaking research with youth raised particular ethical challenges (see for example Morrow and Richards, 1996; Thomas and O'Kane, 1998; Young and Barrett, 2001). However, as Morrow and Richards (1996) have remarked, excluding young people from research to avoid these challenges is an ethical position in itself. An important ethical issue during the field research was how to obtain the informed consent of the young participants. Informed consent has extensively been discussed in the literature and refers to the right of people to decide whether they want to participate in research or not, as well as to be fully informed about all aspects of the research that can influence this decision (see for example Wilson, 1993; Miles and Huberman, 1994; Madge, 1997; Darlington and Scott, 2002; Miller and Bell, 2002; Gray, 2004; McIntyre, 2005; Ruane, 2005; Neuman, 2006). When working with young people a common approach towards informed consent is to obtain parental consent or the consent of other adult gatekeepers (Morrow and Richards, 1996; Ruane, 2005). However, given the respect for and obedience to elders and parents in most African cultures (see Section 6.3), it would have been difficult for young people to refuse participation after the consent of their adult gatekeeper had been obtained and in that way question their authority (Valentine, 2001; van Blerk, 2006). Therefore, above all

the consent of the participants themselves was sought and consent of their parents or gatekeepers only if the situation asked for it. Involving the young participants in the decision making process in this way was also meant to give them a sense of control of their own individuality, autonomy and privacy (Morrow and Richards, 1996; Darlington and Scott, 2002).

The existing literature on consent in research with young people mainly focuses on the Western concept of a nuclear family composed of parents and children (see for example Morrow and Richards, 1996; Darlington and Scott, 2002), whereas in Africa family structure is more complex (Siqwana-Ndulo, 1998). Moreover, in the contexts of the field research there were other hierarchical relationships in place that defined who to get consent from. For example, it was not uncommon for female participants from the age of 14 to be married with children and therefore the permission from their husbands was required before they could participate. In other situations permission from the head of the village or the boss of domestic workers was required. How complex the local customs about who to get permission from can be, became evident from one particular occasion in which the permission of the village head was only required because the potential female participant originated from another village and had 'married into' the village.

My major ethical dilemma during the field research was 'guilty knowledge' (Fetterman, 1989; referred to by Miles and Huberman, 1994). 'Guilty knowledge' arises from the issue of intervention and advocacy: what to do as a researcher when you see harmful, illegal, or wrongful behaviour on the part of others during a study (Miles and Huberman, 1994). The dilemma in such situations arises when there is reason not to take action, but at the same time not taking any action causes one to feel equally guilty. My position in such situations became not unnecessarily to disrupt the normal flow of things. In other words, if I was not directly involved in a situation myself, but just observing it from 'a distance', I refrained from taking action that could potentially destabilise the local ethics.

The worst guilty knowledge arose when the police arrested three of the four boys who tried to steal the research camera from a participant on the last but one day of my field research in Ethiopia. As a result of the interference of several bystanders they escaped without the camera and with the help of several witnesses and pictures of all four thieves clearly recognizable on my camera (see Figure 3.14), three of them

were arrested by the police. However, this confronted me with a very real ethical dilemma:

'There the three guys are being what I would call tortured and forced to be jumping around on one leg with one finger in the air and as soon as they make a mistake there is a guy there with a stick to hit them.... When I see this I am starting to feel bad about having these boys arrested.... Even though they tried to steal my camera I don't wish for anyone to be treated like this' (Field diary Shakisso, 26/01/07).

Although my first instinct was to take action and 'free' them, I refrained from interfering with the local ethics towards thieves. However, I was not the only one disgusted by these local practices:

'I hate people who kick thieves after they catch them' (FG Nazret-10-F).



Figure 3.14: Camera thieves (Source: Author)

On one occasion I did act when my ethical consciousness was challenged, because I was directly involved in it myself. During a quarrel with the guard of my compound, about undertaking interviews inside my house with youth from the compound, he started hitting a girl who was about to be interviewed with his stick, because he was upset with me. This was when my emotions took over:

'I put my arm around her shoulder and walked towards the gate of my home. But then the guard came and started hitting the girl with his stick. At that point something broke inside me, because the girl didn't do anything, she was just walking with me. So I grabbed his stick in order to take it away from him, so that he would be unarmed, but he kept on to his stick tightly and we ended up in a kind of struggle'
(Field diary Shakisso, 26/01/07).

As I later learned the guard was an alcoholic. The passage from my field diary illustrates the role that emotions sometimes played in the research process, something that is not often explicitly written about (Widdowfield, 2000). Neither is the relation between emotions and research ethics often discussed. Emotions influence moral judgements and therefore it is important to take them into account while reflecting on research ethics.

3.7 The Evolution of the Researcher's Identity

'The interpretative bricoleur understands that research is an interactive process shaped by his or her personal history, biography, gender, social class, race and ethnicity, and by those of the people in the setting' (Denzin and Lincoln, 2003: 9).

The need to consider the researcher's positionality as an integral part of the research process is widely discussed in the literature (see for example England, 1994; Robson, 1997; Jackson, 2001; Kobayashi, 2001; Ley and Mountz, 2001; Mohammad, 2001). Yet, the focus of most of this literature is on the relationship between the researcher and the researched as an intersubjective process (England, 1994), rather than on positionality throughout the whole research process. Not only does positionality affect the data collection, but also the choices that are made before the data collection as well as the data analysis afterwards. Therefore, this section first reflects on my positionality during the research process as a whole and how as a consequence my identity as a researcher evolved, before discussing my positionality during the field research.

Qualitative research places high value on the reflexivity or self-reflection of the researcher (Pile, 1991; Maxey, 1999; Darlington and Scott, 2002; Gray, 2004). However, as Maxey (1999) has observed, there is a lack of attention to the dilemmas faced in self-reflection, for example how the fluid nature of identity has implications

for the process of reflexivity. Moreover, reflexivity is merely a mirror of itself within the boundaries of its own positionality; in other words the positionality of a researcher defines the boundaries of her self-reflection. Maxey (1999) has further argued that it is problematic for 'reflexive researchers' to assume that they can be fully aware of their self-consciousness and simultaneously explore power relations. However, inviting a neutral outsider to reflect on the research process would create similar dilemmas. Therefore, despite acknowledging its limitations, a reflexive process within these limitations still provides valuable insights about my underlying motivations, which otherwise remain unknown.

As Ley and Mountz (2001) have noted, we are all caught up in a web of contexts such as class, age, gender, ethnicity, nationality, intellectual tradition, as well as our own biography. All of these position a researcher and may inhibit or enable certain research practices (Denzin and Lincoln, 2003). However, both positionality as well as reflexivity are rather fluid and changeable, and therefore researchers go through different transformations, which change their sense of self and identity (Maxey, 1999; Gade, 2001; Watson, 2004). Throughout the various stages of my research, my identity also went through different evolutionary phases of redefining, from time to time making me feel slightly schizophrenic. The three most important phases were: moving to another country, moving to another discipline and finally undertaking and returning from field research.

The first shift began right at the start of my research when moving to another country and culture: from the Netherlands to the United Kingdom. There is little literature that pays explicit attention to the positionality of foreign researchers compared to local researchers and how this indirectly impacts the research process. For me the two most important consequences of this move were the cultural differences in communication, which easily resulted in misunderstandings and not being able to express myself in the native language English with the same sophistication as in my mother tongue Dutch.

A second evolutionary change was initiated by the move to another academic context, from a Computer Science to a Geography department. As Schoenberger (2001: 367) has pointed out, 'disciplines are bound up with epistemological commitments. In order to do the work of the discipline at all, we have to internalise a set of practices and understandings about how valid knowledge is created'. My change of field meant a transformation in epistemological position from a positivist,

quantitative tradition to a more interpretive, qualitative perspective. As disciplinary culture is interlinked with questions of identity, of who we understand ourselves to be in the world and what we do there (Schoenberger, 2001), I ended up in an identity crisis, feeling caught in between my positivist past and my new interpretive identity. Although I learned to internalise the practices and understandings of my new discipline, completely abandoning my old identity did not feel comfortable. At the same time, positioning myself in the middle felt like neither epistemological side would take me seriously. Consequently, I developed multiple disciplinary identities that varied according to the circumstances and that altogether had an impact on my research and the choices made. It was a personal taste of the complexity of interdisciplinarity.

As pointed out by Randall *et al.* (2007), the nature of interdisciplinarity is seldom discussed (for an exception see Schoenberger, 2001) and might be more problematic than normally acknowledged. One of the challenges is caused by what is known as 'occupational psychosis' (Schoenberger, 2001, borrowing from Dewey) or 'disciplinary orthodoxy' (Suchman, 2007), which suggests that any cultural formation produces patterns of perception and blindness in the individual and therefore a tendency to understand everything within the intellectual concerns of one's own disciplinary viewpoint. Yet, as all these disciplinary boundaries are discursively produced, they should be critically assessed (Maxey, 1999). An understandable suggestion to resolve the challenge of interdisciplinarity is by forgetting entrenched disciplinary positions or even completely getting rid of any disciplinary baggage (Crabtree, 2003), which is much easier said than done. Moreover, the diversity resulting from a combination of disciplinary origins and interdisciplinary interests is in fact an added value of interdisciplinarity; the difficulty lies in marrying the two (Randall *et al.*, 2007). As Snyder (2002) has suggested, interdisciplinarity provides different approaches for analysing, evaluating and criticising. Therefore, instead of giving up the disciplinary positions, a better way to exploit the potential of interdisciplinarity is by making room for multiple disciplinary identities and acknowledging the fluidity of these different identities (Maxey, 1999).

The third and most important identity change happened through my field research, which put my understanding of the world upside down. Before the field research my position and view about Africa, a continent I had not visited before, were greatly shaped by Western media and the (academic) literature that I had read. This left me with the impression of Africa as a continent with problems and people in need of

help. However, throughout the field research I experienced that there is more to Africa than just problems and needy people as portrayed in most Western media; that Africa also has a richness in terms of for example its people and culture, which is often forgotten. I was particularly struck by the happiness and friendliness of the people, regardless of their living conditions.

Field research is a process shaped by both the researcher as well as the participants and is directly affected by the researcher's positionality and background (England, 1994). What we choose to observe, what we consider to be data, what we write about and how and therefore the knowledge we construct, are affected by our personal and institutional values and the underlying assumptions obtained through our training (Wilson, 1993; England, 1994; Madge, 1997; Valentine, 1997). This implies that all knowledge is embedded, situated, specific and therefore partial and inevitably biased (Staehele, 1994; Rose, 1997; Mohammad, 2001). Being reflexive of these biases and positionality is sometimes termed 'disciplined subjectivity' or 'bracketing' (Baxter and Eyles, 1997).

The position of a researcher in the field is determined by various factors that Robson (1997) subdivided into 'ascribed' factors and 'manageable' factors, to distinguish between factors that cannot be changed and those that can be influenced by the researcher. The most common ascribed factors are gender, age, marital status, race and ethnicity, in my case being a single white, female researcher in her late twenties in an African context (England, 1994; Robson, 1997; Valentine, 1997; Denzin and Lincoln, 2003). Manageable factors range from dress and hairstyle to following local customs in terms of food and transport. Furthermore, researchers are human beings with feelings, failings and moods that also affect the position in the field as well as the interpretations made (England, 1994; Maykut and Morehouse, 1994).

There is much debate about the 'insider'/'outsider' boundary of research methodology and knowledge production (see for example Merriam *et al.*, 2001; Mohammad, 2001). As argued above in the context of positionality and reflexivity, the insider/outsider status also has a fluid and changeable nature, not making it easy to delineate the boundaries between the two, but rather suggesting multiple insider/outsider positionalities with complex power dynamics (Merriam *et al.*, 2001). Each of these positionalities comprises advantages and disadvantages depending on the particular research context, but altogether they can provide a multiplicity of perspectives that all have their own validity. As Merriam *et al.* (2001: 415) have put

it, 'what an insider 'sees' and 'understands' will be different from, but as valid as, what an outsider understands'. For example, a usability study conducted by Vatrapu and Perez-Quinones (2006) demonstrated how the insider/outsider status of the researcher influenced the answering behaviour of participants: Indian participants made more suggestions to an interviewer of the same (Indian) culture than to a foreign (Anglo-American) interviewer.

In the field I was no doubt perceived as an outsider, most notably because of my different race and ethnicity, which was often a reason for curiosity. Apart from attracting a large audience whilst undertaking the research, the following two quotations illustrate how participants regarded me as an outsider and therefore talking to me as a curiosity:

'I have never talked to a white person before, this is my first time'
(Ntaja-10-M).

'Yes, I have enjoyed it very much, because I wasn't expecting a white lady to ask me questions' (Zomba-12-M).

Logically people tried to explain and 'place' me as an outsider in their midst (Robson, 1997). Most of all people positioned and related to me based on my skin colour and therefore their perception of white people. My behaviour was more likely to be judged on the basis of this perception, than the local norms. In Shakisso for example, where cars were rare and people mostly moved around on foot, by bicycle or *gari* (horse taxi) (see Section 4.2.2), I was nevertheless asked why I was walking around the town and not using a car, suggesting that they had a perception that white people only moved around in cars.



Figure 3.15: Lunch for guests in Ntaja, Malawi (Source: Author)

Another example of my outsider status was that around Ntaja people saw me as a special guest and treated me accordingly. They served me and my translator lunch (see Figure 3.15), which according to him would not have happened if he had been without me. Furthermore, as an outsider I was excepted from the local gender 'norms' (Valentine, 1997). People welcomed me although I wore trousers, whereas local women, such as my female host in Ntaja, were expected to wear a so-called *chitenge*; large, colourful cloths that are used as skirts, blankets and baby carriers. However, even my outsider status in the field was not clearly delineated and had a fluid and complex nature, which is exemplified by the remarks from a man passing me on a bicycle:

'Look she is just like us riding a bicycle' 'Oh no, she is not like us, she is carrying a bottle of water with her' (Field diary Ntaja, 08/05/07).

Moving around on a bicycle (see Figure 3.16), the most conventional means of transport around Ntaja, promoted me to an insider status, which was at the same time contested by the bottle of water on my back carrier that threw me back to my outsider status.



Figure 3.16: Becoming an 'insider' on my bicycle (Source: Author)

3.8 From Data Collection to Data Analysis

While there is a wide range of academic literature on how to collect qualitative data, much less is written about qualitative data analysis (Jackson, 2001) (for exceptions see Bryman and Burgess, 1994; Miles and Huberman, 1994; Wolcott, 1994; Crang, 1997). In a similar vein, scholars are usually explicit about how they collected their research data, but often remain silent about how they actually analysed it (Bryman and Burgess, 1994). In accordance with such recommendations, this section seeks to avoid this pitfall by making explicit the steps that were taken in the data analysis (Baxter and Eyles, 1997; Jackson, 2001; Darlington and Scott, 2002).

Qualitative data analysis is a dynamic process that is an ongoing and continuous part of the entire research, not something to be left until the end of the research, when all the data is collected (Bryman and Burgess, 1994; Darlington and Scott, 2002; Tacchi, 2007). Analysis starts even before data collection and as soon as the first data is collected salient themes start to emerge (Maykut and Morehouse, 1994). Although there are different understandings about what data analysis exactly entails, it is usually about systematically identifying patterns, relationships and concepts in the generally imprecise, diffuse and context-based qualitative data, and then to interpret and organise them into theoretical explanations (Strauss and Corbin, 1998; Darlington and Scott, 2002; Neuman, 2006). A common technique used for this process is coding, which is the process of categorising and sorting data by creating conceptual categories and assigning them to selected data (Bryman and Burgess, 1994; Darlington and Scott, 2002).

Bryman and Burgess (1994) usefully distinguished between analysis in the field and analysis after data collection. According to them, during analysis in the field researchers engage in preliminary analytic strategies, whereas analysis after the field is about identifying and interpreting patterns through a coding system. Also in my research, analysis started as soon as the first data was collected in the field. In the initial stages of the field research the analysis above all served to revise the different research methods and rephrase some of the questions asked and in the later stages it served to focus and elaborate on emerging themes by asking participants for further explanation about them. After returning from the field a more systematic analysis of the data began. The bulk of data consisted of written notes on 354 interviews (complemented by their recordings), written notes on 34 focus groups and

166 drawings from focus group participants, approximately 6000 pictures taken by participants and my personal field notes and diary.

Although it is common practice in qualitative research to fully transcribe interview and focus group recordings to get a full account of what participants said (Gray, 2004), in the practice of my research this was not feasible. As the interviews and focus groups were undertaken in three different languages with the help of translators, it was not possible to do the transcription myself and in that way get immersed in the data. Transcription would have required hiring different translators to both translate as well as transcribe the recordings in the different languages. According to Jackson (2001) transcription typically requires six to seven hours for a one-hour recording and even longer for an inexperienced transcriber. With my data occupying over 400 hours of recording, this would have been a very time-consuming task of 2800 hours or 17.5 months (eight hours a day for 20 days a month) of transcribing and therefore a major investment for which no budget was available. Furthermore, as Kvale (1996: 165) has argued, the resulting transcripts 'are not copies or representations of some original reality, they are interpretative constructions that are useful tools for given purposes. Transcripts are decontextualised conversations; they are abstractions, as topographical maps are abstractions from the original landscape from which they are derived'. Therefore, my literal notes of the translations served as 'transcripts'. This approach forced any lack of clarity to be confirmed with the translator on the spot and the sound recordings served as an aid for verification after the field research. To check the quality of this approach, my translator in Ethiopia translated and transcribed one focus group and it turned out that the differences with my written notes were minimal.

To analyse the interview data in a systematic manner, a database in Microsoft Access was designed that followed the questions of the interview format, with a separate column for each variable and each individual question, while at the same time leaving some room for additional questions (see Appendix 4 for screenshots). Typing all the data into this database was a major time investment, but it offered an opportunity to immerse myself in the data in the transition between field research and further analysis and a chance to get a feel for the data as a whole (Patton, 2002). Furthermore, throughout the typing process preliminary themes and patterns were identified and extracted from the data. Once the database was in place, it was converted into a Microsoft Excel document, which allowed easier manipulation of the data for analysis. For example, it permitted for the data to be sorted according to

fixed variables such as gender, age and location, for descriptive statistics to be derived and selected areas or questions to be searched for specific words or expressions. The focus group data was also digitised, but just typed into plain text, rather than a structured database such as used for the interview data. After all the data had been digitised, the preliminary themes and patterns were in accordance with the research objectives organised into initial conceptual categories and subcategories, such as 'context of use' and 'user needs'. Subsequently, these were then iteratively refined through continuing data analysis and are reflected in the structure of the empirical chapters of this thesis. Furthermore, the photographs that had been taken by participants were, after they had been classified into more general categories (see Section 3.2), also classified in accordance with these conceptual categories. However, in this process of data analysis there was a constant tension in finding the right balance between the research aims and objectives and the predominant issues raised and captured by participants, which were not always in total compliance with each other.

The new ideas and understanding that were obtained through the data analysis served as the basis for writing the empirical chapters. However, analysis did not end here, but continued and was further refined throughout the writing process. An important goal throughout the writing process was adequately to represent the realities of those who participated in my research in such a way that not only the academic community, but also those who constructed those realities in the first place could understand it (Baxter and Eyles, 1997). Therefore, quotations from participants and photographs taken by them serve as alternative perspectives and additional evidence to support the argument and bring the text to life. As Baxter and Eyles (1997) have argued, quotations are important to understand how meanings were expressed in participants' own words, rather than those of the researcher. Nevertheless, the quotations in this thesis were not exactly the own words of participants, but rather the translator's translation of their words into English. Not to distort further what participants originally said in their mother tongue, the translations from the translators have not been edited and therefore the quotations are not always in perfect English. Furthermore, the quotations and photographs made by participants are identified by a label with the characteristics (location-age-gender) and possibly preceded by 'FG' for focus group participants; the label '(FG Shakisso-15-F)' thus means that a quotation originated from a 15 year old female focus group participant in Shakisso. These labels relate to the analytical context of my research,

particularly the demographic variables that served as analytical constructs, and allow the reader to see the diversity of the different groups included in my research.

Given that the urban research contexts in both countries often had more in common in terms of literacy and ICT than the urban and rural research contexts within the same country, the comparison between Ethiopia and Malawi is not treated as a separate topic, but instead pertinent differences resulting from the data analysis are highlighted in the relevant sections. Other supporting evidence in the empirical chapters is provided by the use of descriptive statistics derived from the data. However, because each participant was familiar with a different range of ICTs and most of the questions were open questions, these statistics only provide an indication of trends in the data, rather than exact figures.

3.9 Conclusion

This chapter has justified how the research aims and objectives evolved into a specific design, especially focusing on achieving an understanding of the literacy and ICT practices of participants and how these were shaped by the context in which they lived. It elucidated the rationale, strategy and processes behind the research design and justified the choices that were made during this continuous decision-making process. The chapter demonstrated how the low-literacy proficiency of participants impacted the research design, such as the challenge of sampling low-literate participants when an internationally agreed definition of literacy is lacking, and the strength of visual methods, such as the set of ICT cards used in this research and giving participants opportunities to work with a digital camera. Furthermore, the chapter addressed some of the challenges of working in an unfamiliar research context, such as the fluid nature of my position throughout the research process and in the field, the challenge of working with translators in heterogeneous language environments, and why I adopted a contextual position towards ethics. Finally, by discussing how my data was analysed, this chapter stressed the importance of making the steps taken during data analysis explicit. Before moving to the outcome of this data analysis in the three main analytical chapters, the next chapter first sets the scene of the research by means of a detailed description of the two research countries and the research locations within them, to illustrate how they shaped the literacy and ICT practices taking place within them.

4 The Research Contexts

4.1 Introduction

This chapter introduces the particular contexts of the locations in which my research was undertaken. These play a crucial role in shaping the practices that happen within them and are important in developing an understanding of the interplay between literacy and ICTs (see Chapter 2). Furthermore, they played an equally important role in shaping the research methods discussed in the previous chapter. The research was specifically designed to draw upon understandings from different parts of Africa; not only were two different countries chosen, but in each country both an urban as well as a rural research location were selected, because of the differences between them in literacy levels and access to ICTs.

Sub-Saharan Africa was chosen as the main focus of my research, because of the low ICT penetration (ITU, 2006) and low levels of literacy in this region; the average literacy rate for 2000-2006 was 62% (71% male, 53% female) (UNESCO, 2008). To represent different parts of the continent, two countries with a relative geographical distance between them were chosen, namely Ethiopia in Eastern Africa and Malawi in Southern Africa (see Figure 4.1). Both countries score low in the Human Development Index, 169th and 164th out of 177 respectively (UNDP, 2007) and have low adult literacy rates, 41.5% and 64.1% respectively (UNESCO, 2005; UNDP, 2007). The choice of the research locations within these countries was heavily influenced by the access to and willingness of appropriate gatekeepers. Different members of the ICT4D Collective at Royal Holloway, University of London helped to identify and establish contact with suitable NGOs working with disadvantaged youth. As a result, in Ethiopia collaboration with the Forum on Street Children Ethiopia (FSCE) led me to their office in urban Nazret and collaboration with Action for Health, Education and Development (AHEAD) led me to rural Shakisso. In Malawi collaboration with YouthNet and Counselling (YONECO) led me to their offices in urban Zomba and rural Ntaja (for detailed accounts of each, see relevant sections below).

The remainder of this chapter describes the two research countries and the research locations within them in more detail, focusing especially on ICTs and literacy. First, each country is discussed in general terms, after which the two specific research



Figure 4.1: Research countries in Africa

locations within that country are described. The challenge was to construct an accurate overview based on my own experiences and available secondary information resources, because I often found existing reports and secondary material to be out of date or incorrect. My personal accounts and pictures of each of the four research locations are complemented by a collection of pictures made by the participants themselves, so as to include their perspectives of the locations. Rather than selecting pictures as visual evidence to my descriptions, these pictures are meant to stand on their own and visually tell their own story free from my interpretation or explanation. They were chosen in such a way as to represent a gender balanced perspective of different participants that covered a variety of aspects of their daily lives as well as different places within the different research locations. Nevertheless, they still represent my personal selection out of the approximately 6000 pictures that participants took, including my filtering and perception of the different areas; participants might have made a very different selection.

4.2 Ethiopia

Ethiopia is a landlocked country in the east of Africa (see Figure 4.1) with rich traditions and a long history going back about 3.2 million years when Lucy, the world's oldest and best preserved adult fossil, was living in Ethiopia's Afar region. Unlike other African nations, Ethiopia has never been colonised, apart from a brief Italian occupation from 1935 to 1941 (Appleyard and Orwin, 2008). At the same time, Ethiopia does have a record of periodic droughts and famines as well as conflicts with Eritrea and neighbouring Somalia. The most recent war with the latter officially started during my field research in December 2006 (BBC, 2006b). I personally did not notice much of this conflict, apart from a major power cut in the whole of Nazret while tanks were moving through the city in the direction of Somalia.

With a Gross Domestic Product (GDP) per capita of \$1055 Ethiopia is among the poorest countries in Africa (UNDP, 2007). It has a population of 73 million people of which 45% are under the age of 15 and only 3.2% over 65 years old (Central Statistical Agency, 2007). Those in the target age range (10-20) of my research comprise over 26% of the total population (Central Statistical Agency, 2007). There are more than 80 different ethnic groups, of which Oromo (34.5%) and Amhara (26.9%) are the two biggest (Central Statistical Agency, 2007). The Tigray, who currently hold the reins of government, only comprise 6.1% of the population. This

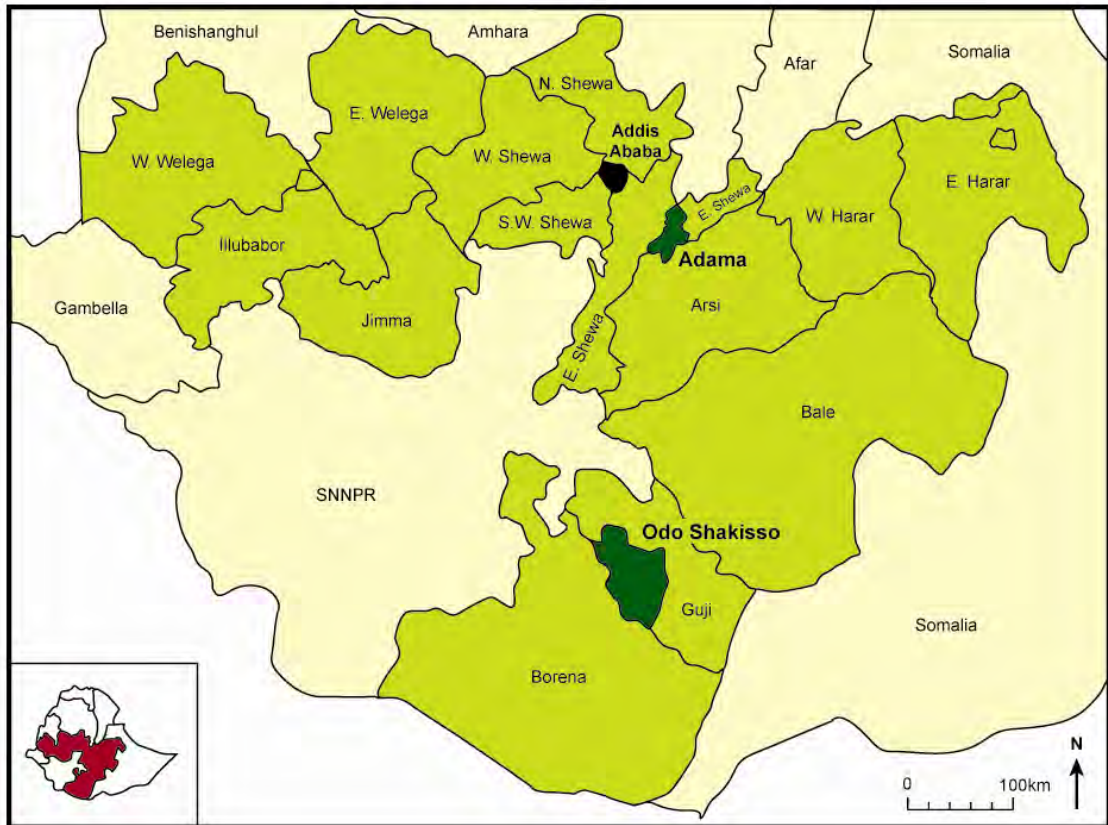


Figure 4.2: Ethiopian coffee ceremony (Source: Author)

ethnic diversity has resulted in a linguistic diversity of approximately 84 living languages throughout the country, with Amharic as the national and most widely spoken language (Gordon, 2005; Appleyard and Orwin, 2008). Christianity (62.8%) and Islam (33.9%) are the major religions practised among the population (Central Statistical Agency, 2007). The majority of the population lives in rural areas (84%) (UNDP, 2007) and as a consequence Ethiopia's economy is heavily dependent on agriculture, with coffee as the major export commodity (see Figure 4.2).

Ethiopia is the world's 27th largest country with an ecological diversity ranging from deserts to tropical forests. Through a layered government system the area is subdivided into nine ethnically-based regional states and two chartered cities that are further subdivided into 68 zones, consisting of 550 different districts called '*woredas*', which are comprised of neighbourhoods called '*kebeles*'. The Oromia region is the biggest and most populous regional state, predominantly inhabited by Oromo people (87.8%) and with Oromo as the most commonly spoken language (Central Statistical Agency, 2008). The two research locations were both located in different zones of this region: Nazret in the Adama district of the East Shewa zone, dominated by Amhara, and Shakisso in the Odo Shakisso district of the Guji zone, dominated by Oromo (see Figure 4.3) (Central Statistical Agency, 1994).

Historically, education in Ethiopia was in the hands of the church, particularly the Ethiopian Orthodox Church (Afework Tekleyesus, 2004). The move towards secular education only started at the beginning of the 19th century, but for a long time the population did not reap the fruits of these efforts; by 1974 less than 10% of the population was literate. Furthermore, out of a desire for centralisation and national language integration, from 1963 Amharic was imposed as the language of instruction throughout the country. In non-Amharic speaking regions this led to difficulties with the availability of qualified teachers (Clapham, 1984). It was only when the new political structure of ethnic federalism came into place that through the New Education and Training Policy (NETP) proclaimed in 1994, regions obtained the right to use their own language for instruction in primary education, which in practice is usually the principal language of the region (Afework Tekleyesus, 2004; Appleyard and Orwin, 2008). Nevertheless, Amharic has remained the working language of the government and is still the principal language of instruction in many primary schools, whereas the language of instruction in secondary education and universities is



**Figure 4.3: Research areas in Oromia region
(redrawn from map no: 001/DPPA/Adinistrative/10/Oromiya)**

English (Appleyard and Orwin, 2008). The NETP also introduced a new education structure that is still in place today. It consists of an eight-year primary education cycle, which is divided into grades 1-4 and grades 5-8, and a four-year secondary education cycle, which is divided into two years of general secondary education in grades 9-10 and two years of preparatory education in grades 11-12 (World Bank, 2005).

Despite the efforts of the government, the population of Ethiopia is still among the least educated in the world, with an average of less than two full years of formal education among adults (World Bank, 2005). Table 4.1 gives an impression of the low enrolment numbers and shows that particularly in the rural areas, where 83.9% of the population lives, the enrolment is low compared to urban areas. In the Oromia region, where 51.2% of the population was only ever enrolled in grade 1, only 60.6% of them ever make it to grade 4 and only 37.2% to grade 8 (World Bank, 2005). Furthermore, among those with six years of primary schooling just over 70% is actually literate (World Bank, 2005).

Overall	51.8%
Gender	
Male	58.5%
Female	44.5%
Locality	
Urban	89.9%
Rural	44.4%

**Table 4.1: Percentage of Ethiopian 14 year olds ever enrolled in grade 1 in 2000
(Source: derived from World Bank, 2005)**

Some of the greatest challenges for the Ethiopian education system are the high and rising pupil-teacher ratios, overcrowded classrooms, lack of teaching materials, filling teaching posts in the rural areas and female participation. With an average of 65 pupils per teacher, Ethiopia’s pupil-teacher ratio is one of the highest in Africa and in the Oromia region the average in grades 1-4 even reaches 79.2 pupils per teacher, leading to overcrowded classrooms (World Bank, 2005). Another challenge is to fill the teaching posts in the rural areas, which are typically less attractive than in the urban areas, not only because of their location, but also because they carry a much heavier teaching load. Finally, female participation in education is typically low. For example, in the Oromia region female participation in grades 1-8 is 36.9% and 35.6% in grades 9-12. In the (post-secondary) teacher training college in Shakisso only two out of more than 100 students were female (see Figure 4.4).



Figure 4.4: Male-dominated classroom in teacher training centre (Source: Author)

Undoubtedly, the low levels of education have contributed to Ethiopia's low literacy rates. For a long time Ethiopia has had one of the lowest literacy rates in the world; in 1974 it was estimated to be only 7%. In an ambitious attempt to raise literacy levels, the government initiated a 11-year national literacy campaign from 1979 to 1990 (Afework Tekleyesus, 2004). Originally the literacy training was provided in five languages (Amharic, Oromo, Tigrinya, Welamo and Somali), but this was later expanded to 15, representing about 93% of the population. According to government figures the campaign was a great success with literacy rates increasing from under 10% to about 63% in 1984, but this might above all be a reflection of the government's desire to report success, rather than a reality. Recent statistics give less reason to be optimistic with an adult literacy rate of 36% (50% male, 23% female) and a youth literacy rate of 50% (62% male, 39% female) (UNESCO, 2008). Furthermore, the detailed literacy statistics of the Oromia region in Table 4.2 clearly indicate the existence of a literacy divide between both urban versus rural areas as well as gender with the lowest levels of literacy among rural women (see Section 2.2). A unique feature of the Ethiopian literacy statistics is that they contain both a subjective as well as an objective measure of literacy; besides a 'subjective' self-assessment, the 'objective' ability to read a sentence in their own language is also taken into account (World Bank, 2005). The more optimistic results of the self-evaluation compared to the more objective measure of reading a sentence in someone's own language, give further reason to question the reliability of self-evaluation (see Section 2.2).

	Male	Female	Total
Urban + rural	76%	37%	45%
Urban	85%	72%	76%
Rural	66%	21%	29%

Table 4.2: Literacy rates in Oromia region
(Source: derived from Central Statistical Agency, 2006)

The ICT landscape in Ethiopia is greatly determined and controlled by state-owned monopolies, and it is widely argued that these are a major stumbling block for innovation and widespread access to ICT services (UN, 2002; Rice, 2005). Although Ethiopia has declared ICT to be one of its strategic priorities and has developed a national ICT policy as well as a national ICT4D action plan, it has remained slow in translating policy efforts into concrete actions (Dzidonu, 2006; Ethiopian Information and Communication Technology Development Agency, 2009). The policy sets an

ambitious aim of 'transforming Ethiopia's predominantly subsistence-agriculture economy and society into an information- and knowledge-based economy and society, effectively integrated into the global economy'. This is however in direct contradiction with other aspects of Ethiopia's stated development strategy that is based on agricultural-development led industrialisation (Ethiopian Information and Communication Technology Development Agency, 2009).

Radio and television are regulated by the Ethiopian Radio and Television Agency, which has the overall responsibility for the state-run radio and television channels. Although the first provisional radio station in Ethiopia started in 1933, it was only in 1941 after the Italian occupation that shortwave broadcasting really took off. There are now two state-owned national radio stations, 20 regional channels, 2 private commercial radio stations and coverage by some international broadcasters such as BBC World Service and Deutsche Welle (BBC, 2005). The two major broadcasting stations are the state-owned 'Radio Ethiopia', which broadcasts in five vernacular languages and additionally in English, French and Arabic, and 'Radio Fana', which is owned by the ruling party and broadcasts in Amharic, Oromo, Somali and Afar (BBC, 2005). Although there is a legal basis for the establishment of private commercial radio since 1999, it was only in October 2007 that two commercial radio stations began test broadcasting. Ethiopian Television (ETV) is the state-owned television channel that was established in 1964 with the technical help of a British firm and introduced colour television in 1982 (Hamilton Shinn *et al.*, 2004; BBC, 2005). ETV broadcasts two channels, the main national channel ETV1, which broadcasts in five vernacular languages and English, and the regional channel ETV2, which only covers the capital Addis Ababa. Furthermore, in February 2009 a new regional channel 'Oromia Television' started broadcasting. Apart from the state-owned channels, Ethiopians have the choice to subscribe to international pay television services, such as DStv (see Figure 4.5), which provides channels such as CNN, BBC World, Sky and MTV (BBC, 2005). However, with a monthly subscription fee of around 3500 Birr (\$417) in 2007 and the cost of purchasing a satellite dish and decoder, this is only affordable for a 'happy' few. According to the 2005 Demographic and Health Survey, 33.7% of Ethiopian households possessed a radio, (75.6% in urban areas and 26.6% in rural areas) and only 4.9% a television (33.1% in urban areas and 0.1% in rural areas) (Central Statistical Agency, 2005). However, as television owners are subject to a yearly subscription fee the reliability of the latter number is questionable, because those eluding this fee might have not revealed their ownership in the survey.



Figure 4.5: DStv business in Guji zone (Source: Author)

Similar to radio and television, telecommunications are regulated by the Ethiopian Telecommunication Agency, a government body that was established in 1997 to promote quality, reliable and affordable telecommunication services. Furthermore, telecommunication services are solely provided by the state-owned company Ethiopian Telecommunication Corporation (ETC), which is the second largest state-owned company in the country after Ethiopian Airlines. The introduction of telecommunication in Ethiopia dates back to 1897 when the first telephone line between Addis Ababa and Harar was completed. Internet service came into use in 1997 and a mobile phone service was launched in 1999 (Ethiopian Telecommunications Corporation, 2009). However, Ethiopia has one of the lowest telecommunication penetration rates in Africa, particularly in terms of mobile phone subscribers (James and Versteeg, 2007). The low penetration is often ascribed to the monopoly market structure with government policy being seen as hampering expansion of the services (UN, 2002).

The next sections explore the two research locations in Ethiopia, Nazret and Shakisso, in more detail. The choice for these two locations was greatly determined by the working areas of the two gatekeepers FSCE and AHEAD. The FSCE office in Nazret was chosen because of its involvement in different ICT-related activities, such as ICT-based resources for their non-formal education program. As Shakisso is at the heart of AHEAD's activities in the Guji zone, the choice for this town as a base allowed me to get their practical support on the ground and benefit from their resources.

4.2.1 Nazret

Nazret is a city in central Ethiopia located at an altitude of 1712 metres and at a distance of approximately 100 kilometres southeast of the capital Addis Ababa. It was originally called Adama, which means cactus in Oromo, but in the twentieth century it became known as Nazareth after emperor Haile Selassie renamed the town after its biblical namesake. Although the city regained its original Oromo name in 2000, Nazareth/Nazret is still widely used. Due its rapid growth the city has become the second largest in Ethiopia after the capital. Over the past two decades the population has nearly doubled every 10 years, from 76,284 in 1984 to 127,842 in 1994 and 222,035 in 2007 (Central Statistical Agency, 1984, 1994, 2007).

In 2000, the Ethiopian government decided to move the regional capital of the Oromia region from Addis Ababa, (*Finfinne* in Oromo) to Nazret (Benti, 2002). This decision led to protests among Oromo people, who viewed *Finfinne* as the historical heartland of the Oromo region. Not only did the move cost millions of dollars for the construction of new office buildings (see Figure 4.6), but at the same time it involved the relocation of thousands of employees and their families to Nazret. However, in the aftermath of the elections in 2005, the government decided to revert its decision and relocate the Oromia capital back to Addis Ababa, leaving the unfinished expensive buildings as a testimony. According to Benti (2002), this was an attempt to win back the hearts of the Oromo people after the election reverses in the Oromia region.



Figure 4.6: Oromia regional state buildings in Nazret (Source: Author)

Nazret's rapid population growth can be ascribed to its location as a transport hub on the main trade route between Addis Ababa and Djibouti. Nazret grew out of a small village and was put on the map by the opening of the Addis Ababa-Djibouti railway, with trains currently still crossing the city about once a day (see Figure 4.8). Later the Addis Ababa-Dire Dawa road, which is the main thoroughfare through the city, provided an additional incentive for growth (see Figure 4.7). As a major truck stop and market, Nazret has become the most important commercial and industrial centre in the Oromia region. However, this eastern trade route does not only carry resources through the city, but also HIV, making Nazret Ethiopia's 'high corridor of HIV' (Metro, 2006). The transient nature of the city has attracted a wide range of bars and prostitution through which HIV rapidly spreads (van Blerk, 2007; van Blerk, 2008). According to figures of the Nazret municipality the HIV prevalence in Nazret was 18.7% in 2004, but magically dropped to 7.3% in 2008, which is more representative of the national average for urban areas of 7.7% (Poate *et al.*, 2008). A study by Vandepitte *et al.* (2006) has suggested that 2.9% of women in Nazret work as sex workers. It was actually hard to find bars (see Figure 4.14) that were not part of the working area of bargirls, a euphemism for prostitutes, and therefore I personally observed and experienced the sphere of actions of prostitution on a number of occasions.



Figure 4.7: The Addis Ababa-Dire Dawa road through Nazret (Source: Author)



Figure 4.8: Addis Ababa-Djibouti railway in Nazret (Source: Author)

Apart from the through traffic, there were many different ways of moving around within the city over longer distances. Besides private transportation by car, bicycle or foot, there was a variety of public transport. Blue and white taxis used fixed routes along major streets and picked up passengers and let them off along the route. It was also possible to hire a taxi for private use for a higher fare that was to be agreed in advance, which was called *contract*. The cheapest way to move around was by horse-drawn cart, called *gari*, which could take up to two passengers apart from the driver and take passengers anywhere along the roads where they operated (see Figure 4.9). However, with the expansion of asphalt roads in recent years, the *garis* had been banned from the busiest asphalt roads and predominantly operated on the stone and gravel roads in the back streets (see Figure 4.15); even just crossing these asphalt roads to get from one gravel road to another was subject to penalty.



Figure 4.9: Nazret seen from a gari (Source: Author)

Furthermore, during a short second visit in May 2008 I observed that since my field research a new form of public transportation had conquered the city, the so-called 'Indian taxi' (see Figure 4.10). These auto rickshaws that are common in Asia have largely replaced other blue and white types of taxis and have come to dominate the traffic. The Indian taxi typically caters for up to five passengers, meaning three crammed on the back seat and two 'hanging' on at the sides of the driver's seat.



Figure 4.10: Indian taxi in Nazret (Source: Author)

The field research in Nazret was carried out with the support of the gatekeeper organisation Forum on Street Children Ethiopia (FSCE) (see Figure 4.14). FSCE is a local non-governmental organisation that was started in 1989 by a group of social development professionals and is committed to the rights of disadvantaged children, such as street children, sexually or physically abused children and trafficked children. FSCE is active and has offices in the following five cities in Ethiopia: Addis Ababa, Nazret, Dessie, Bahirdar and Dire Dawa (www.fsc-e.org). The Nazret office undertakes a wide range of activities and during the field research I particularly engaged with the youth enrolled in their non-formal education program and at their drop-in centre for street girls (Figure 4.14). Furthermore, through a partnership with the UK's Department for International Development (DFID), initiated by Imfundo, the Nazret office is involved in different ICT-related activities, such as *ICT-based* resources for their non-formal education program.

Although Nazret is located in the Oromia region, Amharic was spoken within the city as the *lingua franca* of daily life. The Oromo language was mainly present on bilingual signs and in the primary schools. Most of the primary schools offered education in both Amharic and Oromo depending on the choice of the student. Nazret offered a wide range of educational facilities with apart from 65 kindergartens and 64 primary schools, there being 8 secondary schools and 3 preparatory schools (personal communication, June 2008). Apart from the preparatory schools that were owned by the government, the majority of these schools were private schools. The educational quality and opportunities provided by private schools were better than those of governmental schools and therefore, as the following participant reasoned educational attainment was greatly dependent on money:

'In the governmental schools you don't have chance to continue your education if you don't pass the exams for preparatory or vocational schools, so opportunities for continuation are limited. In private schools you will have opposite opportunity, but for this you need to have money. Therefore money means continuation of knowledge' (Nazret-13-M).

Apart from all the formal education, there were also nine non-formal education programs throughout the city, one of which was run by FSCE (see Figure 4.11). The program was teaching grades 1 to 3 with the aim of preparing students for a move to normal primary schools.



Figure 4.11: FSCE's non-formal education program (Source: Author)

As the second largest city in Ethiopia, ICTs were widely accessible and available. Radio was broadcast in the following languages: Amharic, Oromo, English, Somali and Afar. Apart from the Ethiopian television channel ETV1, satellite DStv services were offered in many public places and particularly screenings of British Premier League were guaranteed to attract many customers. Otherwise, televisions were used for watching DVDs; either at one of the approximately 100 video houses in the city or otherwise by renting one at one of the rental shops (see bottom right of Figure 4.15). Another form of entertainment using television was Play Station booths where customers could play games on a Play Station (see Figure 4.12).



Figure 4.12: Play Station booth in Nazret (Source: Author)

Also in terms of telecommunications a range of services was available throughout the city. For those without access to a telephone, telephone services were available, provided by a variety of vendors (see Figure 4.13). For mobile phone owners there were mobile shops that offered repair services as well as the uploading of ringtones and music to the phone. Furthermore, there were about 10 computer centres offering Internet services, the majority located in the commercial heart of the city. They were among the few Internet subscribers in Nazret; in 2004 there were only 203 subscriptions in Nazret, which accounted for approximately 0.09% of the city's population (Ministry of Infrastructure, 2004). The centres were all using dial-up connections that were incredibly slow or often not even working at all. Only one new

centre had just started offering broadband services since 2006 at a much cheaper rate than the dial-up services, but in my experience this connection was often as slow and unreliable as the dial-up connection. Both the mobile network and the Internet in Nazret were not very reliable. Particularly during lunchtime and after 8pm, when the calling rates were cheaper, the networks were overloaded because of the very high demand, making mobile calls nearly impossible and the Internet even slower than it already was.



Figure 4.13: Telephone services in Nazret (Source: Author)

To conclude, given that waitresses and teachers earn respectively 80-200 Birr and 805-1119 Birr per month, Table 4.4 gives an impression of the prices of different ICTs and ICT services in Nazret in relation to these incomes.

Radio	80-200 Birr
Television	900-1500 Birr
Mobile phone	420-2000 Birr
SIM card	400 Birr
Computer	9000-10500 Birr
Entrance fee video house	1 Birr/film
Internet	
- dial-up	0.25 Birr/min
- broadband	0.1 Birr/min
* Note 1 Birr = \$0.12	

Table 4.3: ICT costs in Nazret (Source: personal interview 2007)



**FSCE compound
(taken by Nazret-13-M)**



**FSCE compound
(taken by Nazret-13-F)**



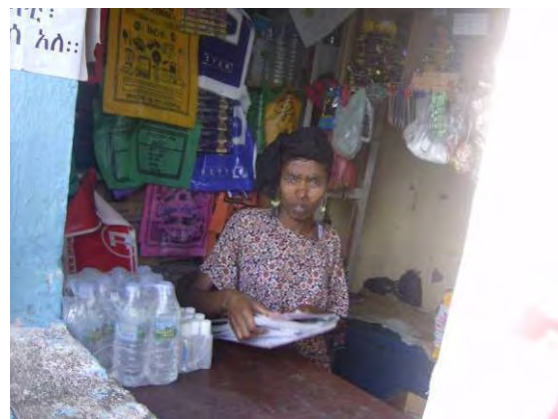
The mosque (taken by Nazret-11-M)



Gari (taken by Nazret-11-M)



**Local bar near drop-in centre
(taken by Nazret-?-F)**



**Local shop near drop-in centre
(taken by Nazret-?-F)**

Figure 4.14: Nazret through the eyes of participants (1)



Residential compound
(taken by Nazret-15-M)



FSCE compound wall
(taken by Nazret-10-M)



Streets of Nazret
(taken by Nazret-?-F)



Streets of Nazret (taken by Nazret-?-F)



Cow playing football
(taken by Nazret-11-M)



In the video rental shop
(taken by Nazret-?-F)

Figure 4.15: Nazret through the eyes of participants (2)

4.2.2 Shakisso



Figure 4.16: Shakisso's green scenery (Source: Author)

Shakisso is a town surrounded by green scenery (see Figure 4.16, 4.25 and 4.26), located at an altitude of 1758 meters and at a distance of approximately 450 kilometres southwest of the capital Addis Ababa by road. However, given the poor condition of the 150 kilometres of unpaved road connecting Shakisso to the nearest paved road, particularly at the end of the rainy season, it can take over 12 bumpy hours to get there from the capital. Shakisso is located in the Guji zone that has only existed formally since September 2003 when the former Borana zone was administratively split up into the Borana and Guji zones. The split was considered by many as a positive development, because it decreased distances between district and zonal capitals. However, at the same time the changes to the zonal borders led to ethnic conflicts between the Borana and Guji, which killed and displaced many people between 2005 and 2007 (Lemessa, 2003). The Guji zone is further subdivided into five districts and Shakisso is located in the Odo Shakisso district, where my research was undertaken. According to the 2007 Population Census this district has a population of 209,741 of which a majority of 83% live in rural areas and the remaining 17% in urban areas, of which 31,0004 in Shakisso itself (Central Statistical Agency, 2007).

As the name already implies, the Guji zone is home to the Guji Oromo, an ethnic Oromo group that is among the most marginalised ethnic groups in Ethiopia. The Guji as well as other ethnic Oromo groups have an elaborate social, political and

legal system based on generational levels, called '*gada*' (Legesse, 2006). Although the *gada* system now only has limited power compared to government institutions, it still has an influential ritual significance in the society (Debsu, 2009). 'The Guji social structure consists of *gosa* (clan) at the highest level and extends down to *mana* (lineage), *warra* (extended family), and *maatii* or *maayaa* (nuclear family). The latter consists of the husband, his wife (wives), and their children' (Debsu, 2009: 18). The rhythm of Guji social life is for meeting friends and relatives and to discuss social and political issues (Debsu, 2009); the market days in Shakisso were a particularly important day of the week (see Figure 4.17).



Figure 4.17: Market day in Shakisso (Source: Author)

The Odo Shakisso district is particularly well known for its abundance of mineral resources, notably gold and tantalum. As a consequence, most academic research and publication that has been undertaken in this area, and therefore relevant academic literature, is of a geological nature (see for example Billay *et al.*, 1997; Getaneh and Alemayehu, 2006). Two of the major mines in Ethiopia are located near Shakisso: the Lega Dembi gold mine (see Figure 4.18) and Kenticha tantalum mine, which was evident from the big explosions that could occasionally be heard and felt in the area. Both these mines used to be exploited by the government, but since the government made privatisation a major objective, both have come into the hands of MIDROC Ethiopia, which is owned by Ethiopia's richest person Sheikh Mohammed Hussein Ali Al-Amoudi (Vaughan and Tronvoll, 2003). The Lega Dembi mine was sold to MIDROC in 1997 for \$172 million and the Kenticha mine for \$26 million in 2000.



Figure 4.18: Lega Dembi gold mine near Shakisso (Source: Author)

These minerals attract fortune seekers from neighbouring districts and regions, who are for different reasons not advantageous for the other inhabitants of the district. The widespread illegal digging and informal gold production (see Figure 4.25) is having a disastrous impact on the abundant forests and wildlife. Furthermore, the fortune seekers have brought a greater ethnic and therefore linguistic and religious diversity to the area, which sometimes leads to tensions. Additionally, their presence has attracted prostitution and consequently an increase in sexually transmitted diseases. I was informally told that the death rate in miners' settlements near the goldmine is alarmingly high due to HIV/AIDS.



Gari with schoolchildren



Rental bicycles

Figure 4.19: Transport in Shakisso (Source: Author)

Unfortunately, the richness of minerals has not trickled down to the local communities, which was for example evident from the poor infrastructure in terms of transport, electricity and water. There were no paved roads within a wide range around Shakisso, but just dusty sand roads that were not always in very good condition. Shakisso was served by a few long distance buses and there were a small number of four wheel drive cars around, mainly belonging to the regional authorities and the gold mine. Apart from that, people moved around by foot, sometimes supported by donkeys or carts pulled by donkeys (see Figure 4.25). Within the town itself *garis* (horse-drawn carts) and (rental) bicycles provided an alternative to walking (see Figure 4.19). Electricity and mains water were only available in the towns. Elsewhere people had to fetch water from nearby tap points and in more rural areas from local pools (see Figure 4.20 and 4.26).



Water transport in Shakisso



Fetching water in Saawaanaa

Figure 4.20: Water supply in Odo Shakisso district (Source: Author)

With the support and permission from the Odo Shakisso education office the research was undertaken at primary schools in the district, which provided an opportunity to get a sense of what education there was like. Most of the research was undertaken at three of the four governmental primary schools in Shakisso itself: Kalacha, Dhuggo and Uddeeyyi Badhaadaa. The fourth school was not included in the research, because my translator was a teacher there (see Section 3.5). Furthermore, five other primary schools within the district were visited: Lolotu, Didola, Gidhe, Saawaanaa and Awata (see Figure 4.21). Figure 4.22 gives a visual impression of the different schools.

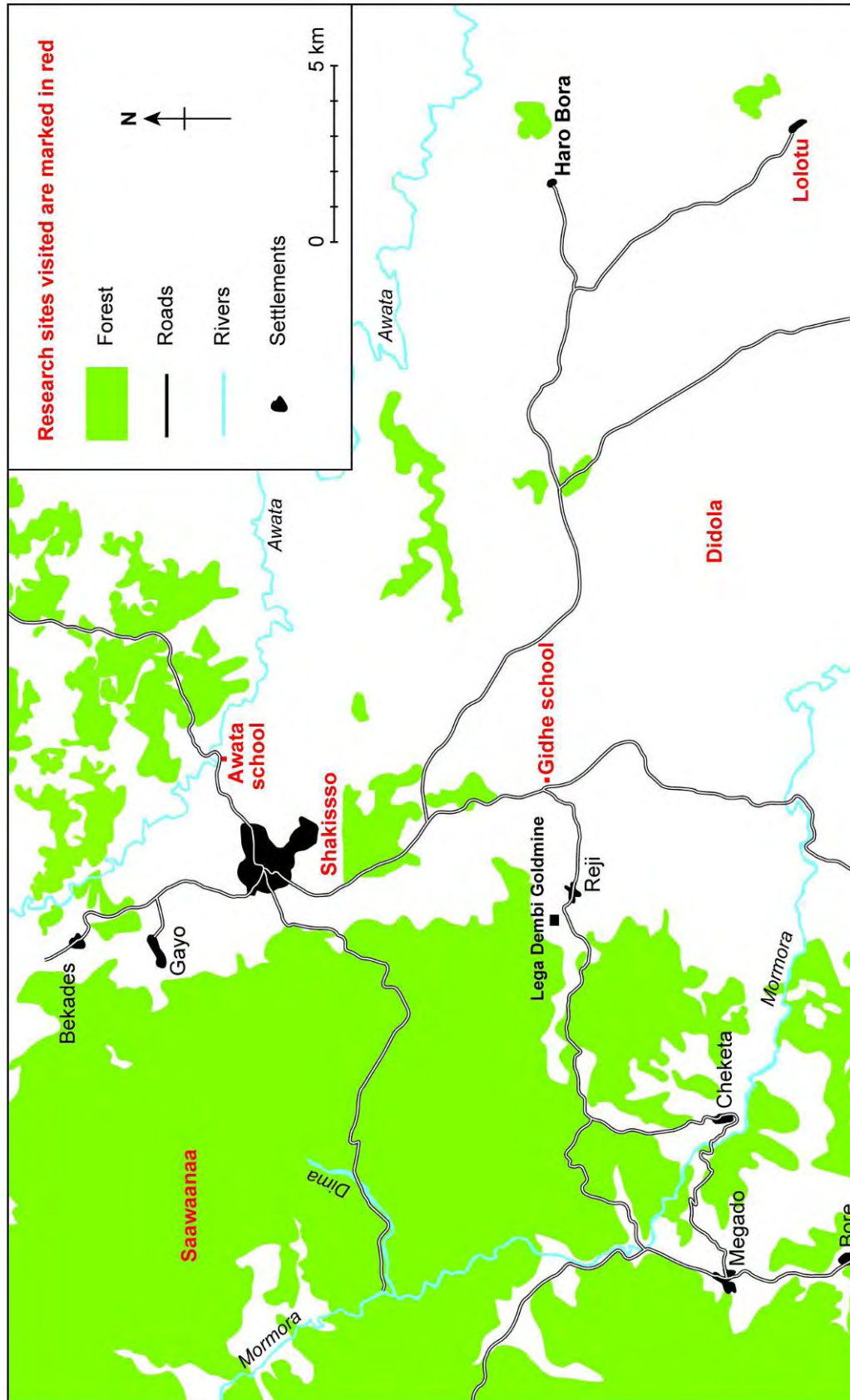


Figure 4.21: Research sites around Shakisso
 (redrawn with maps from the Ethiopian Mapping Agency: 0538 B2/0538 B3/0539 A3)



Gidhe school (taken by Shakisso-15-F)



Kalacha School (taken by Shakisso-18-F)



Dhugoo school (taken by Shakisso-17-M)



Awata school café (taken by Shakisso-18-F)



***Uddeeyyi Badhaadha school
(taken by Shakisso-12-M)***



***Didola school – head master's office
(Source: Author)***



Lolotu school (Source: Author)



Saawaanaa school classroom (Source: Author)

Figure 4.22: Research locations in and around Shakisso

Primary school enrolment data from the education office indicated a significant educational gender disparity in the district: 70.26% of men and 43.5% of women were enrolled in 2006 (personal communication, January 2007). Particularly within the rural areas around Shakisso students often had to travel long distances to get to their school, as mentioned by the following participant in Saawaanaa:

'It takes me 3 hours to come to school' (FG Shakisso-13-M).

Furthermore, students were often forced to move physically to Shakisso to attend higher grades or secondary education, because the only secondary school in the whole district was in Shakisso and most rural primary schools were only teaching lower grades due to a lack of classrooms and teachers. Within Shakisso both Amharic and Oromo language served as a medium of communication, but elsewhere in the district communication was predominantly in the Oromo language. All the primary schools in the district were teaching in Oromo language, apart from one primary school in Shakisso that was teaching in Amharic and the secondary school in which English was the language of instruction.



Figure 4.23: Classroom in Saawaanaa (Source: Author)

Three important observations about the education in and around Shakisso are related to class sizes, availability of teachers and electricity. The high student-pupil ratio that is typical for Ethiopia was reflected by the classrooms in the Odo Shakisso district that were packed with students, particularly in the lower grades (see Figure 4.23). Furthermore, teachers were often absent, particularly in Uddeeyyi Badhaadaa school (Figure 4.25):

'In some circumstances the teacher might be absent from the class due to sickness' (Shakisso-18-F).

A significant problem regarding teacher's absence was the lack of penalisation or threat to the salary of teachers who were absent from their job for no legitimate reason, which made it quite attractive for them to stay away. Furthermore, absent teachers were not replaced, even if a female teacher was on maternity leave for some months. Particularly for students who travelled long distances to school the absence of teachers and therefore returning home without any schooling, was a burden.

ICTs were mostly found and sold in the centre of town where electricity was available (see Figure 4.24). Outside the areas in which mains electricity was to be found, the main ICTs in use were radios running on batteries and mobile phones. Radio was broadcast throughout the district in Amharic, Oromo and English. However, it was not until 1998 that television broadcasts arrived in Shakisso after the Lega Dembi goldmine installed a dish that served the town with a television signal. Unfortunately, this dish broke down in 2006 and thereafter television broadcasts could only be received through satellite dish. Additionally, there were eight video houses in Shakisso where movies were shown.



Figure 4.24: Radio stall on market in Shakisso (Source: Author)

In terms of the telephone network, both a landline and a mobile phone network were available in Shakisso itself. I furthermore experienced myself that some of the rural areas were also covered by the mobile phone network when I received a phone call

from the United Kingdom at the school in Lolotu, which happened to be located near to a mobile antenna. One participant from this village explained how the antenna had influenced the ‘ecology of communication’ in the area (Altheide, 1994; Tacchi *et al.*, 2003):

‘Since the antenna near town was placed people are using mobile phone’ (Shakisso-10-M).

However, the quality of the mobile phone network was quite poor and unreliable; it often required several attempts before a connection was established. Furthermore, during my research the mobile network was mysteriously cut off completely for a week after a dispute nearby Shakisso between locals and the police, implying that the government might have blocked the network on purpose.

There were three computer centres in the town during 2007, and these were using the fixed line telephone network to provide dial-up Internet services. The quality was very poor, unreliable and sometimes not working at all for long periods of time. Furthermore, I was informed in April 2009 that all three centres had stopped providing Internet services, because for unknown reasons the Internet connection did not function anymore. The suspicion was that the government is in this way trying to limit information flows. These computer centres were also offering classes in ICT use that I often observed while using the Internet. Interestingly, the classes were very ‘theoretical’, with students diligently copying notes from a whiteboard into their notebooks and hardly touching the computers at all.

To conclude, given that waitresses and teachers earn respectively 120-150 Birr and 805-1119 Birr per month, Table 4.5 gives an impression of the prices of different ICTs and ICT services in Shakisso in relation to these incomes.

Radio	85-350 Birr
Television	1300-1900 Birr
Mobile phone	500-2500 Birr
SIM card	600 Birr
Computer (Dell PC with printer)	14000 Birr
Entrance fee video house	1 Birr/film
Internet	0.5 Birr/min
* Note 1 Birr = \$0.12	

Table 4.4: ICT costs in Shakisso (Source: personal interview 2007)



***Kalacha school compound
(taken by Shakisso-18-F)***



***Water reservoir in Shakisso
(taken by Shakisso-15-F)***



***Uddeeyi Badhaadaa school
(taken by Shakisso-12-M)***



***Around Dhugoo school
(taken by Shakisso-18-M)***



***Gidhe
(taken by Shakisso-16-M)***



***Informal gold production in Gidhe
(taken by Shakisso-16-M)***

Figure 4.25: Shakisso through the eyes of participants (1)



Awata
(taken by Shakisso-18-F)



Awata river
(taken by Shakisso-18-F)



Inside hut
(taken by Shakisso-14-F)



Inside the mill
(taken by Shakisso-14-F)



Water point in Gidhe
(taken by Shakisso-15-M)



Local beverage
(taken by Shakisso-10-M)

Figure 4.26: Shakisso through the eyes of participants (2)

4.3 Malawi

Malawi is a long and narrow landlocked country in the southeast of Africa, 20% of which consists of Lake Malawi (see Figure 4.1). After the Scot David Livingstone discovered Lake Malawi (then called Lake Nyasa) in 1859, the area around the lake became colonised by the British; from 1891 until 1964 it was a British protectorate known as Nyasaland. After independence in 1964 the country became subject to the authoritarian rule of Dr. Hastings Kamuzu Banda who later declared himself president for life and he chose the name Malawi for the territory. It was only in 1993 that a multi-party system replaced the former single party system. Malawi has had little involvement in major conflicts or wars and according to the Global Peace Index (GPI) it is one of the most peaceful countries in Africa (GPI, 2009). Nevertheless, Malawi is also one of the poorest countries in Africa, with a GDP per capita of \$667 (UNDP, 2007).

Malawi is divided into three regions (northern, central and southern), which are further subdivided into 28 districts. It has a population of 13 million people and with approximately 109 persons per square kilometre, it has one of the highest population densities in Africa (National Statistical Office, 2008). The southern region, where 45% of the population lives, is the most densely populated (National Statistical Office, 2008). Approximately 47.1% of the population is under the age of 15 and only 3% over 65 years old (UNDP, 2007). There are nine African ethnic groups, of which Chewa and Nyanja are the biggest, and there are also some Asian and European cultural groups. Each of these different groups has its own language, leading to a linguistic diversity of approximately 13 languages spoken throughout the country, with Chichewa as the national and English as the official language (Gordon, 2005). The status of the latter two languages is an inheritance of both the British rule as well as the Banda government, which made English and Chichewa the national languages of Malawi. Christianity plays a prominent role in Malawi's religious spheres, with approximately 80% of the population being Christian and 13% Muslim (National Statistical Office, 1998). The majority of the population lives in rural areas (83%) and Malawi's economy is heavily dependent on agricultures, with tobacco as the major export product (UNDP, 2007). The principal food crop grown is maize, which is used to make *nsima*, a kind of maize porridge and the staple food in Malawi (Figure 4.27).



Figure 4.27: Nsima with peas (Source: Author)

My research in Malawi was carried out with the support of YouthNet and Counselling (YONECO), a local non-governmental organisation that started in 1997 and is committed to empowering youth, women and children, preventing the spread of HIV infection, mitigating the impact of AIDS and promoting democracy and human rights for socio-economic development (www.yoneco.org.mw). YONECO is active and has offices throughout the whole country, but the majority of them are located in the southern region, including its head office in Zomba (see Figure 4.28). Based on their recommendation, two research areas were chosen near YONECO's offices in the southern region, where the literacy rates are lower than in the rest of the country: urban Zomba in the Zomba district and rural Ntaja in the Machinga district (see Figure 4.29). Being based close to their offices allowed me to benefit from their resources as well as experience in these areas as much as possible.



Figure 4.28: YONECO office in Ntaja (Source: Author)

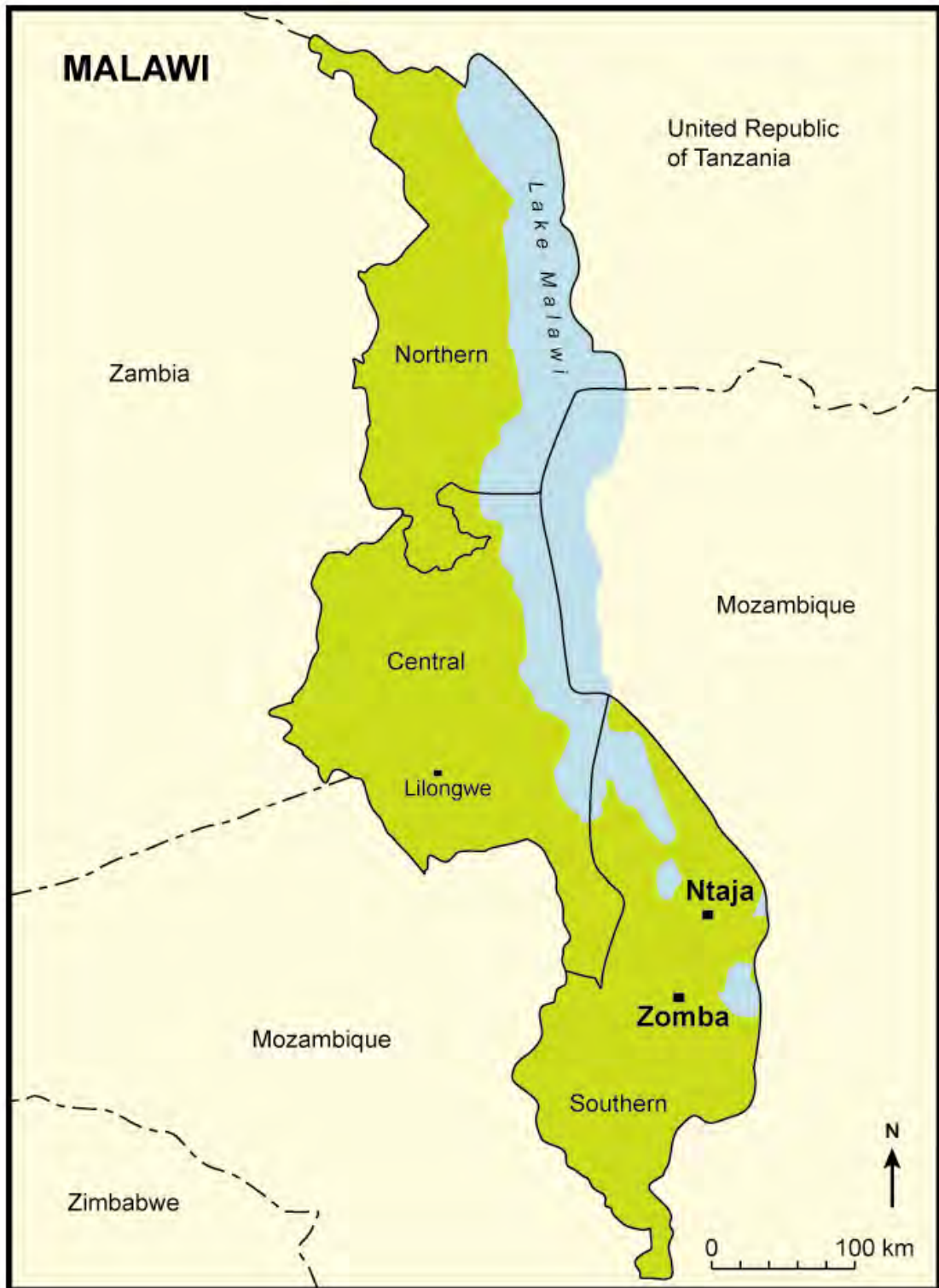


Figure 4.29: Research areas in Malawi (redrawn from map no. 3858 UNITED NATIONS)

European education was introduced by missionaries who came to Malawi at the end of the 19th century (Matola, 2005). It was only after the First World War in 1926 that the colonial government established a Department of Education to coordinate the scattered and poorly organised missionary educational effort (Lamba, 1982).

However, the real turning point was in 1961 when a Ministry of Education was established and education became more centralised, organised and planned than before (Matola, 2005). Subsequently, the 1962 Education Act took effect, which stipulates that all persons are entitled to education. This outdated Act is still in place today, although a new act is under preparation to take into account the current socio-cultural and economic environment (Rose, 2005). Furthermore, following the first elections of a new government after the Banda era, educational planning entered a new phase in 1994 when free primary education was introduced.

Malawi's education structure is an 8-4 education system consisting of eight years of compulsory primary education, known as Standard 1 to 8, and four years of secondary education, known as Form 1 to 4. After independence in 1964 President Banda's home language, renamed Chichewa, was declared an official language alongside English and it was until recently the medium of instruction for the first 4 years of primary schooling with a switch to English thereafter (Heugh, 2008). In 1996, the government changed the school language policy to grades 1 to 4 teaching in their mother tongue or vernacular language, understood as the language commonly spoken in the area where the school was located. However, the proposed expanded use of vernacular languages other than Chichewa has meanwhile been whittled down from four to two years (Heugh, 2008).

Similar to Ethiopia, the Malawian education system faces many challenges, such as overcrowded classrooms, lack of school furniture, school fees for secondary education and the elimination of teachers by HIV/AIDS. Primary school enrolment in Malawi has greatly increased since free primary education was introduced, reaching a Net Enrolment Rate (NER) of 87% in 2007, although 43% of those actually make it to grade 5 (UNESCO, 2007). In practice the government was not prepared for the consequences of the initial increase in school enrolments of 50% that put high pressure on the education system in terms of teachers and school infrastructure as well as increased demand for secondary schooling, which eventually led to a substantial decline in quality (Kadzamira and Rose, 2003; Rose, 2005). Primary school classrooms are still overcrowded with an average pupil-teacher ratio of 79:1 in rural areas and 96:1 in urban areas; due to the lack of school furniture students sit on the classroom floor instead (Ministry of Education, 2004). Furthermore, despite the abolition of school fees, in practice primary schooling is still not 'free'. Similar to the findings of other studies (see for example Kadzamira and Rose, 2003), my field

research revealed that inadequate clothing and lack of money to buy school supplies were still important reasons for non-enrolment.

At the same time, Malawi has one of the lowest participation rates in secondary education in Africa, with a NER of only 24% (UNESCO, 2007; Chimombo, 2009). My field research suggested that the most important reason for people not to enrol in secondary education were the school fees incurred. The lowest range of fees lies around 5000 Kwacha per year, which is about 30% of the income of a household on the poverty line to send one child to the cheapest available secondary school (Chimombo, 2009). Furthermore, the consequences of the HIV/AIDS pandemic in Malawi, which has a HIV prevalence of 14.1% has not left the education system untouched (UNDP, 2007). The mortality rate among primary school teachers is around 2%, which is not beneficial to the continuity and quality of the education standards (Bennell *et al.*, 2002; Harries *et al.*, 2002).

Despite the enrolment levels in primary schools, literacy rates in Malawi are still lagging behind. According to recent statistics, Malawi has an adult literacy rate of 60.9% (90.5% urban, 58.7% rural) and a youth literacy of 76.3% (male 82.1%, female 70.7%) (Ministry of Education, 2004; UNESCO, 2005). Government efforts to eliminate illiteracy started as early as 1947. These efforts were succeeded by the *Ukani* Traditional Literacy programme, which was a partnership between churches and government during the 1960s and 1970s (Ministry of Women and Child Development, 2008). In 1986, the government launched the National Adult Literacy Programme with the aim of making approximately two million adult illiterates functionally literate by the year 2000, a mission that did not get accomplished by that date; only 860,000 illiterates were reached (Ministry of Women and Child Development, 2008). Meanwhile, in 2006, the government embarked on the development of a National Adult Literacy Policy, which has the aim to increase literacy levels by 85% by the year 2011.

For a long time the ICT landscape in Malawi was controlled and restricted by the authoritarian rule of Dr. Banda. Under Banda, information was defined and strictly controlled by the government and those undermining the authority of the government risked imprisonment up to life sentence, for example for sending 'false information' out of the country (Sturges, 1998). There were only two newspapers and one radio station, which were all owned by the government and only presented the government's version of information. Television was banned and movies shown in

theatres were first viewed and potentially edited when the content was considered unsuitable by the Malawi Censorship Board, which had been established as part of the 1968 Censorship and Control of Entertainment Act. Furthermore, telephone lines were tapped and calls cut off when criticism of the government was voiced. The end of the Banda era led to a cessation of this 'information terror' and made way for reform of the ICT and media landscape.

In 1998, the Malawi Communications Law introduced a legal framework for the regulations and provision of services in the communications sector. Subsequently in 1999, the Malawi Communications Regulatory Authority (MACRA) was established under the Ministry of Information, Posts and Telecommunications to regulate telecommunications, broadcasting, the use of radio frequencies and the provision of postal services throughout Malawi (MACRA, 1998). Although this authority has issued licenses to different companies, many of those have yet to become operational. Furthermore, since 2005 the government of Malawi has a national ICT4D policy that aims to develop the ICT industry and sector, and promote the development and use of ICTs in all sectors for socio-economic development (Government of Malawi, 2005). However, despite the progress and transformation compared with the Banda era, the government initially largely retained its control and dominant position in the communications sector through these regulatory mechanisms and other organisations have only gradually begun to play a role.

The state-run Malawi Broadcasting Corporation (MBC), which was founded in 1964, still dominates the radio market. It operates the country's two largest radio stations, Radio 1, which broadcasts in English, Chichewa, Tumbuka, Yao, Lomwe, Sena and Tonga and Radio 2, which broadcasts in English and Chichewa. The first private radio station began operating in 1998 and meanwhile there are approximately 11 private radio stations, but they are primarily operating in urban areas and have more limited coverage (Freedom House, 2008). Radio penetration in Malawi is significantly higher than television penetration: compared to 310 radios per 1000 inhabitants, there are only 7.4 television sets for every 1000 inhabitants (ITU, 2007a). The single television station in the country, Television Malawi, started in 1999 and is also run by the MBC. The reception was initially limited to urban areas, but has been extended to rural areas, although the signal there remains weak. Furthermore, English is the working language of this television station. The only alternative to TV Malawi is satellite TV, but this is only accessible for those who can afford the sets, decoders and satellite dishes. There used to be one private television station, Joy

Television, but in October 2007 MACRA ordered them to stop broadcasting ostensibly because of issues with their license. This measure might have actually been politically motivated, considering that Joy TV was thought to be owned by the former president Muluzi, who is not on good terms with the current president Bingu.

Compared to the broadcasting market, developments in the telecommunications sector have been more progressive, gradually loosening the government influence. Previously the state-owned Malawi Posts and Telecommunications (MPTC) and later Malawi Telecommunications Limited (MTL), a company that was born in 2000 when MPTC was divided into separate entities, has dominated the telecommunications market (Clarke *et al.*, 2003). Meanwhile other players have entered the telecommunications market and moreover the government sold 80% of its shares in MTL in 2006. However, despite these developments, telecommunication penetration rates in Malawi are still well below African averages (see Table 4.5).

	Population	Per 100
Main telephone lines	175,200	1.26
Mobile subscribers	1,051,000	7.55
Internet users	139,500	1.00

Table 4.5: Telecommunication penetration in Malawi (Source: derived from ITU, 2007c)

The limited fixed-line network in Malawi remains dominated by MTL, although in 2006 a license was granted to a second fixed-line provider, but as of June 2009 this had not yet become operational. The first mobile phone service in the country was launched in 1995 by Telekom Networks of Malawi, which is a collaboration between Telekom Malaysia (60%) and MPTC (40%). In 1999, the launch of second mobile operator Celtel Malawi (now Zain Malawi) introduced competition and a third license has been granted to G-Mobile, but has not become operational yet (Clarke *et al.*, 2003). Meanwhile 93% of the country has mobile signal coverage. During my field research most people who had a mobile phone were customers of both operators, because calling within the same network was cheaper than across networks and both operators had different coverage throughout the country. Despite the low Internet penetration, the Internet business is currently by far the most competitive in the Malawian telecommunications market. Internet service has been available in Malawi since 1997 when Malawi Net was formed and by 2009 there were 15 Internet Service Providers (MACRA, 2009).

4.3.1 Zomba



Figure 4.30: Zomba plateau (Source: Author)

The city of Zomba in southern Malawi is located at an altitude of 848 metres on the lower slopes of the Zomba plateau that rises to 1800 metres (see Figure 4.30) and at a distance of approximately 250 kilometres southeast of the capital Lilongwe. It is the administrative capital of the surrounding Zomba district and with a population of 87,366 it is the fourth biggest city in Malawi after Lilongwe, Blantyre and Mzuzu (National Statistical Office, 2008). Zomba was founded by European planters in 1885 and given its Nyanja name meaning 'locust', an insect that is common in that area. It became the colonial administrative capital of the British protectorate in 1891 and remained the capital of independent Malawi until 1975. Although the capital then moved to Lilongwe, Zomba still remained the home of the Parliament until 1994, when the move was finally completed. As compensation for the capital moving to Lilongwe, Zomba was made home to the University of Malawi, which moved there from Blantyre in 1975. Although Zomba is now known as 'Malawi's University town', both the colonial as well as the former administrative buildings still give a flavour and commemorate Zomba's historical importance (see Figure 4.31).

The city is a collection of different neighbourhoods stretched out over a large area with lots of green in between, giving it a tranquil and provincial feel. The urban population is comprised of a small affluent community and large poor communities that live in unplanned settlements. Unlike the major roads and streets in more affluent neighbourhoods, the labyrinth of roads and paths in the poor neighbourhoods are unpaved. My field research was primarily undertaken in two such neighbourhoods: Chikanda and Chinamwali (see Figure 4.36 and 4.37). These two

densely populated neighbourhoods were chosen because they were among the poorest neighbourhoods in the city and therefore likely to have limited levels of literacy among their populations. Apart from the poverty, these two neighbourhoods were also amongst the most highly impacted by the HIV/AIDS epidemic (Malawi Local Government Association, 2006).



Figure 4.31: Remnants from colonial times in Zomba (Source: Author)

Amidst the different neighbourhoods, the city centre constitutes the economic heart of Zomba. The city is the business centre for the tobacco and dairy farms of the surrounding area, which also produce rice, maize, fish and softwoods. The businesses and shops in the centre are largely dominated by the Indian population, whose ancestors were brought to Malawi under British rule to help with the construction of a railway line between Malawi and Mozambique. Furthermore, there are also a few shops run by Chinese people. However, in the vibrant market in the heart of the city, where anything from food to clothes can be found, it is predominantly Malawians doing business (see Figure 4.32). Another bustling place in the centre is the bus station where both urban buses to distant neighbourhoods as well as long-distance buses to, for example, the capital Lilongwe arrive and depart. There are no scheduled bus times, but buses are spontaneously scheduled according to the demand and only leave once they are filled up until the last seat, usually meaning four passengers per three seats. Whereas the urban buses tend to fill up and therefore depart quite quickly, I experienced on different occasions, while waiting for over an hour in a hot bus that for long-distance buses it usually takes longer before the last seat is taken.



Figure 4.32: Zomba market (Source: Author)

ICTs were widely accessible and available throughout Zomba, although they were more concentrated in the city centre. Telephone was the most visible and present ICT on the streets of the former capital. ‘Telephone bureaux’ that offered fixed line telephone services were scattered around the city, but even more present was the sale of mobile phone prepaid credit or SIM cards (see Figure 4.33). Not only did the majority of shops sell mobile credit, but during daytime the city centre was bustling with mobile credit vendors, mostly female and easily recognizable by their red



Telephone bureau in Zomba



SIM card sale in Zomba bus depot

Figure 4.33: Telephone business in Zomba (Source: Author)

(Celtel) or yellow (Telekom) aprons. Internet, on the contrary, was significantly less present and visible. There were three places offering public Internet access, one of which was at the university. The only two Internet cafés in the city centre, which had small customer bases, had notices on the wall that watching pornographic materials was not allowed. Their service was not always reliable or up to speed and one of the two places was even completely disconnected from the Internet for long periods of time during my field research. I mostly made use of the Internet connection at the YONECO offices, which was also not always reliable; the maximum bandwidth capacity of 64 Kbps was often reached because of staff secretly using the connection for downloading.

Two common forms of entertainment through the use of ICT were video houses showing movies and places with satellite television showing international football matches. The lodge I stayed in during the first two weeks in Zomba was one of the places where people came to watch the football matches almost every night. Furthermore, people owning a television and DVD player could entertain themselves at home by renting a DVD at one of the many DVD rental places. One of my participants running a barber shop was simultaneously running such a DVD rental in it (see Figure 4.34). Furthermore, the presence of ICTs had given rise to a number of ICT repair services throughout the city (see Figure 4.35). These concentrated mainly on the repair of televisions, radios and more recently mobile phones.



Figure 4.34: Barber shop and adjoining DVD rental in Zomba (Source: Author)



Figure 4.35: ICT repair services in Zomba (Source: Author)

To conclude, given that waitresses and teachers earn respectively 2000-5000 and 10,000-15,000 Kwacha per month, Table 4.7 gives an impression of the prices of different ICTs and ICT services in Zomba in relation to these incomes.

Radio	50-40,000 Kwacha
Television	15,000-50,000 Kwacha
Mobile phone	2000-50,000 Kwacha
Desktop computer	50,000-100,000 Kwacha
Entrance fee video house	5-10 Kwacha/film
Internet	5 Kwacha/minute
* Note 1 Kwacha = \$0.007	

Table 4.6: ICT costs in Zomba (Source: personal interview 2007)



*Chikanda neighbourhood
(taken by Zomba-10-M)*



*The Salon
(taken by Zomba-18-F)*



*Woman in Chinamwali neighbourhood
(taken by Zomba-14-M)*



*Chinamwali neighbourhood
(taken by Zomba-10-F)*



*Inside the grocery store
(taken by Zomba-20-M)*



*Men playing 'Bao'
(taken by Zomba-18-F)*

Figure 4.36: Zomba through the eyes of participants (1)



Chikanda neighbourhood
(taken by Zomba-16-F)



Women chatting
(taken by Zomba-18-M)



Cooking
(taken by Zomba-16-M)



Chinamwali neighbourhood
(taken by Zomba-12-F)



The maize mill in Chikanda neighbourhood
(taken by Zomba-20-M)



Carpenter
(taken by Zomba-18-F)

Figure 4.37: Zomba through the eyes of participants (2)

4.3.2 Ntaja

Ntaja is in southern Malawi located at an altitude of 953 metres and at a distance of approximately 250 kilometres southeast of the capital Lilongwe. It is located in the Machinga district, which has a population of 488,996 and one of the lowest literacy rates in the country, particularly among women (National Statistical Office, 1998, 2008). This district and the neighbouring Mangochi district have some distinctive population characteristics compared to the rest of the country in terms of religion and language. Although in the rest of the country the population is predominantly Christian, in Machinga a majority of 62.7% of the population is Muslim and at the same time in the majority of the households (55.4%) Yao is the language mostly used for communication (National Statistical Office, 1998; Benson *et al.*, 2002). Furthermore, many people from this district have emigrated to South Africa in a search for low-qualified jobs.

Ntaja is situated along the 'Muluzi highway', which is a 142 kilometre highway that runs parallel to the border with Mozambique and serves as the major transportation connection in the south-eastern region (see Figure 4.38). The formerly unpaved road was completed in 2003 at a cost of \$58 million with funding from the Arab Bank for Economic Development, the Kuwait Fund and the Organisation for Petroleum Exporting Countries and is probably the most sophisticated road in the country (Simmonds, 2006). Next to the wide lanes there are breakdown lanes that are used by pedestrians and cyclists. Furthermore, road lines are provided with reflectors to



Figure 4.38: Muluzi highway (Source: Author)

light up and give guidance in the dark. However, many of these reflectors have meanwhile gone missing, because people thought they could use them as lights for their bicycles. Officially the road was built to promote development in the area and facilitate the transport of agricultural products to commercial centres. However, unofficially it was built to benefit the tobacco estates in the east of Malawi and perhaps also to give the former president Muluzi a comfortable and fast journey to his home village in the Machinga district. Indeed, many big trucks transporting tobacco stumbled over the speed bumps in front of my house that were meant to slow down the traffic entering and passing through the town (Figure 4.39).



Figure 4.39: Tobacco truck passing through Ntaja (Source: Author)

Ntaja was stretched along the two sides of the highway with at its heart a commercial centre comprised of a local market and shops. The town was surrounded by an unpaved countryside with small rural villages scattered around and it was in these that my field research was undertaken (Figure 4.42 and 4.43). The most prominent 'landmarks' in this environment were gatherings of local people either around the boreholes to fetch water or the maize mills to grind maize (see Figure 4.40). The town was served by long-distance minibuses, but other than walking the main means of transport people used to move around the area were bicycles (Figure 4.43). My translator and I also used this common mode of transport to get to the rural villages around Ntaja, travelling easily along the unpaved roads and tracks (see Section 3.7). Not only did people ride themselves, but it was also common to hire a bicycle taxi (Figure 4.41). These bicycles fitted with a back seat, and sometimes with footrests and handles to hold on to, were available for hire and could take their passengers

anywhere within a radius of approximately 50 kilometres from the town, with fares starting from 20 kwacha. Due to the large number of bicycles moving around in the area, bicycle repair services could be found almost anywhere (see Figure 4.43).



At the community borehole



At the maize mill

Figure 4.40: Community gathering points around Ntaja (Source: Author)



Figure 4.41: Bicycle taxis in Ntaja (Source: Author)

The presence of ICTs was largely determined by the availability of electricity, which followed the line of the Muluzi highway. The most noticeable manifestation of ICTs in Ntaja was through the playing of music and loud sounds from the movies in the informal video shows that were scattered across the town. However, during my field research Ntaja was afflicted by regular power cuts, because of which the town not only turned very dark in the evening, but also very quiet without all the radio and video sounds. In the rural areas away from the highway with reasonable mobile network coverage, radios running on batteries and mobile phones were most widespread. Also a number of video shows running on generators were present in these areas.

Computers were rare in Ntaja and there was no public access to Internet services, such as an Internet café. Furthermore, the only ICT for sale in the market or regular shops in Ntaja's commercial centre was radio. Other ICTs such as televisions and computers were only for sale elsewhere in the country or in the informal circuit. Around Ntaja there was a flourishing informal market of ICTs from South Africa, brought back by those who emigrated there. Table 4.7 gives an impression of the prices of different ICTs and ICT services in Ntaja, set against the average monthly income earned by waitresses and teachers of respectively 1500-2000 Kwacha and 9000-10,000 Kwacha.

Radio	300-30,000 Kwacha
Television	15,000-30,000 Kwacha
Mobile phone	5,000-25,000 Kwacha
Desktop computer	40,000-90,000 Kwacha
Entrance fee video house	5 Kwacha/film
Internet	None
* Note 1 Kwacha = \$0.007	

Table 4.7: ICT costs in Ntaja (Source: personal interview 2007)



Maize storage
(taken by Ntaja-15-F)



School
(taken by Ntaja-16-M)



Food storage
(taken by Ntaja-20-F)



House in Lamirebe village
(taken by Ntaja-21-M)



Jonas village
(taken by Ntaja-13-F)



Drafts game
(taken by Ntaja-16-M)

Figure 4.42: Ntaja through the eyes of participants (1)



Boy on the road
(taken by Ntaja-11-M)



Sawing timber
(taken by Ntaja-16-M)



Inside the grocery
(taken by Ntaja-16-M)



Bicycle repair man
(taken by Ntaja-17-F)



Oven
(taken by Ntaja-19-F)



Bicycle with firewood
(taken by Ntaja-18-F)

Figure 4.43: Ntaja through the eyes of participants (2)

4.4 Conclusion

Given the social constructionist perspective adopted in this research, it was particularly important to understand the specific research contexts that shaped and gave meaning to the practices that took place within them, including the research practices discussed in the previous chapter (see Section 2.3). Therefore, this chapter provided a justification for the choice as well as a detailed account of the two research countries and the urban and rural research locations within them, with a particular focus on literacy and ICTs. Furthermore, the chapter was explicitly enlivened by photographs taken by participants, to illustrate their perspective of these environments. The discussion particularly unveiled the diverse nature of the different research locations, such as the linguistic diversity, the diverse ICT landscapes and the diversity in terms of infrastructure and transport. Furthermore, it highlighted the historical dimension of both education as well as the ICT landscape in the different research contexts and the important role that the state had played and continued to play in their development.

By explaining how and where the research data were collected, this chapter has set the scene for the subsequent three empirical chapters in which the data are analysed through the lens of the research aims and objectives. The next chapter starts with an analysis of how low-literate participants shaped their interactions with ICTs to understand how the interplay between literacy and ICTs was socially constructed.

5 The Interplay of Literacy and ICT Practices: 'ICTs are Devices for Educated People'

5.1 Introduction

Both literacy and ICT practices are socially constructed and the interplay between them can therefore also be seen as being socially constructed (Chapter 2). The use of ICTs can introduce new literacy practices when textual representations are involved in their use and can also have an impact on existing literacy practices. Particularly in contexts where literacy skills are less widespread this interplay can be complex, but has to date been insufficiently qualitatively explored.

Better to understand the social construction of the interplay between literacy and ICTs, this chapter examines how low-literate participants shaped their interactions with ICTs despite their limited literacy skills. It starts with a discussion of how participants understood and engaged in literacy practices, also in relation to ICTs. Subsequently, it focuses on the interplay between literacy and ICT content, in particular on the impact of the modality and language in which the content is represented. It then considers the impact that non-local content had on participants' views of the world and examines the interplay between literacy and ICT practices from a collective rather than individualistic user perspective. Finally, low-literate participants' interactions with a digital camera are discussed.

5.2 Literacy Revisited

Section 2.2 has argued that a literacy practice is a communicative practice in which textual representations are used (Rogers, 2001; Cook-Gumperz, 2006a). Literacy skills are an integral part of literacy practices, although individual proficiency is not critical as long as these textual representations can be accessed through other people's literacy skills. This section revisits the notion of literacy and literacy practice based on my research findings, taking participant's knowledge and beliefs about literacy into consideration (Magalhaes, 1995). The following three aspects are analysed: the understanding of literacy, the importance of literacy and the role of literacy in the use of ICTs.

Literacy is strongly associated with being educated and knowledgeable (Papen, 2001). This was reinforced by participants, who interpreted questions related to reading and writing skills as questions about educational levels, as evident from the following response:

'Reading and writing change your mind. If an illiterate person is educated he will become knowledgeable' (Shakisso-17-M).

Moreover, this is how a participant started his response, when asked why reading and writing skills were important to him:

'When you are not educated...' (Ntaja-11-M).

Given the strong influence of English on education in both Ethiopia and Malawi (see Chapter 4), being educated was considered synonymous to knowing English and being literate therefore synonymous with the ability to read, write and communicate in English (see Section 5.3).

Furthermore, particularly in Malawi being literate or educated was considered synonymous to being able to use a pen, which resonated with Singhal and Rattine-Flaherty's (2006) findings in Belize. Consequently, drawing with a pen or pencil was also seen as an element of literacy by the respondents in my research. For example, when Malawian participants were asked what they used reading and writing skills for, 14 (7%) mentioned drawing (4, 3% in Ethiopia). This understanding was further demonstrated in relation to the drawing exercise at the beginning of the focus groups. Some drew my attention to other participants who were not educated or did not know how to read and write, suggesting that they would not be able to participate in the drawing exercise or even participate in the focus group at all:

'This boy did not go to school, so what is he going to do?' (Field notes Ntaja, 06/06/07).

'When I ask them to draw there is one girl who asks how another focus group participant is going to draw, because she can't read and write' (Field notes Ntaja, 22/06/07).

However, in practice these participants were as able as the other participants to express themselves in drawing. Only one participant who had never been to school had difficulty in controlling a pen and therefore to draw (see Section 3.2).

Comparable to pre-industrial America at the time, in some developing countries reading is still understood as the ability to recite texts and writing as the ability to transcribe texts, without necessarily an understanding of what is read or written (Tuman, 1992a). A similar understanding was demonstrated in my field research

when participants talked about their literacy skills. The following two participants for example referred to their reciting or transcribing abilities in relation to their reading and writing skills:

'I can't read, but I can copy what is written' (Shakisso-11-F)

'I read in English also, but I fail to understand what I have read'
(Ntaja-20-F).

This demonstrated how asking a question of the sort 'can you read and write?' can be ambiguous, which further supports the problematic nature of using self-assessment for literacy measurements (see Section 2.2). Furthermore, if self-assessment is used without explicitly stating the intended languages, this might mainly measure literacy skills in English, as literacy was often considered synonymous with literacy in this language. Wagner (1990), for example, has drawn attention to individuals who were only literate in a nonofficial language and therefore assessed themselves as 'illiterate'.

Apart from the unreliability of self-assessment, my field research findings demonstrated that the number of years that people had spent in school was also not a representative measure of literacy proficiency. My translator in Shakisso, a teacher in a primary school, explained how primary school students automatically moved up a class every year, regardless of their performance. In theory this meant that a student could finish primary school without ever having learned how to read or write (Hanushek and Wößmann, 2007). This helped to explain how one participant made it to grade three without being able to read and write in either Amharic or Oromo. It turned out that her mother tongue was Amharic, but living next to a school, her parents had enrolled her in a school teaching in Oromo:

'My parents wanted to enrol me in this school and I was happy to be enrolled, so I tried my best in Oromo' (Field notes Shakisso, 23/01/07).

As she was not able to understand my translator when he spoke to her in Oromo, it is unlikely she was able to understand her teacher either.

The most important literacy practice for which participants consciously used their literacy skills throughout their daily lives was education; the use of reading and writing skills was mostly mentioned in relation to school subjects. The following two participants even expressed that they never used their reading and writing skills outside school:

'Outside school I never use my reading and writing skill'
(Shakisso-12-F).

*'I have nothing to write about outside school and there is nothing I
read outside school'* (Shakisso-14-M).

This alludes to credentialism as an underlying motivation for education (Nyamnjoh, 2004) and therefore supports Puchner's (1995) suggestion that the motivation for literacy mainly came from a desire to get an educational credential, rather than for reading and writing experiences outside of school. Nevertheless, participants might not have consciously recalled that they actually did use their skills outside school now and then. One possible reason why they did not use their literacy skills much outside school was the lack of local content for which the skills could be used (see Section 5.4).

Another reason why literacy practices were less prevalent in daily life was that, rather than communicative practices through textual representations, symbolic ways of communicating, which did not require literacy skills, were still commonplace. An example of such symbolic communication that did not rely on text was observed by Herbert and Robinson (2001: 132) in Ghana, where 'friends who divert to different areas on their way to farm will expect to meet up with their friends at cross paths on the way home. If this does not happen, they leave sticks or grass in certain positions to show they have gone ahead or have gone somewhere else'. In Malawi, a similar example of such a symbolic communication was the use of two bundles of branches on the road to notify passers-by that someone had died in a nearby house. Passers-by were expected to show their respect by getting off their bicycles and walking the part of the road that was demarcated between the two bundles. My translator and I got off our bicycles several times to show our respect, but without his explanation about this cultural practice, I would have missed out on the meaning of the bundled branches and therefore been disrespectful without knowing it.

In Ethiopia, there were other examples of symbolic communication, particularly in Shakisso (see Figure 5.1). For example, the bucket with a jug of water in the picture on the left indicated that meals were being served there. They not only served a communicative role, but also a practical one: as meals are eaten by hand in Ethiopia, customers of the restaurant were meant to use it to wash their hands. Furthermore, the object in the picture on the right also communicated two separate things. The kettle advertised the availability of mead or locally brewed drinks and the wrap at the top indicated the sale of honey or butter, as these were normally wrapped in this way.

Apart from a few examples of symbolic communication that struck me, there were undoubtedly many other symbols that did not catch my attention (for a wider discussion of semiotics, see Kress, 2003; and de Souza, 2005).



Serving meals

Locally brewed drinks & butter/honey for sale

Figure 5.1: Symbolic communication in Shakisso (Source: Author)

Participants identified the following four main assets of reading and writing skills: gaining knowledge and understanding, chances for employment, writing (secret) letters and independence. First of all, participants considered that reading and writing skills served as an enabler for acquiring knowledge. This was for example illustrated by what the following participants said about the importance of reading and writing:

'To know everything' (Nazret-13-F).

'If you can read and write you will be able to gain more knowledge'
(Zomba-23-M).

The knowledge learned from textual materials that participants were referring to here is what Canieso-Doronila (1996) called 'literate knowledge', which contrasts with the 'traditional knowledge' transmitted through oral traditions. Despite this appreciation for knowledge, at the same time individuals who were acquiring too much knowledge through reading were sometimes considered abnormal, as the following participant explained:

'Someone in my home village got mad because of reading too much. This person was moving around with Bibles and if he would see people reading he would be able to tell everything about what was in that chapter' (Zomba-16-M).

As literacy skills are mostly learned formally, they are often associated with institutionalised settings such as education and workplace employment (Commeyras and Chilisa, 2001). In accordance with the correlation between increased literacy skills and the probability of employment (Windham, 1999; Darcovich, 2000), participants reinforced that reading and writing skills were important for employment:

'Sometimes people fail to get a job because they can't read and write' (Ntaja-19-F).

'I can use reading and writing for the future. If you are not educated, you can't find a job. Maybe you can find a job, but it might not be with good money or a good job. You might be a carrier or gari driver, taxi driver or co-driver' (Nazret-12-M).

The nuance in the last quotation shows how being educated and therefore reading and writing skills were particularly important for finding 'respectable' and well-paid employment. This impact of credentialism on employment was further reinforced by what the following participant expressed about the importance of education for employment:

'You have to learn school, because school is important, it can help you. When you have finished school you can choose any job you want' (Ntaja-13-F).

A third asset participants identified, was that literacy enabled communication through letters (see also Carron, 1990). As the postal services in both field research countries only covered major towns, this literacy practice relied mostly on informal channels of delivery, which is for example illustrated by how the following participants distributed their letters:

'I write letters and then give to passengers in cars' (Shakisso-11-M).

'First I write letter and go to the market on the market day and search for the person who will take my letter to my relatives' (Shakisso-17-F).

The latter quotation reinforced the importance of the market days in Shakisso, not only for business purposes, but also for communication (see Section 4.2). If senders or receivers did not have literacy skills to read or write the letter themselves, they could appeal to the skills of others, as the following participant usually did:

'When I need to send a message to my parents, I ask someone to help me writing it' (Shakisso-15-F).

This corroborates that individuals can successfully take part in literacy practices without mastering literacy skills themselves (see Section 2.2 and 5.6).

Similar to what Herbert and Robinson (2001) found in Ghana, participants commented that an important use of letters was 'secret' communication:

'If you explain something orally, you may expose the secret. However, if you write it down, you can give the paper to someone and the secret will be kept between you' (Shakisso-18-F).

However, such 'secret' communication was less suitable for appealing to the skills of others, as this could disclose the secret. Therefore, individual literacy skills were strongly desirable for this particular literacy practice:

'Because, if you can't read and someone writes you a letter, you need to take it to someone else to read it for you. If the letter contains some secrets, this person might reveal it to others' (Ntaja-17-M).

Another reported disadvantage of relying on the literacy skills of others and therefore a motivation for individual literacy skills was that it created dependency:

'If you can't read and write, you can't live with people. Illiterate people are always dependent and always asking others to read for them. So it's better to be more independent with such things' (Nazret-17-F).

Dyer and Choksi (2001) found a similar power relationship between the lack of literacy skills and dependency, particularly in connection with writing letters and taking transport. As they pointed out, being able to read the directions on the bus would not only enhance mobility, but also self-confidence. This role of literacy skills for taking transport was also evident in Malawi where 9% (18) of participants mentioned reading the directions on the bus as an important asset of reading and writing skills, including the following participants:

'When you are not educated you can't know that this bus is going this direction and that bus is going that direction' (Ntaja-11-M).

'If you can't read and write you can board the wrong minibus that is not going your direction' (Zomba-20-M).

Contrastingly, in Ethiopia none of the participants made reference to the importance of reading and writing skills for taking transport. This difference can be explained by the different communicative practice of conveying bus destinations. Whereas in Malawi most buses had a sign behind the front window textually communicating its

destination (see Figure 5.2), in Ethiopia the destination of the buses was announced orally by an attendant. In other words, in Malawi it was a literacy practice, whereas in Ethiopia it was an oral communicative practice.



Figure 5.2: Bus with written destinations in Zomba, Malawi (Source: Author)

The dependency on other people's literacy skills was considered a reason for embarrassment, as can be perceived from what the following participant said:

'You will feel shy when someone has written you a letter and you have to take it to someone to read it for you' (Ntaja-16-F).

However, it was not the dependency itself that was necessarily the reason for embarrassment, but rather the 'illiteracy' that it uncovered. One participant for example explained how the Amharic word for illiterate, *mahajim*, was used as a swear word referring to people who cannot read or write:

'If I can't read and write and go to someone to write something and another time we might be fighting, this person might use 'mahajim' (illiterate) as swearing word to me. That is why it is better for me if I can read and write' (Shakisso-13-M).

The pejorative connotation of the word *mahajim* could be an inheritance of the National Literacy Campaign carried out in Ethiopia between 1979 and 1990 (Afework Tekleyesus, 2004). During this campaign one of the strategies was the use of catchy slogans, such as 'To be free from illiteracy is like being reborn' (Kebbede Shenkut, 2005). The indirect, underlying message of such slogans was that 'to be illiterate is to be stigmatised as being at the wrong end of the social scale, to be deficient, sub-

normal' (Lewis, 1953: 160) and therefore encouraging people to participate in literacy classes to overcome their 'deficiency'. The Ethiopian literacy campaign even introduced a new word, *doofa*, to the Oromo language to be able to denote 'illiteracy' in their slogans. The negative connotation of *mahajim* and *doofa*, suggests that people might not like to disclose their lack of reading and writing skills to avoid stigmatisation. This is another indication that self-reporting methods for literacy measurement are not very reliable (see Section 2.2).

As pointed out in Chapter 2, literacy and technology are becoming more and more interdependent. Whereas previously literacy practices mainly consisted of interaction with printed or written text, the introduction of ICTs has given a new dimension to the reading and writing space and introduced 'silicon' or technology-mediated literacy practices: interaction with ICTs involving textual representations (Snyder, 2002). Similar to Farrell's (2004) conclusions, there was a strong perception throughout the field research that many of these 'silicon' literacy practices were only meant for educated and therefore literate people, suggesting that the ICTs were not user-friendly for low-literate users. This was strongly supported by the responses to the question asking participants to identify the cards with ICTs that people without reading and writing skills would face difficulties with:

'If a person is not educated, he can't use radio' (Zomba-13-F).

'Computers are devices for educated people. Non-educated people can't use these' (Nazret-14-M).

Participants who were not educated further reinforced this idea themselves, believing that they would not be able to operate an ICT:

'I can't imagine myself using computer, you know why, because I am not educated' (Nazret-16-M).

All the identified usability issues were somehow related to the use of textual representations and can be subdivided into those directly related to the operation of the ICT and those more related to the ICT content. With respect to ICT operation, there was a strong belief that users without reading and writing skills would potentially damage the ICTs, for example by pressing wrong buttons:

'If you can't read and write and touch buttons improperly the mobile might be damaged, but if you are educated you know how to use it and you can read the text on the screen' (Nazret-16-M).

In terms of the difficulties with ICT content, all concerns raised by participants were related to the textual representation of information not being understandable for people without reading and writing skills, for example:

'When there is something written on the television screen, you need reading and writing skill' (Nazret-10-M).

'If people can't read and write, when they get a text message, they will have problems to read what is on the phone' (Zomba-11-F).

As a consequence, different participants suggested improving the usability of ICTs for low-literate users:

'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).

At the same time, some participants suggested that technology mediated communicative practices were actually 'replacing' some literacy practices and in that way reducing the need for literacy skills. Participants for example commented that they preferably communicated with other people by telephone and only if the possibility to make a phone call was lacking did they revert back to the alternative of writing letters:

'If I had mobile, I would reach them by mobile. Since I don't have mobile now, the only option I have is to write letter' (Shakisso-18-F).

'If you cannot find a person by phone, you can send a message by letter and express your feelings' (Nazret-17-F).

Although this preference was presumably motivated by the swiftness and reliability of the communication compared to letters, it also reduced the dependency on literacy skills and therefore made it a more usable communicative tool for low-literate users (Chand, 2002). Another comparable example of ICTs taking over from reading and writing as a tool for interacting with other people (Winograd and Flores, 1987) is how the following participant learned about baking a cake from television, rather than from a cooking book:

'There are some things I didn't know, but learned through television. Like things about the cultures and school. I learned for example the way we can take care of our environment. I also learned how to cook cake from the television' (Zomba-17-F).

5.3 English, the Language of Technology?

It is frequently argued that a significant barrier to the use of ICTs in Africa is that the technologies and their content are not available in local languages, but are rather predominantly in English (Kenny, 2002; UN, 2002; Baliaoune-Lutz, 2003; Wagner and Kozma, 2005). My field research confirmed that language was indeed an important factor determining the usability of ICTs and their content. In both Ethiopia and Malawi the language of operation of most ICTs and the representation of their content was dominated by English. Therefore, participants had come to consider English as *the* language of technology and consequently mastering English skills was widely seen as a prerequisite for using some of the ICTs, such as the computer. This section explores this digital language divide and thus the role of language in ICT use in more detail. Apart from the (symbolic) role of English in heterogeneous African language environments, it particularly concentrates on the importance of language for the design of ICTs and their content.

The language environments in Ethiopia and Malawi are typical for the heterogeneous language environments in Africa (see Section 2.2). In Malawi, next to the official language English and the national language Chichewa, there are 12 other languages spoken throughout the country (Gordon, 2005). In Ethiopia, where the national language is Amharic, the linguistic diversity is even more complex. There are approximately 84 living languages throughout the country and the fact that they use different alphabets complicates things further (Gordon, 2005). This linguistic heterogeneity was also demonstrated in the field research, as participants reported competency in 16 different Ethiopian (10) and Malawian (7) languages, albeit with English as the common denominator. Furthermore, the 'diglossia' dividing major from minority languages that is typical in Africa was particularly evident in Malawi (see Section 2.2); participants preferred to communicate in Chichewa, even if their mother tongue was one of the other local languages that my translator spoke, suggesting that their mother tongue was reserved for private affairs and therefore Chichewa was more appropriate for the research setting (Hornberger, 1999).

English still plays an important role in many African countries (see Section 2.2), including Malawi and Ethiopia, where it has a prominent role in education (Bloor and Wondwosen, 1996; Matiki, 2001). Even in Ethiopia the dominating language in education was English, although it is not a former colonial language (see Section 4.2). Although primary schools have been permitted to teach in the language of the

region since 1994, English is taught as a second language in all primary schools (see Figure 5.3) and is the language of instruction in secondary education (Bloor and Wondwosen, 1996). The role of English in education is further illustrated by what the following interviewee from Malawi said:

'My mother tongue is Yao. I further speak Chichewa and at school we speak English' (Ntaja-15-F).

Given the strong influence of English in education, it is not surprising that in different Anglophone African countries being literate, a concept that is strongly associated with being 'educated' (see Section 5.2), is considered synonymous with the ability to read, write and communicate in English (Yates, 1995; Papen, 2001; Adegbite, 2004). This was strongly confirmed throughout the field research by participants who made explicit reference to English skills, when they were asked about their general reading and writing skills:

'If you can read and write, you will be able to speak English and go abroad' (Zomba-13-M).

'I know how to read and write, but not in English' (Ntaja-19-F).

'I read Amharic, but not English' (Shakisso-13-F).

In addition, in Malawi English skills were also a key to salaried employment (Herbert and Robinson, 2001):

'If you are invited for a job interview, there they only communicate in English, which means you will not get the job if you are failing to communicate in English' (Zomba-14-F).

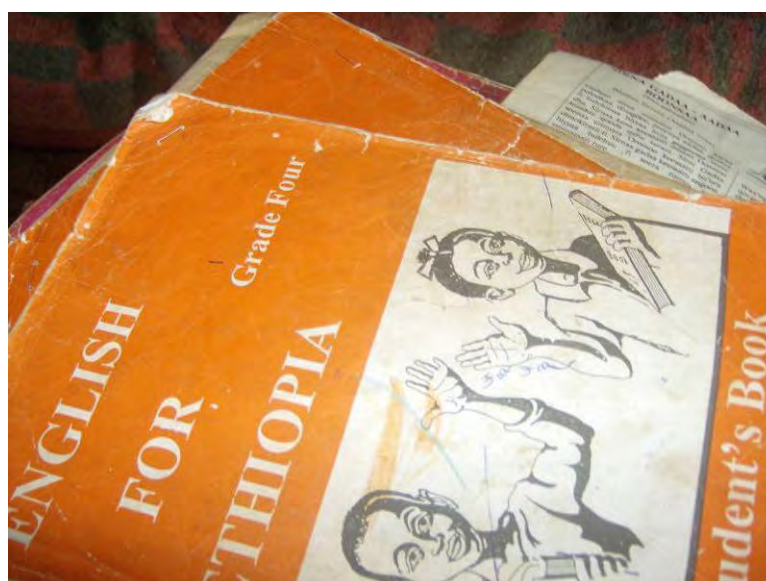


Figure 5.3: English schoolbook in Ethiopia (taken by Shakisso-10-M).

As explored in Section 2.2, apart from its functional value, English also has a symbolic value of prosperity, which can give status to those who know it and serve as a means to express power (Yates, 1995). This symbolic value gives people an important incentive for learning literacy in English, or other national languages of status, compared to learning literacy in their mother tongue, which should be taken into account in language policy decisions (Robinson-Pant, 2004). As Yates (1995) has pointed out, despite all the arguments in favour of mother tongue literacy, ignoring the wish for literacy in English is like perpetuating voicelessness. The importance of knowing English was further reinforced by my research data. A number of participants explicitly expressed a wish to learn English (Ethiopia 7, 5% and Malawi 20, 10%), whereas none of the participants expressed an interest in learning any other languages. Only the following participant was an exception:

'I would like to learn English, Arabic and Hindi language'
(Shakisso-16-F).

This interviewee's additional wish to become an international actress could explain her desire to learn these particular languages, as they were the three most prevalent languages in international movies and television programmes watched in Ethiopia (see Section 5.5).

Wagner (2009: 554) has argued that within the notion of the digital divide, there is a more subtle 'digital language divide' that is rarely discussed (see Section 2.2). Just like literacy, ICT is inherently related to language, because interacting with an ICT implies the use of a language. Similar to de Angeli *et al.*'s (2004) findings in India, English was perceived as the language of technology in all the different language environments experienced during my field research. A lack of literacy skills in English was therefore considered as one of the main barriers to using ICTs:

'Most people here do not know how to read and write English, so they cannot use these technologies that are often in English'
(Zomba-18-M).

'You should be able to understand and read English otherwise it is too difficult to use mobile phone and computer' (Nazret-17-M).

English was considered particularly indispensable for using a computer, as the following participant reasoned:

'If you can't understand English, the computer will be useless to you, you can't use it' (Nazret-17-M).

As a consequence, participants often regarded those literate in a local language, but not in English, as 'ICT illiterate':

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

‘If you can’t read English you might have difficulties using computer. Someone who can only read and write in Amharic can’t use it’ (Nazret-12-F).

Therefore, in addition to its symbolic value of education, employability and status, English had also obtained a symbolic value in terms of who could use ICTs or not.

The main reason why participants enrolled in FSCE’s non-formal education program believed that English was a prerequisite for using computers was that they had come to use computers for educational software called ‘ABCD’ that had been developed by the BBC. This software had originally been developed in English, but was supposed to be localised into the Amharic language and with different pictures that were more relevant to the Ethiopian context. However, as the BBC postponed and delayed this localisation for too long, FSCE had started using the English version of the program, whilst waiting for the localised version (see Figure 5.4). Therefore, students’ first encounter with computers was in English, rather than their own language.



Figure 5.4: Students using ABCD program at FSCE (Source: Author)

Various scholars have highlighted the problem of transferring ICTs that were originally developed and designed for developed countries to developing countries without any modifications (see Section 2.3, Mansell, 1999; Heeks, 2002; Sahay and Avgerou, 2002; Sunden and Wicander, 2006). One of the reasons that English has become perceived as the language of technology, was that through such ‘blind

technology transfer' without adaptation to the local language environment, the market had become dominated by ICTs with English labels (see Figure 5.5) and operating instructions. As one participant noted:

'Many imported products aren't labelled in Amharic, but only in English' (FG Nazret-16-M).

Not only was the design of the technologies themselves not adapted to the local language environment, but also much of the ICT content was dominated by English (Kenny, 2002). For example, in Malawi English was the working language of the only television channel (see Section 4.3). This domination of ICT content by English is supported by what the following participants said:

'When you are watching the news, they explain that news in English, so you will not be able to understand what they say' (Zomba-15-F).

'Because the computer programs come in English and not in Chichewa' (Zomba-20-M).



Figure 5.5: Radio with English labels in Ntaja (Source: Author)

Language is also a key issue for radio channels (Fardon and Furniss, 2000) and my field research suggested that radios were better attuned to the heterogeneous language environments; in both Ethiopia and Malawi the major radio channels were broadcasting in the main vernacular languages of the country (see Chapter 4). Different participants made reference to this multilingual nature of radio channels:

'According to your language ability you can search the channel with your favourite language' (FG Shakisso-19-M).

'Radio speaks and then gives a kind of pleasure. It can speak all languages, Afaan Oromo, Amharic and all others' (Shakisso-13-F).

One participant even used the multilingual radio channels to learn new languages:

'I like radio, because you learn about different languages from it'
(FG Shakisso-16-M).

Determining why the technology transfer came to be dominated by English has an element of the chicken and egg conundrum to it. On the one hand, it could be a result of an external technology push, but on the other hand it could also be a market pull from the more affluent, English speaking elite. As they were the first who could afford ICTs, they could, in the absence of localised ICTs, have created a demand for ICTs in English. In other words, either the ICTs in English favoured the English speaking elite or the English speaking elite favoured ICTs in English. Either way, as a result of the relation to language, ICT use has an effect on the language environment surrounding its use; heterogeneous language environments are particularly affected. The observed domination of English had left its marks in and changed the language environment in which the ICTs were used in both field research countries. For example, the perception of English as a prerequisite for ICT use helps to strengthen its position and importance within the language environment at the expense of local languages, creating an extra motivation to learn English.

Another impact of English on the language environment was apparent from the vocabulary that participants used to signify the different technologies depicted on the ICT cards. As James *et al.* (2003) have observed, ICT-related words are often directly incorporated into local African languages from languages such as English and French. Similarly, in all three languages used for communication with participants most of the ICT vocabulary had been directly adopted from English without any alteration (see Table 5.1). One exception in Amharic was the term *silk* that was used to denote a landline telephone. Also Oromo had its own word for telephone, *bilbilaa*, but participants who were interviewed in Oromo used this term interchangeably with the Amharic term *silk*, which showed how local languages also influenced each other. This Oromo term has an interesting etymology, as it adopted the word that originally meant cowbell. Their functional analogy could explain the choice of this term; in the same way that the bell jingling around the neck of a cow helps its herder to locate it, the telephone can be used to let others know where you are, or alternatively the ring of the phone simply sounded like and therefore reminded people of a cowbell.

Amharic	Oromo	Chichewa
Television TV	Television Video	Television Video TV Screen

Table 5.1: Words participants used for television (Source: Author)

Most technology design practice originates from countries with homogeneous language environments, in which the choice of language is straightforward and therefore plays an insignificant role in the design. However, for heterogeneous language environments that are typical in Africa, the role of language in design is more significant and has so far received insufficient attention in academic literature. Aware of the domination of English, various participants identified a need for modification of ICTs to local languages:

‘Most people here do not know how to read and write English, how can they use the technologies that are often in English? Maybe you can also make them in Chichewa or Tumbuka’ (Zomba-18-M).

‘If English television programs can be translated in Amharic that would be good’ (Nazret-13-M).

‘Write words on technologies in Malawian languages’ (Zomba-20-M).

However, this contradicts research in Botswana and India that found there was no particular preference for the local language over English (Onibere *et al.*, 2001) or even that English was preferred as the language for interaction with ATMs (de Angeli *et al.*, 2004).

As Wagner (2009) has argued, the digital language divide can be overcome more easily than the language-in-print divide, because of the cheaper production costs of adding or changing languages on digital content. However, if ICTs and their content are indeed to be designed more for local languages, two main consequences need to be considered. First of all, as the number of local languages is manifold, this brings about a similar dilemma of choice as for literacy education (Yates, 1995). Particularly in a language environment as heterogeneous as Ethiopia catering for all the 84 different languages would be unrealistic and the possibility of even producing ICT content just for the four major languages Amharic, Oromo, Tigrinya and Somali cannot be overestimated. Furthermore, the design choice for any local language is delicate, as the languages are bound up in the power structures of the society, embodying as it does an indirect political connotation. This makes it prone to misuse for certain political agendas and could therefore lead to rejection by some ethno-

linguistic groups. Consequently, despite its domination and status, because English does not favour any ethno-linguistic group in particular, it can sometimes be a more favourable choice (see Section 2.2).

A second possible consequence is that ICTs in local languages can elevate the importance of these languages and in that way create an extra incentive for becoming literate in the local language. At the same time, given the current status associated with ICTs in English, there is a possibility that ICTs in local languages become considered as inferior. Furthermore, even ICTs in local languages are not likely to change the fact that the vast majority of content available in the world is not in these local languages and therefore still advantages skills in a dominant language such as English. Additionally, ICTs in local languages can serve as a tool for acquiring, improving and retaining literacy skills in local languages (Farrell, 2004; Wagner and Kozma, 2005). At the same time, they offer a potential for developing content in unwritten languages, for example through audio or audiovisual representations, which would fit well with the oral traditions of these languages.

However, an example demonstrating that designs in local languages are not always successful is the introduction of mobile phones in Ethiopia with menus in Amharic and the possibility to send text messages in the Ge'ez script used for Amharic and other languages in the region (BBC, 2007a). These phones have not become popular since they were introduced, for two main reasons. First, the Amharic functionality is only available for one particular basic model of phone that does not have functionalities such as a built-in camera or Bluetooth, and therefore users might prefer more sophisticated models in English. Furthermore for sending text messages in Ge'ez script, both sender and receiver need to be using this particular model to be able to decode the message. However, once this functionality is extended to other models in the future, it could become more popular and widespread.

Overall, in order to avoid a literacy elite of English-speaking individuals who find ICT user friendly (Gunderson, 2000), the role of language, and local languages in particular, in ICT design needs to get more attention particularly in heterogeneous language environments. Nevertheless, at the same time 'my writing and your reading in English helps to maintain this whole debate as the cultural property of the English-speaking world' (Tomlinson, 1991: 28). As Reiss has argued (1993: 6), 'the very language through which we express our thoughts reflects a particular perspective on the world'.

5.4 Understanding ICT Content

As pointed out in Chapter 2, much international effort on literacy and ICT4D has focused on equipping as many people as possible with literacy skills and ICTs, without questioning what kind of materials are available to use these skills and ICTs for. In other words, the focus has primarily been on the 'tools', rather than on developing relevant local content. The resulting 'digital content divide' is an important impediment for ICT use, particularly in developing countries, and a reason why many ICT4D initiatives have failed (UN, 2002; Roman and Colle, 2003; Wagner and Kozma, 2005; Chéneau-Loquay, 2007). This section explores the content divide observed during my field research in more detail; it particularly concentrates on the alternative modes of representation, and the new opportunities for developing and distributing content offered by ICTs.

The content divide is not unique for ICTs, but already existed for printed media and therefore in relation to reading and writing skills (Freeland, 1995). In both field research countries, the few bookshops were dominated by English and schoolbooks. Apart from newspapers, schoolbooks and the Bible, little reading materials existed in the major languages, let alone other vernacular languages. In many vernacular languages the reading material reaches as far as the Bible (Carron, 1990; Freeland, 1995). As a consequence, previous researchers have found that a main motivation for people to become literate is to be able to read the Bible, underlining how important Christian churches and missionaries have been in establishing the moral base for literacy in Africa (Prinsloo, 1995; Sibiya and Van Rooyen, 2005). This was resonated in participants' responses about the use of reading and writing skills, as 10% of participants explicitly referred to reading the Bible (3, 2% in Ethiopia and 34, 16% in Malawi):

'Learn to read and write so that I can preach the word of God'
(Zomba-23-F) (see also Figure 5.6).

Furthermore, the field research suggested that ICTs were in part taking over the role of the Bible, in that way reducing the need to read it and therefore taking away one of the motivations for acquiring literacy skills. The following quotations for example illustrated how the word of God spread via ICTs:

'I learn about the spreading of the word of God via the Nigerian films'
(Zomba-20-M).

'With television you can watch words of God' (Ntaja-14-F).

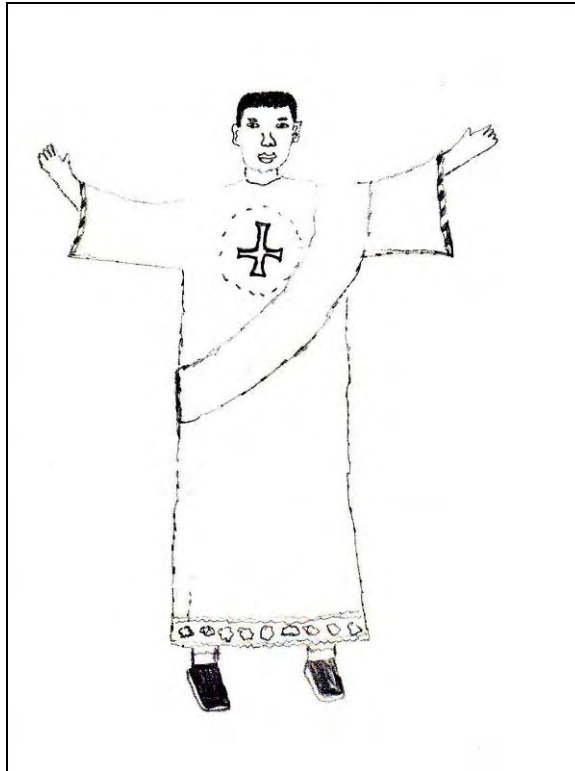


Figure 5.6: Participant's aspiration to become a priest (drawn by Zomba-13-M)

There are three main factors that determine the relevance of ICT content and therefore how well it facilitates the understanding of users. The first two similarly apply to literacy materials, namely that the content should ideally be in the language and reflect the culture of the users for whom it is intended (Downing, 1999). A third factor introduced by ICTs is that the mode of representation should ideally match the skills of the users for whom it is intended. For example, audio content has little relevance for a deaf audience. Regarding the first factor of language, the content divide for instance manifests itself on the Internet, where despite the large number of African languages and dialects, there is very little material in these languages available (Marcelle, 2000; Kenny, 2002). Moreover, a consequence of the content divide is that users are drawn to the overrepresented 'alien' cultural content. This was particularly manifest with regards to foreign television and movies, as reflected by the following participant's concern:

'Some Malawians forget their own cultures by adapting to the Western and Eastern cultures they see on television' (Zomba-18-M).

How the watching of these unknown realities affected participants' understanding of the world and left its traces in the society is explored in more detail in Section 5.5.

Whereas literacy materials are predominantly textual, ICTs have given a new dimension to the reading and writing space and moreover have extended the possibilities of representing content beyond the predominantly textual print media (see Section 2.2). ICTs enable the use of for example textual, audio, visual and audiovisual information interchangeably (Withrow, 2004). Consequently, text, visual representations and sound have all become part of a new understanding of what it means to be literate (Tuman, 1992a), therefore reducing the relative importance of reading and writing skills alone. The alternative modes of representation offered by the ICTs, such as images and video, provide new possibilities better to support low-literate users (Chand, 2002). The field research methods for example demonstrated how low-literate participants were easily able to interact with and produce visual representations, such as the ICT cards, and participants drawing and interacting with a digital camera, suggesting that visual content is more appropriate for low-literate users (see Chapter 3). However, the two other factors of language and cultural relevance remain equally important in determining the appropriateness of content for a low-literate user.

Psychological research has demonstrated that a mixed mode of representation, as opposed to single mode, can increase the effective size of working memory (Mousavi *et al.*, 1995; Mayer, 2001). This 'modality effect' refers to the idea that 'effective cognitive capacity may be increased if both auditory and visual working memory can be used' to process incoming information (Mousavi *et al.*, 1995: 321). This is something to be taken into account during ICT design and content development and resonates with the preference that was expressed throughout the field research for audiovisual ICT content, which suggested an unconscious awareness of the modality effect. This predilection was, for example, pronounced by the following two participants, who preferred ICTs that support audiovisual content over ICTs that just supported audio content:

'Because on television you see the people who are speaking, with the radio you can't see the people speaking' (Zomba-19-F).

'The difference between television and phone: with phone you can't watch and only communicate orally' (FG Shakisso-25-M).

The preference for audiovisual representation was further reflected by suggestions made for advancing ICTs towards audiovisual representations, such as:

'Whenever I make calls, a mobile that can show the image of the person I call or who calls' (Shakisso-15-F).

'Maybe for the phone, it could be made in such a way that if you are talking to someone you can also see them like if you are talking face to face' (Ntaja-19-F).

These alternative modes of representation offered by ICTs further provide new opportunities for African oral traditions. Canieso-Doronila (1996: 78) distinguished literate knowledge 'learned in school, from printed material or another form of reading and writing', from traditional knowledge 'derived from an oral tradition consisting of beliefs, practices, norms, attitudes, values, world views and information'. Likewise, African traditional knowledge is characterised by a strong oral tradition in which history and culture are preserved through a system of oral transferral from generation to generation, comprising dance, music, songs, storytelling and iconographic artistic representations (see Section 2.2). Whereas textual content mainly facilitates literate knowledge, the alternative modes of representation offered by ICT provide new avenues for preserving this African knowledge carried in songs, dances and storytelling.

My research findings confirmed the cultural importance of dancing and music and suggested that ICTs have already started playing an important role in preserving this tradition. Concerning dance for example, 15% of participants (12/8% in Ethiopia and 42/21% in Malawi) related the functionality of different ICTs to dancing, ranging from recording and displaying dancing, to providing the music:

'Television: for watching people dancing in there' (Zomba-10-F).

'Video camera: to make record of different kind of things, like local dancing and different kind of songs' (Nazret-11-F).

How much this functionality was actually cherished, was discussed by one participant who found the ICT card with the small radio less attractive, because in her opinion it did not support dancing:

'I will not buy this radio, because it is small and we are not going to dance with this one' (Ntaja-13-F).

The importance of ICTs for dancing was further reinforced by the word that was occasionally used in Malawi to refer to a radio or tape player: nine (4%) Malawian participants (and one Ethiopian participant) recognised the ICT cards depicting radio or tape player as *dance*.

Apart from providing new opportunities for representing content, ICTs also offer new opportunities for developing and distributing content. As Tacchi (2007: 127) has

argued, there is a need to exploit 'ICTs as creative tools and communication channels that can be used to create local content and distribute it'. The most evident way to bridge the content divide is through developing more local content, preferably locally, rather through the efforts of external parties (Tacchi *et al.*, 2009). However, developing countries often lack the capacity to provide locally relevant content (UN, 2002). Therefore, an important advantage of digital media is that it has lower production and distribution costs than print media and moreover allows for information to be updated more easily (Wagner and Kozma, 2005). Furthermore, the alternative modes of representation offered by ICTs provide new possibilities for local content to be developed by low-literate people themselves, whereas previously it was more difficult to engage them in the development of printed materials, because of their limited levels of literacy and education (Chéneau-Loquay, 2007). This idea was espoused in my research, as low-literate participants were able successfully to interact with a digital camera and in that way develop both visual as well as audiovisual content; one participant in Ethiopia even used it to record her life story (see Section 5.7). This supported Tacchi's (2007: 129) idea that 'content creation itself is a powerful means of engaging people with media technologies that has the added benefit of allowing them to voice their concerns and to share and learn locally relevant knowledge'.

5.5 *Watching Unknown Realities*

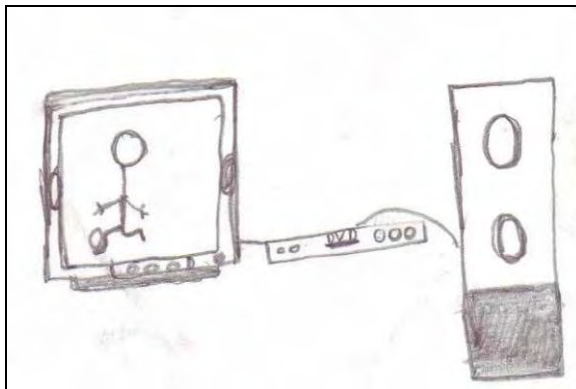
The consequences of a lack of local content and therefore the exposure to 'alien' ICT content were particularly manifest with regards to the so-called video shows. These widespread informal video houses mainly screened foreign movies and in that way provided a quick glance into unknown realities. As these informal screenings and their wider impact have so far hardly been explored in the literature (see for exceptions Assefa, 2006; Million, 2008), my findings make a substantial contribution to this research area. Apart from my own observations about the impact of these video shows, my attention was particularly drawn to it, because participants themselves raised it as an issue, especially in Malawi. The most important findings in relation to watching unknown realities were: the movie content was part of a very specific range of genres and had an impact on participants' views of the rest of the world, there was a mismatch between the language of the video content and the language environment, and the video shows themselves had far reaching social implications.

A video show can be defined as ‘a place where video films are being shown to people in return for payment’. ‘Video show’ was the term used in Malawi, but in Ethiopia the same concept was known under the name ‘video house’ (Assefa, 2006; Million, 2008).

‘Even if I don’t have television at home I can pay and get service from somewhere else’ (Nazret-16-M).

‘You pay money and watch in the town’ (Shakisso-14-M).

As the above quotations illustrate, the video shows functioned as a service to those who could not afford or did not have the technology at home, for example because of lacking power supply. As such, they have particularly offered opportunities to the poor and low-literate stratum to become part of the video watching audience. Figure 5.7 shows the video show as depicted graphically and photographically by two participants. Both pictures illustrate the typical technological ingredients of a video show: a screen (usually a television), a video or DVD player and speakers. With these ingredients any kind of room with provisional seating facilities can be transformed into a video show (see Figure 5.8). Furthermore, as these technologies relied on power supply they were more scattered around the power grid, but thanks to generators they were also widespread in rural areas, such as around Ntaja.



(drawn by Ntaja-15-M)



(taken by Zomba-17-M)

Figure 5.7: Participants’ images of the video show in Malawi

The video shows were a prospering business opportunity mainly run by enterprising young men (Assefa, 2006). As long as customers paid the entrance fee they were allowed in (see Chapter 4 for average fees and how this related to wages), regardless of their age and the content shown (Million, 2008). As one participant remarked:

'Most of the people who run these kind of shows just want to make money' (Zomba-18-M).

Their informal nature made them self-regulatory and invisible to the authorities. For example, in Malawi video shows showing pornographic materials were widespread, although it was a criminal offence that was punishable by a jail term. In contrast, on the basis of this same offence, the Addis Ababa City Administration did take large scale disciplinary action against illegally operating video houses in the 1990s, closing down several of them (Assefa, 2006).



Video show in Ntaja (Source: Author)



Video show in Ntaja (Source: Author)



Video show in Zomba (taken by Zomba-17-M)



Inside video show in Ntaja (Source: Author)

Figure 5.8: Impressions of video shows in Malawi

In most of Africa – with the exception of West Africa – the poor access and non-availability of local content has had a globalising impact on the movie markets. As a consequence, the video show programmes were dominated by imported films within a certain range of genres, especially action movies (see Figure 5.9) (Ambler, 2002; Assefa, 2006). The extent and speed of this globalisation was particularly evident from two conversations with participants in Shakisso that showed how quickly news from the rest of the world reached those in rural Ethiopia. For example, only four

days after Saddam Hussein was executed a participant referred to this event (BBC, 2006a):

'With television you can watch different things, for example when Saddam was executed I watched that on the news' (Shakisso-13-M).

Moreover, a plane crash in Indonesia with 102 fatalities, a day later inspired a participant's idea for a new technology (BBC, 2007b):

'Last night I heard of a plane crash, something which is awful. I advise you to make a machine that can prevent planes from crashing and keeps them in the air' (Shakisso-13-M).



Figure 5.9: Action movie in FSCE drop-in centre (taken by Nazret-?-F).

As a result of the domination of foreign content, the television was known as an object for watching unknown realities from elsewhere, as illustrated by what the following participants said about television:

'Television enables me to watch things I have never seen. To watch what other countries are doing' (Zomba-16-F).

'Television: you watch things you didn't know before' (FG Shakisso-15-M).

Even when local content was available, there was an aspiration for these unknown realities from afar, which is an example of the notion of cultural imperialism as the voluntary embracing of foreign cultures (see Tomlinson, 1991, for a detailed discussion of cultural imperialism). As one participant recommended:

'There are some televisions that don't have America in them, they only have South Africa, Kasungu and Madina, so if you could produce

some that will have America in them, because it is very interesting'
(Ntaja-16-F).

As a result of this cultural imperialism, the unknown realities had become a role model to imitate and learn from. As Sachs (2005: 20) has noted, 'the world's poor are tantalised by images of affluence from halfway around the world', which two participants expressed as follows:

'With video we watch things that our friends are doing in other countries, so that we can do the same things' (Zomba-18-F).

'For example with television you can see things from America or South Africa. When we know that our friends there are doing things like this, maybe we can do the same' (Ntaja-16-M).

The remainder of this section explores the marks that this cultural imperialism had left in the society and how it had affected participants' understanding of the world, along with the different popular genres.

Throughout the field research both my own observations as well as conversations with participants demonstrated that the following genres were most popular and widespread: action, pornography, Nigerian and Bollywood movies, football and music clips (see Figure 5.11). The latter was the most local of all and normally shown shortly before a movie started to draw customers in. Football and Bollywood movies were particularly popular in Ethiopia (see Figure 5.10), whereas the Nigerian movies were more widespread in Malawi, although they were also gaining popularity in Ethiopia (Million, 2008). These differences can be traced back to a long history of Indian movies in Ethiopia (Shah, 2007) and the export of Nigerian movies across Africa first taking off in the English speaking countries, such as Malawi (Onishi, 2002). The remainder of this section explores the social implications of these different genres in more detail.

Different factors underlie the popularity of certain genres, such as their availability in the local market and interests of the audience. An important factor is language. When movies in local languages are lacking, people resort to alternatives that can easily be understood or might even help them learn new languages. As Harding (2003) has argued, the use of 'pidgin' English in Nigerian movies ensures that the tales told can be understood almost anywhere on the continent. Furthermore, different scholars have accounted for the popularity of action movies to violence travelling well, because it does not need translation (Gerbner, 2000; Assefa, 2006).



Figure 5.10: Gari in Shakisso decorated with Bollywood movie stars (Source: Author)



Figure 5.11: Impression of video show genres in Malawi (Source: Author)

Assefa's (2006: 3) brother for example stated about action movies that: 'they don't need translation. I just watch who beats who and I get the story'. I experienced this myself when visiting a video show in Malawi where a Chinese action movie accompanied by Chinese subtitles was shown, of which I did indeed not 'get' much more than the fighting. Football and pornography travel well for similar reasons.

The language exposure at the video shows had lasting effects on the local language environment. For example, the Hindi language skills of some participants (3/2%) in Ethiopia could be traced back to the influence of Bollywood movies. In Ethiopia there were different initiatives to tackle the language barrier and make the movies more accessible in the local language. First of all, some of the video shows hired translators who synchronously translated the movies to the audience (Million, 2008). However, the quality of these translators and their translations is questionable, particularly for self-taught languages such as Hindi. Furthermore, entrepreneurs have started informally dubbing movies; the whole movie is translated into Amharic synchronous to the original language (personal communication, October 2008) (Million, 2008). Although this is a step in the direction of localisation, it is not without side effects. Again, the quality of these translations is questionable, as there is no quality monitoring of these translators. A translator's own perception and cultural background may for example influence their translations (Lefevere, 1992; Gade, 2001). In addition, there can be conceptual gaps between the original language and Amharic that cannot be covered with a literal translation and therefore give rise to certain ambiguities, as with 'fuck you' (Assefa, 2006). Furthermore, the dubbing mainly caters for Amharic and none of the other major languages in the country and was therefore still not inclusive for all. Finally, the translating entrepreneurs are mostly male, in part because their foreign language skills are better developed, and therefore foreign movies are becoming more gendered as they are exclusively represented by male voices (Million, 2008).

In Malawi, and increasingly in Ethiopia, Nigerian video films were very popular at the video shows; about 14% (29) of participants in Malawi made reference to it. Nigeria was one of the two Anglophone countries (with Ghana) that after independence integrated film into their cultural policy and since then has established a flourishing video film production industry (Diawara, 1992; Haynes and Okome, 1998; Ukadike, 2000; Ambler, 2002). The video film is something between television and cinema that can be produced very quickly and cheaply without specialist equipment up to a rate of one a day (Harding, 2003). As Barber (1997: 347) has observed, 'cassette

and video recorders have made possible the proliferation of local markets of production and consumption'. However, other than these two West African countries, local movie industries in other African countries still lag far behind. Meanwhile, although Nigeria and Ghana in the first place produce for their home markets, there is an increasing demand for their products in other African countries, such as Ethiopia and Malawi (Harding, 2003). Reasons for their attractiveness to other African countries include their local flavour, similar cultural values and dialogues that are easy to grasp (Ukadike, 2000).

What different Nigerian movies have in common is the quest for wealth, status and materialism (Ukadike, 2000; Adejunmobi, 2002). Haynes (2000: 2) characterised it as: 'if one had to choose a single image to express the culture of videos, it would undoubtedly be a Mercedes Benz, which appears ubiquitously as the symbol of the desired good life, the reward of both good and evil, the sign of social status and individual mobility'. Furthermore, the occult also plays a prominent role (Larkin, 2004) and one participant explicitly expressed her dislike of Nigerian movies, because of these witchcraft rituals:

'I don't like videocassettes because when I am watching Nigerian movies they contain witchcraft and I don't like that' (Zomba-11-F).

So far, little is known about the social impact of Nigerian movies, as a role model of this get-rich-quick mentality and witchcraft, on audiences across the African continent, which would be an interesting topic for further research.

Particularly among men, watching football was very popular. However, as Akyeampong and Ambler (2002) have argued, the mass enthusiasm of young men for football was often most of all an opportunity for unemployed youths to fill time. The popularity of this genre had particularly left its traces in Ethiopia, where it was difficult to get around the popularity of Manchester United and Arsenal:

'If Manchester and Arsenal played yesterday, today you can watch the game again, the recorded goals' (Shakisso-11-M).

In rural Shakisso buses had even been named after these clubs (Figure 5.12). Furthermore, football t-shirts were part of the latest fashion, which was for example signified by one participant who took the opportunity with the digital camera to make a photo shoot of the Arsenal t-shirt of his friend (Figure 5.13). This popularity of the British Premier League affected participants' understanding of the world and in particular their geographical knowledge. Whenever I introduced where I was from, participants were usually familiar with the country of Manchester United and Arsenal,

but did not always know the United Kingdom. Given the popularity of these clubs among men, perhaps an effective way to tackle the HIV/AIDS pandemic in Africa would be to develop a promotional video at the start of every match, in which their famous players promote the use of condoms.



Figure 5.12: Buses named after British football clubs in Shakisso (Source: Author)

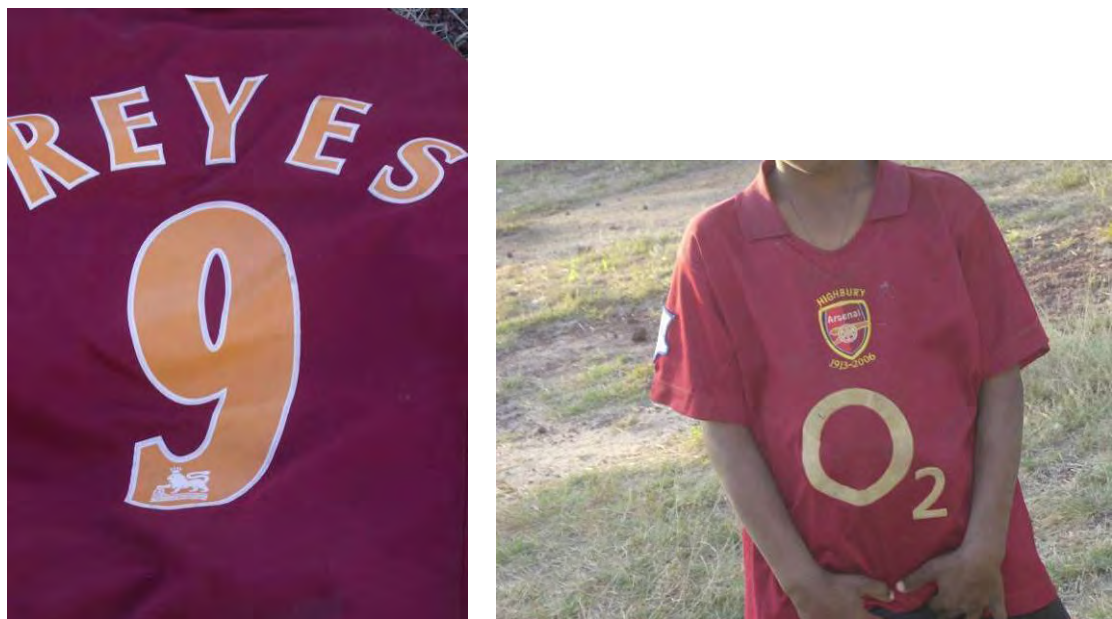


Figure 5.13: Popularity football in Nazret (taken by Nazret-11-M)

Another popular genre that influenced participants' understanding of the world was action movies. As some participants thought that they were watching realities from elsewhere in the world, their understanding of the world was one of constant wars, as supported by the following comment:

'I like to watch 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 focus group drawings of a number of male participants who dreamt of having an airplane in the future, further illustrated how their perceptions had been influenced (Figure 5.14). When they were asked how they knew how to draw an aeroplane, they explained that their drawings were based on what they had seen in movies. Possibly the exposure to helicopters in action movies had shaped their image of an airplane. Furthermore, among the digital pictures taken by participants, there were several (approximately 70 out of 6000 pictures) with particularly boys posing in a fighting posture, as if they were posing for the cover of the latest action movie (see Figure 5.15). One participant that interacted with the research camera even recorded a Kungfu video performed by his brother.

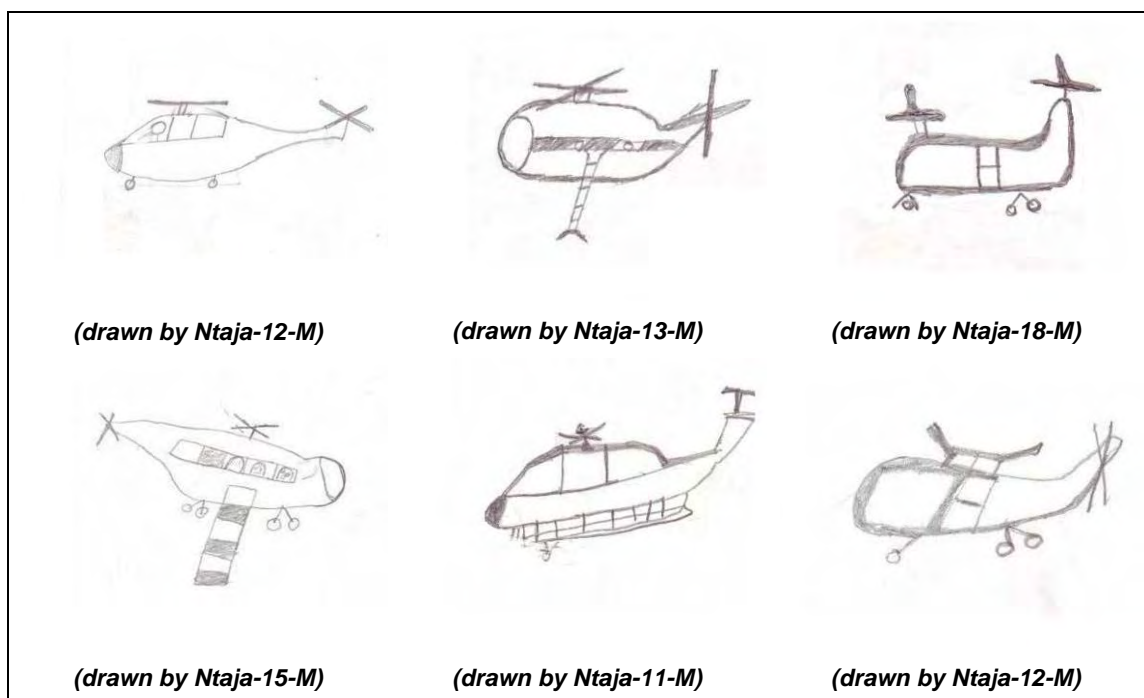


Figure 5.14: Participants' drawings of 'airplanes'



(taken by Shakisso-14-F)



(taken by Zomba-13-M)

Figure 5.15: Fighting poses

The research data further suggested that video shows were providing widespread access to pornographic materials (Amuyunzu-Nyamongo *et al.*, 2005), even though these were forbidden by law in both field research countries. Because of the illegal status of pornographic materials, their screenings were announced in encoded ways. In Malawi, approximately 32% (27 out of 81) of participants who were explicitly asked, indicated they had been exposed to pornographic materials, some at an age as young as seven or nine years old. The real figure was likely to have been higher, as admitting exposure to such materials was a taboo. Sometimes when participants denied they had been exposed to it, their uncomfortable body language suggested the opposite. Such response rates, though, are evidence of ‘my’ participants’ willingness to trust me with such confidential material, and suggest that my research has indeed begun to get beneath the somewhat superficial accounts of many previous attempts to understand the ‘value’ of ICTs in development practice.

Pornography gets most attention in the feminist literature, which argues that pornography promotes gender inequality by portraying women as subordinate to men, with for example women who first refused to have sex eventually becoming willing participants (see for example Brosius *et al.*, 1993; Dines *et al.*, 1998). Furthermore, the intercourse portrayed is often between total strangers with very little attention to issues such as pregnancy and sexually transmittable diseases (Brosius *et al.*, 1993). According to Brown and Keller (2000), evidence is accumulating that these ubiquitous and risk-free media portrayals encourage unhealthy sexual attitudes and behaviour. However, most of this literature is from a Western perspective focusing on the impact of pornography in the West. Much less is known about the impact of (Western) pornography in different cultural contexts, such as Africa.

For instance, the field research suggested that in the African context the social construction and therefore understanding of what counts as pornography is different from Western understandings. The word that participants in Malawi used to indicate pornographic movies was *'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 was much broader than the Western interpretation. Any kind of movie that shows 'sexual' interaction, including kissing, was considered inappropriate to be shown in public. As this interpretation also covers James Bond movies, it was difficult to know what kind of materials participants had actually been exposed to when they referred to 'their' pornography. Furthermore, the shock caused by one picture a participant from the drop-in centre made of a kissing couple, suggested that also in Ethiopia the term 'pornography' actually covered a much broader spectrum than it does in the West:

'He seems to be shocked about one picture where a couple is kissing on the picture, so I explain to him that it was not me, but one of the participants who made it. Apparently it is not very common in Ethiopia to have pictures of people kissing' (Field diary Nazret, 13/12/06).

Similar to Amuyunzu-Nyamongo *et al.*'s (2005) findings in different African countries, the field research suggested that pornographic movies served as a role model to imitate and learn from (Stern and Handel, 2001). As two participants explained:

'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).

'I think they watch these kinds of movies to learn the style of how to have sex. They might think that that is the way how to do it. They do not realise that it is only acting. Another way to learn about sex is maybe in magazines' (Ntaja-16-M).

The concerns of the feminist literature and the lack of attention to issues such as pregnancy, sexually transmittable diseases and condom use, all call for a better understanding of the impact of this role model on the prevailing sexual morals and perceptions about HIV/AIDS. Furthermore, given the secret and unregulated nature of the video shows, there is a potential danger that child pornography finds its way to the video shows. As other scholars have already advocated, further research is needed into the video shows that secretly show pornographic movies to understand the ways in which these movies are understood by those who watch them and how they are interwoven with local forms of power (Strelitz, 2003; Assefa, 2006).

Apart from the impact on participants' understanding of the world, in Malawi participants raised different concerns about the social impact of the video shows and the movies shown there. Their main concerns were the dangers of imitating bad role models and the negative impact on education. The genres of action movies and pornography were particularly considered as bad role models, because their imitation could have undesirable, negative consequences such as violence and rape:

'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).

'If people are watching 'blue movies' and 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).

One participant even ascribed the spreading of HIV/AIDS to ICTs providing a bad role model, causing people to engage in unsafe sex:

'Without these technologies the world would have been good, because for example HIV/AIDS is spreading because of these things. For example when people have watched movies that should not be shown in public ('ma filimu olaula') they might want to try, but they do not know the status of the person they want to try with' (Zomba-18-M).

This showed that participants were not passive recipients of ICT content, but rather were actively aware of and critical towards the potential negative consequences, which further resonated in their thoughts about improvements of existing technologies. Some participants in Malawi (6/3%) for example suggested televisions that cannot display pornography or action movies:

'A television that can't show things that should not be shown in public [pornography]' (Ntaja-11-M).

'Television should be showing pictures nicely dancing, singing, but not people fighting and people having sex' (Ntaja-11-M).

Similar to Assefa's (2006) conclusions, youth sometimes stayed away from school and went to the video shows instead, which explained why some visitors at the video shows I visited were wearing school uniforms. This negative influence of the video shows on school performance was indirectly also detrimental for the acquirement of literacy skills. The following participant gave an account of how the attraction of the

video shows impacted school attendance and moreover drove people to stealing money:

'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 children pass the video show on their way to school and 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).

Another participant even considered that watching television negatively affected the functioning of the brain (see Sigman, 2007) and therefore had a detrimental impact on school performance:

'Instead of concentrating on school you will just be watching. When you are watching television you will not be doing well in class, because your brain will not be working properly because of it' (Ntaja-16-M).

5.6 Sharing ICT Use

In contrast to the dominant notion of (self and) individual needs in the West, it is often argued that in Africa there is much more of a communal culture of sharing resources (Frenk, 1995; Hall, 2002; James and Versteeg, 2007). My field research demonstrated how this culture of sharing also applied to literacy practices and the use of ICTs. This section discusses in more detail how literacy skills and ICTs, as well as the skills to operate the latter, were a common good. It therefore argues that the individualistic standards employed in developed countries may be less appropriate for the African context, which instead requires standards that focus on collective rather than individual proficiency and use (see Chapter 2).

African cultures of sharing have their roots in family and community structure. Although in both African and Western society, marriage is the basis for 'family', a key difference is that Western marriage is based on individualism and independence, whereas the African marriages are generally based on the principle of collectivity and interdependence (Siqwana-Ndulo, 1998). This is part of the reason why concepts

such as home and community do not adequately transfer from one language or culture to another (Smith, 1996). In the African context, 'family' refers to a much wider circle of people than in Western society, as people are traditionally part of a complex and fluid 'extended family', rather than a 'nuclear family' consisting of parents and their offspring (Spitulnik, 2000). This was clearly evident from the family situations of the research participants. In Shakisso polygamy was common, as illustrated by one participant whose father had three wives with whom he had a total of 25 children. Furthermore, participants sometimes left me puzzled when they were referring to one of their parents who they had earlier declared to be dead or when two siblings asserted a completely different number of brothers and sisters. As a result of my own conceptual bias towards the 'nuclear family' it took me some time to understand that brothers and sisters of parents were also be referred to as mother and father and therefore cousins also counted as brothers or sisters. Domestic workers in Malawi who referred to their employers as 'aunt' or 'uncle' further complicated things. Consequently, the meaning of the term 'home' was ambiguous and was used to refer to different places, such as the home village, the house of a relative, for domestic workers the house of their employer, and for the street girls in Nazret their former domicile with their parents. This resulted in different possible interpretations when participants indicated that they had been exposed to an ICT 'at home', depending on their family situation.

Within the collective atmosphere of a family or community literacy skills can be shared with others, enabling those with low literacy skills to engage effectively in literacy practices and thus decreasing the necessity for purely individual literacy skills. Section 2.2 introduced Basu and Foster's (1998) notion of proximate illiterates versus isolated illiterates, to distinguish those who had access to literacy skills within their household from those who did not. The use of 'proximate literacy skills' by low-literate individuals was also common-place in my field research contexts, as the following quotations illustrate:

'If I am asked by my parents to write something for them, I write'
(Nazret-11-M).

'Sometimes people bring me the letter they got from relatives and then I read for them' (Shakisso-18-F).

This reinforces the ideological model of literacy discussed in Section 2.2 and correspondingly prompts for a shift from a focus on individual skills to wider cultural practices; in other words, a move away from seeing literacy development primarily as a matter of advancing individual proficiency (Reder, 1994).

My field research demonstrated that a similar forest of arguments to those applied to literacy can also be applied to the use of ICTs. This is one of my most important findings. Many participants expressed that they had made use of an ICT, but had never actually operated or even touched it themselves. In Malawi for example, 63% (114) of the participants who recognised television, indicated that they had watched television, but never actually operated it. The following quotations further demonstrate how the use of ICTs was shared and therefore how effective use of ICTs was not necessarily reliant on knowing how to operate them:

'I made a call but the owner of the phone dialled' (Zomba-23-M).

'I haven't operated telephone, but made a call. My brother operated it'
(Ntaja-15-F).

It can therefore be argued that 'proximate ICT skills', similar to the idea of 'proximate literacy', allow those with little or no ICT skills effectively to engage with ICTs, although not all ICTs equally lend themselves for such 'outsourcing' of operation. Similar to literacy, this asks for a shift from a focus on individual ICT use and proficiency to collective ICT practices. That way, an ICT only loses its use value, when no proximate ICT skills are at hand, as the following case illustrates:

'We do not have radio anymore; we sold it because there was nobody who could operate it' (Ntaja-14-F).

Apart from the skills to operate them, ICTs themselves were (freely) shared within the complex extended families as well as within the community. It was for example common for ICTs to be shared with neighbours:

'I don't have television at home, but I watch it at my neighbour'
(Zomba-16-F).

'I never made calls myself, but received them at the neighbours'
(Nazret-11-F).

In this way ICTs had become part of local patterns of reproducing social ties through exchange relations (Spitulnik, 2000). Spitulnik's (2000) findings for example showed how in Zambia radios circulated freely in smaller, particularly rural communities and how as a result they became a communal rather than an individual possession. Likewise, FSCE's computer facilities, an outcome of a DFID funded project, were often used collectively by more than one person per computer (see Figure 5.16). In part this was a necessity, as there were more users than computers, but at the same time it fitted with the habit of sharing resources, as was for example common among the girls in the drop-in centre.



**Figure 5.16: Shared computer use in FSCE computer lab and drop-in centre
(Source: Author)**

Other than these informal channels, the shared use of ICT was also offered through different kind of ICT service providers, such as telephone kiosks, video shows, video rental shops (Figure 5.17), Internet cafés and people offering themselves as photographer or cameraman. Characteristic of most of these services was that the operation of the ICT was done by the service provider, rather than the customer. At telephone kiosks for example, the custom was to give the telephone number to the owner, who then dialled the number and handed over the earphone to the customer to speak:

'I used telephone at the bureau. The one who owns the bureau operated it for me' (Zomba-23-F).

Furthermore, computer centres not only provided access to computers and the Internet, but also other kinds of computer services could be outsourced to them, such as typing out letters and sending emails. An interesting example of such outsourcing was the application procedure for the U.S. diversity visa lottery in Ethiopia (U.S. Department of State, no date). Annually 50000 green cards are allocated randomly to people from countries with low rates of immigration to the United States. Applying for this lottery is very popular in Ethiopia¹ and during my field research the deadline for the 2008 lottery (DV2008) elapsed. Since 2005, applications for this lottery can

¹ After Nigeria, Ghana and Bangladesh, Ethiopia has the highest number of 'winners' (U.S. Department of State, no date)

only be made electronically, rather than through the post. As many Ethiopians do not have access to the Internet and lack the skill to carry out the online application procedure, most Internet cafés in Ethiopia offered and widely advertised this as a service (Figure 5.18). Both the electronic application as well as the digital picture to go with the application was made on behalf of a customer for around 3 birr (\$0.36).



Figure 5.17: Video rental shop in Nazret (Source: Author)



Figure 5.18: Advertisement in Shakisso for US diversity visa lottery (Source: Author)

Nevertheless, the culture of sharing resources is not always a voluntary choice in itself, but rather a necessity, for example when the number of available resources is not in accordance with the demand. When financial resources are lacking to acquire the resources, it can be part of what Hahn and Kibora (2008: 114) called a 'zero budget strategy'. Furthermore, the cultural pressure to share can be so strong that

not sharing is not an option without the risk of being condemned by other members of the community. The latter for example happened in the FSCE drop-in centre in Nazret. At first, I admired how the girls were always sharing their resources with each other, until I realised that they actually did not have any choice, that it was a compulsory reciprocity they had to comply with. In other words, the sharing of resources takes place in the context of existing power structures and therefore power relations often influence how ICTs are shared, favouring the most empowered. For example, Cappelle's (2005) research on the Hole-in-the-Wall project showed how the social hierarchy in which people knew their place determined the people who were actually using the computer kiosks, giving most advantage to older boys.

Furthermore, notwithstanding the benefits of sharing resources for those who otherwise did not have access to them, this interdependence was not necessarily cherished and participants voiced a preference for more independence, both concerning literacy skills as well as ICT use. Section 5.2 discussed the negative opinion about the dependency of people with low-literacy skills and how having to rely on the literacy skills of others can therefore cause feelings of shame. Comparable feelings were enounced about sharing the use of ICTs, such as watching television at the neighbour's house:

'We don't have access to television at home, so instead of going to neighbours, if we would have this we can watch television at home. The neighbours might be fed up with us watching there' (Nazret-18-F).

The most important reason why participants did not like the dependence on others is because it gave them a feeling of inferiority. This was for example supported by the following participant whose desire to own a television was motivated by a sense of inequality:

'I watched television at the neighbours, but instead of going to neighbours, I prefer to have it myself. I would like to be equal with them' (Nazret-14-M).

Although my data do not give a decisive answer, the feeling of inferiority might be related to the degree of mutuality in the sharing. A two way sharing of resources might give less reason for an inferiority complex, than one way sharing in which one party is completely dependent on the other. Furthermore, sharing these resources stressed the status and power differences that were associated with literacy skills and ICTs (see Section 7.2) and therefore confronted people with their inferior position. Consequently, to enable sharing that does not give people a feeling of

inferiority or if necessary to shift the focus to a more individual approach if that is what users aspire to, it is important that such issues are also taken into account in a collective perspective to literacy and ICT.

Overall, this suggests that in African cultures of sharing a collective perspective to both literacy and ICT is needed, rather than the individualistic notions dominating in the West and embodied in expressions such as Personal Computer and One Laptop per Child (Mansell and Wehn, 1998; Brewer *et al.*, 2005; James and Versteeg, 2007). As discussed in Section 2.3, the Sony Walkman was originally designed with two headphone sockets, so that two people could listen to it together, but the design was eventually altered because in practice it was used more individualistically than originally anticipated (Urry, 2000). According to Bull (2001), the Walkman has become a tool whereby users manage space, time and the boundaries around the self. However, in a communal African culture the original Sony design might have actually been successful. For example, one participant's recommendation expressed a desire to use a walkman collectively rather than individually:

'You should make the walkman with the speakers, because you can be listening with your friends' (Ntaja-12-M).

Adopting a collective perspective to ICTs has significant implications, for example regarding the credibility of international statistics as well as to what it means to be an ICT 'user' (see Section 2.3). My research reinforced that beyond the instrumental functionality of an ICT, there were indeed other types of uses and relations to ICTs and therefore the term 'users' was not limited to just those who directly operated an ICT (Suchman, 2007). Besides these 'direct' users, there were more 'indirect' users who used the instrumental functionality without necessarily operating the ICTs themselves. For example, the following participant explained how she used the functionality of a telephone by paying someone to make the phone call and pass on the message for her:

'I have not made phone calls myself. We just buy units and give to the phone owner to tell our relatives this or that' (Ntaja-20-F).

A collective perspective on both literacy and ICT also has implications for the design process. It requires a shift in focus from individual users and their needs to collective uses and needs. Collective use for example alleviates the need for individual literacy or ICT skills to operate an ICT; as long as proximate skills can be accessed, ICTs can effectively be engaged with. Furthermore, the design should preferably cater for

multiple users using one ICT at the same time, as well as facilities supporting collective ownership. For example, given the shared use of (mobile) phones, a potential innovation would be the possibility to create different user profiles under one telephone number, all with their own phone credit and mailbox that are only accessible via a password.

5.7 Interactions of Low-literate Youth with Digital Cameras

As explained in Section 3.2, participants were given opportunities to use a digital camera in order better to understand how they interacted with the technology despite their limited reading and writing skills. This showed that although only a few participants had ever operated a camera before, all of them were able to interact with the research digital camera, reinforcing the idea that even those with limited literacy skills can successfully interact with this technology. A striking example of successful interaction and low-literacy skills was one male participant in Shakisso who was looking after cows, had never achieved further than grade 3 at school because his mother died, indicated that he had forgotten how to read and write, apart from radio had never operated any of the ICTs on the cards and had a strong perception that most ICTs could only be operated by educated people. Nevertheless, he easily mastered the digital camera and came back with some fascinating pictures (see Figure 5.19). When I asked him about the electricity tower in the forefront of the left 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).

Furthermore, after he had interacted with the digital camera, his perception about the need to be educated to operate ICTs had changed:

'When I evaluate things, uneducated people can be trained to operate things like this' (Shakisso-19-M).

The remainder of this section discusses six important observations about the interaction with the digital camera: the learning curve, the collective nature of the exercise, gender differences, the impact on self-esteem, the experimental behaviour participants unveiled and the social meaning of photography. Furthermore, it discusses how this exercise demonstrated the potential of participatory photography and digital storytelling for research with low-literate participants.



Electricity tower in school compound



School game in action

Figure 5.19: Pictures taken by low-literate participant (taken by Shakisso-19-M)

The sequence of pictures participants 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 (Figure 5.20). Part of this learning curve can be ascribed to the screen functionality of a digital camera (see Figure 5.21), that provides the user with immediate feedback about their 'performance' and therefore allowed the users immediately to take corrective action, in contrast to the functionality of analogous cameras. The explanations of the following participants reinforced that the screen functionality played an important role in how they took their pictures:

'I just focused and saw it on the screen, then I zoomed in a little bit, then I pressed the button' (Nazret-16-M).

'You switch it on until the screen shows what you want to take and then take the picture' (Zomba-18-F).

Nearly all participants who interacted with the camera remarked about the screen as something they specifically liked about the camera, because of its direct feedback and the possibility to recall pictures at a later point in time.

'I liked the screen that you can see the person at the same time that you take the picture' (Zomba-20-M).

'Once you capture things with this item, it returns, you can look at it again' (Shakisso-14-F).

As a consequence of their appreciation, some participants recommended that digital cameras can be ameliorated by equipping them with a bigger screen:

'I would have made the screen big, so that it is easier to look at the pictures' (Zomba-15-F).

'If this screen would just be a little bigger, with the size of a real picture' (Shakisso-18-M).



'Neighbour, I pressed too early that is why the head is missing' (taken by Zomba-23-F).



'Neighbour, I corrected the last picture' (taken by Zomba-23-F).



Consecutive pictures (taken by Nazret-13-M)

Figure 5.20: Learning curve of digital camera use



Figure 5.21: Screen functionality of the digital camera (Source: Author)

Furthermore, the research interaction with the digital camera, and as part of that the user's learning curve, regularly ended up as a collective rather than individual undertaking (Figure 5.22). Although one person was instructed and handed the digital camera, there were different ways in which its use was shared with others. First of all, the screen of a digital camera made it more suitable for collective use than traditional analogue cameras. Behind a participant with a camera a crowd usually gathered to catch a glimpse of the scene to be captured (see Figure 5.22). Moreover, the photographers were immediately able to share the pictures with others by displaying them on the screen, which made it into a communal experience. Although most participants liked this screen functionality, one participant expressed his abhorrence about it, because it gave people the chance to instantaneously criticise the pictures he had just made:

'Remove the glass, it should not be there, so you cannot see the pictures you have made on the glass. Because when I took the picture and I showed people they were saying it was not good and wanted me to take another one' (Zomba-17-M).

Second, bystanders were 'laterally' involved in the photographing process by giving instructions to the photographer about what to capture, if only because they wanted to be captured themselves:

'Some boys interfere and tell her what to do' (Field notes Nazret, 23/11/06).

'Boy is being harassed by other school children to take their picture' (Field notes Shakisso, 24/01/07). -> *'They were yelling at me..... I didn't take the picture of those students who were forcing me to take their picture'* (Shakisso-11-M).



Zomba



Ntaja

Figure 5.22: Shared use of digital camera (Source: Author)

In this way the photographs were often collectively rather than individually constructed, something that was further reinforced the following participant:

'I took the first pictures according to my own interests and the rest according to my friends interests, because we are working together'
(Nazret-15-F).

For future research it would therefore be particularly interesting to give a camera to a community or group of participants, rather than to an individual participant, and observe how the group dynamics shape the interaction with the camera. This could provide a way to learn more about how the power structures within a community influence collective ICT use. However, a shared responsibility for the camera could potentially mean a higher risk of the research camera disappearing (see Section 3.6).

As a result of this collective use of the digital camera, the learning process of how to operate it was also a joint rather than an individual activity. For example, if there was someone around who had participated in the digital camera interaction before, they shared their knowledge about how to operate it with the new participant (see Figure 5.23). This is a classic example of peer learning, and reflects similar observations to those made by researchers such as Mitra (2003), who observed peer learning by unschooled youth with computers, as well as de Angeli (2004), who observed peer learning by new ATM users in India. My data more generally suggested that the operation of an ICT was usually learned through such 'scaffolding' (Luckin, 2008), in which more experienced users assisted and taught new users, rather than for example through a manual or by trial and error. The following participants for instance remarked on how they were taught by someone else:

'My father showed me how to use mobile' (Nazret-16-M).

'One of my friends has a camera and taught me how to use it'
(Zomba-16-M).

There was a clear gender difference in how comfortable participants were about interacting with the digital camera. Female participants were shyer and less confident in their interaction than male participants, something about which I already commented in my field notes at an early stage of my field research:

'Girl seems almost afraid of the camera' (Field notes Nazret, 24/11/06).



Figure 5.23: Peer learning of digital camera use (Source: Author)

This could be a consequence of a gendered use of ICTs (see Section 6.3), due to which women were less familiar and used to interacting with them and therefore more apprehensive about using them. Female participants were also more concerned about doing it right, as illustrated by my observation about a participant who was looking for approval about the pictures she had made:

'Girl comes back with the camera at some point to ask me whether she took the pictures the way I wanted' (Field notes Ntaja, 11/06/07).

Additionally, female participants were shyer and therefore less inclined to ask for help when they faced a problem with the camera, as evident from the following quotation:

'When I was capturing I was not able to see the pictures. I was too shy to come and ask' (Ntaja-14-F).

Furthermore, female participants returned with the camera much sooner and with fewer pictures than their male counterparts and sometimes had to be encouraged to continue interacting with the camera. Although seemingly a consequence of their lacking confidence, this could also be related to the time constraints of female participants (see Section 6.3), who might have had other duties waiting for them, unlike the male participants who had more time to play with the camera. As a consequence, despite an equal number of male and female participants, in Malawi about 1650 of the photographs were captured by male participants and only 750 by female participants.

Notwithstanding the initial female unease about interacting with the camera, the interaction with the digital camera ultimately was a major self-esteem and self-confidence builder among participants (for similar observations see Young, 2001; and Farrell, 2004). The expressions on the faces of some participants, when they were given the camera, are unforgettable, as reinforced by the following comments:

'I liked it because I have used something that I never saw before'
(Ntaja-19-F).

*'I have learned how to use this camera. If I would have the chance
that someone would give me a camera like this, I would not face any
problems'* (Zomba-23-F).

Not only being able to operate the camera, but also the status associated with the camera (see Section 7.2) and therefore the status of the participant using it, contributed to this self-confidence. The following participant for example pretended the camera was hers, possibly to elevate her social standing:

*'I liked it, because a lot of people asked me whose camera it was, I
said it was mine. I showed people the pictures I made of them'*
(Zomba-18-F).

Moreover, even before any interaction took place, giving a camera to participants was already a confidence-booster in itself, because young people were not normally trusted with such equipment (Young, 2001):

*'When she gave me the camera my heart was beating, because in this
country nobody gives a camera to a child'* (Nazret-13-M).

Furthermore, the interaction with the digital camera unveiled the creative capacity of the users (Oudshoorn and Pinch, 2003b). The complex, creative and expressive ways in which participants engaged with the camera could be considered as 'a form of creative engagement with ICTs' (Tacchi, 2007: 128). Participants kept on surprising me by the pictures they came back with and it was particularly interesting to observe the experimental ways in which they used the camera. Although, during interviews and focus groups participants did not always demonstrate that their imagination went beyond what they knew (see Section 7.3), when equipped with the camera this radically changed. This was particularly evident from the different 'self-portraits' that participants made. They for example captured their own shadow (see Figure 5.24) as well as their mirror image (see Figure 5.25). One participant really amazed me with a self-portrait that at first seemed impossible (see Figure 5.26). He explained to me how he had hung the camera on the wall to make the picture and as the picture was taken inside his house the flash had given him enough time to move in front of the lens:

*'Me, I took it myself by hanging the camera on the wall and then took
it'* (Zomba-13-M).



'When I was walking, I saw my shadow and took a picture of my shadow'
(taken by Nazret-10-M).



'She was behind me and maybe trying to frighten me, then I took her picture'
(taken by Nazret-10-M).

Figure 5.24: Experimenting with capturing shadows



Figure 5.25: Participant capturing herself in the mirror (taken by Nazret-15-F)

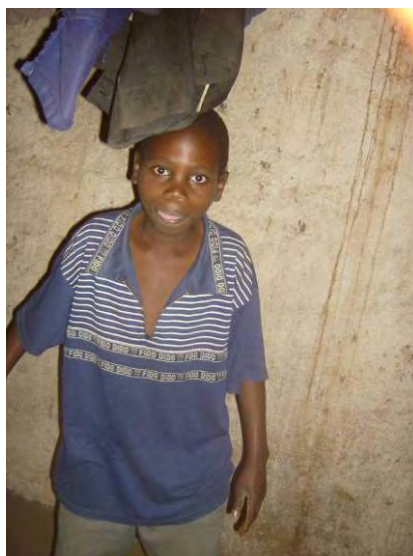


Figure 5.26: Inventive self-portrait (taken by Zomba-13-M)

There are different possible reasons why participants appeared relatively uninhibited with the digital camera, despite female participants sometimes needing some more encouragement. For example, as digital cameras were still relatively unknown in the research contexts, there were not yet many cultural expectations and therefore restrictions about how one was expected to behave while interacting with it or what to do with it. Therefore rather than imitating culturally appropriate behaviour they knew, participants had to figure out what to do by themselves. Furthermore, as it was uncommon to be trusted with cameras (Young, 2001), this trust was perhaps a boost of confidence that cranked up the courage to experiment. Additionally, being left with the camera without being observed also contributed to more freedom to experiment. Based on the few observed camera interactions at the beginning of the field research, those participants who were watched indeed experimented less than the participants who were left alone with the camera.

The strongest evidence supporting how not being observed whilst interacting with the camera affected the behaviour of participants and gave them the freedom to go to places they would not have visited and take pictures they would not have made in my presence (Young, 2001), was embodied by some photographs depicting nudity. The girls in the FSCE drop-in centre made a number of pictures of each other naked and in Ntaja one male participant made a close-up of a penis. Although the closeness of the picture revealed that it was taken on purpose, the participant made me believe that he took it incidentally:

'Someone else was peeing, so I took it accidentally' (Ntaja-11-M).

His answer indicated that he preferred not to expand further on the picture. As Burnett and Myers (2002: 57) have pointed out, using photography in research with children can make participants 'feel pressurised to expand on topics they had not intended to present'. Moreover, the photographs could reveal aspects of their lives which they or those in the pictures did not wish to be exposed in public. Although participants were asked whether their pictures could be used in this thesis, those portrayed in the pictures never formally gave their consent. Whenever photography is used as a method for people to capture their own realities, this ethical dilemma that will irrevocably come up is difficult to solve, unless it is possible to obtain the consent of all the individuals depicted. For this reason, I have explicitly chosen not to show examples of nudity here in this thesis.

As a social and cultural practice, the importance and meaning of photography depend on the context of practice (see Section 3.2). Cameras were not widely

possessed in the contexts of my research and therefore photography was primarily undertaken by professional photographers as a paid service, as illustrated by what the following participants said:

'A person took my photo and I paid him' (Zomba-12-M).

'I saw it when I went to take my picture in the photo studio'
(Nazret-17-M).

The value of a camera was therefore often expressed in terms of its business potential (see Section 7.2):

'You can take photos of people and make money of that'
(Zomba-11-M).

Perhaps as a consequence, photo cameras were known as something specifically for capturing people, illustrated by what the following participant said about the functionality of the digital camera:

'To capture pictures of human beings' (Nazret-10-F).

Approximately 46% (5/19% in Ethiopia; 20/57% in Malawi) of participants similarly described the purpose of a camera explicitly as to capture people. There were, though, exceptions such as the following participant who gave a different purpose:

'For capturing things like trees and houses' (Zomba-16,-M).

Furthermore, presumably because of the cost involved, photography was mainly reserved for special occasions:

'I have seen it when people are capturing in ceremonies' (Ntaja-16-F).

As a special occasion, it was not uncommon for people to dress up for a picture:

'With people when they are taking pictures when they dress nice clothes' (Zomba-16-M).

This local meaning and importance of photography were reflected in the interactions with the digital camera. Apart from many pictures of (posing) people, one participant in Shakisso captured her mother and neighbour who had especially dressed themselves up for the occasion (see Figure 5.27).

Although it was not the main purpose, the interaction with the digital camera nevertheless demonstrated the potential of participatory photography for research with low-literate participants. Participatory photography puts cameras in the hands of people, who are then encouraged to capture their own reality through photos (see Section 3.2) and this method is accessible to anyone who can learn how to handle a camera, including those who lack the ability to read and write (Wang and Burris, 1997; Tacchi *et al.*, 2003; Singhal and Rattine-Flaherty, 2006). Burnett and Myers (2002) for example used this method to engage children as researchers in collecting

and reflecting on photographic evidence of their literacy practices. Although my participants were initially not explicitly asked to collect photographic evidence on particular aspects of their lives, the pictures that they made still provided photographic insights about their environment.



Figure 5.27: 'Mother and neighbour who put on their dresses for the picture' (taken by Shakisso-15-F).

Additionally, in a later stage of the field research participants interacting with the camera were asked to capture ICTs in their environment. However, in practice only a small number of the total amount of photographs (100/1.6%) taken by participants did indeed depict ICTs, partly because not all photographers had access to them around where they were taking the pictures, such as the school compounds in Shakisso. These pictures mainly provided a visual impression of what the ICTs looked like and where they were found, but did not reveal much about their actual use (see Figure 5.28). In that way, they visually complemented the conversations with participants about the actual use. A particular observation about the ICT related pictures was the absence of mobile phones, which, despite their widespread familiarity, appeared only twice in all the pictures. A possible explanation for this is that mobile phones usually accompanied their owner and were therefore less publicly displayed to be captured in a picture, unless they were being used (see Figure 5.28). Furthermore, ICTs with an electricity or network wire, such as television or telephone were usually captured indoors, whereas more mobile ICTs, such as the mobile phone and radios on batteries, were often captured outdoors.

As Singhal and Rattine-Flaherty (2006) have argued, the images resulting from placing pencils or cameras in the hands of people provide insight into people's lived experiences and the narrative of the drawings and photographs can serve as a starting point for wider storytelling. Meanwhile, the introduction of new ICTs has enabled new forms of creative storytelling (Gamble and Easingwood, 2000). For example, digital storytelling empowers people to create their own short autobiographical films, with the storyteller's unique voice as a key feature in the process of creating the story (Meadows, 2003; Burgess, 2006). The girls from the FSCE drop-in centre actually engaged in such digital storytelling on their own initiative by using the video functionality of the digital camera. This is an example of how they constructed their own uses and meanings for the digital camera (Section 2.3), rather than being instructed to use the camera for this purpose as usually happens with digital storytelling. Whilst seated on a mattress, one girl told her life story in front of the camera. Here is her story until the camera was switched off:

'You will be surprised that my story is endless and the other thing I want to tell you is that my mother is dead. I am now living with my father, fortunately. He was in jail for eight years, but now he is free and living with me. I didn't grow up with my parents, but I grew up on the street. I was looking after my mom while she was sick. Before we had a 'Kebele' house, but after she fell ill we were forced to leave the house and went to Kebele 18. After we started living in that Kebele I went out on the street and that was the beginning of my street life. My friend Alem was the one who recommended me that instead of living such kind of life, it was better to be a street child. 'Come to the street with us and beg' is what Alem advised me. Then I started begging and the first day I collected 60 Birr, which was very impressive for me and for my mom. The money was beneficial for all of us and after that I continued begging in order to take care of my sick mother. After my mom died I continued that life. During that time my father was in prison. After I stayed five or six years on the street I am now living with my father, thanks to God. My problems are endless and I cannot tell them so easily. My friends [girls behind camera], I cannot finish my story so easily at the moment. I am lucky and because of my luck....'
[camera switched off] (Nazret-16-F).



(taken by Nazret-11-M)



(taken by Zomba-13-M)



(taken by Ntaja-20-F)



(taken by Shakisso-15-F)



(taken by Nazret-?-F)



(taken by Zomba-11-M)

Figure 5.28: Examples of ICTs captured by participants

5.8 Conclusion

This chapter has provided an analysis of the interplay between literacy and ICT practices by showing how low-literate participants in Malawi and Ethiopia shaped their interactions with ICTs. Through the use of direct quotations from the respondents it sought specifically to give a flavour of the ways in which they interpreted these interactions. Most importantly, the chapter argued that the interaction between literacy and ICTs is socially constructed through a complex interaction of different factors, notably the status of different languages, the mode of representation for content and the collective nature of African culture. Not only did it show how ICTs impacted upon existing literacy practices, but also how ICTs created new literacy practices. Another important contribution of this chapter was its practical evidence about how low-literate youth successfully interacted with a digital camera. It showed how both the interaction with the camera as well as the photographs were socially constructed, as for example reflected in the different ways male and female participants took photographs and how the photographs were often collectively constructed. Furthermore, it demonstrated the potential of participatory photography as well as digital storytelling as a method for low-literate people to produce local content.

The chapter also reinforced the ideological model of literacy (see Section 2.2), by highlighting the importance of literacy as a socially constructed practice rather than an autonomous set of skills. It furthermore showed how literacy skills were collectively shared, which also enabled 'proximate illiterates' to engage in literacy practices (Basu and Foster, 1998). One of the most important findings was that a similar set of arguments could be applied to the use of ICTs within the collective cultures of African societies. Not only were ICTs themselves often collectively shared, but also the literacy or ICT skills to operate them could be interpreted as a collective good. Consequently, 'proximate ICT skills' enabled people to engage in ICT practices without necessarily operating the ICTs themselves. These findings contest the 'Western' individualistic approach to literacy and ICTs and call for a collective focus to literacy proficiency and ICT use instead (Reder, 1994). Adopting such a collective perspective not only queries the credibility of international statistics measuring individual literacy skills and ICT use, but more importantly has implications for the understanding of the term 'user' and what it means to 'use' a technology (see Section 2.3). Beyond those directly using the instrumental functionality of ICTs, there can be various other 'users' who indirectly benefit from the

instrumental functionality without necessarily operating the ICTs themselves. Therefore, adopting such a collective perspective requires a shift in focus during the design process from individual users and their needs to collective uses and needs.

The chapter highlighted the strong social perception that technology-mediated literacy practices were only for educated, literate people and were not user-friendly for low-literate users. This interplay between literacy and ICTs was evident from usability issues both related to the ICT design as well as in relation to ICT content. My findings further supported the criticism that literacy and ICT4D initiatives predominantly focus on the challenges of providing literacy skills and access to ICTs, neglecting the importance of the content that these 'tools' can be used for (Wagner, 2005; Tacchi, 2007). Similar to the lack of printed literacy materials, the lack of local ICT content has resulted in a digital content divide with an overrepresentation of cultures other than the local culture (Chéneau-Loquay, 2007). The social consequences of this divide were most evident from the social impact of the foreign content shown at video shows, something that has only rarely been explored previously in academic literature. For example, the screening of pornographic material had a significant impact on prevailing sexual morals and behaviours of particularly the male audiences. Furthermore, the chapter emphasised how new modes of representation offered by ICTs introduced alternatives to textual representations and thus replaced literacy practices with alternative communicative practices, making the content more accessible for low-literate users and providing new opportunities to convey African oral knowledge.

This chapter has further emphasised the important role of language in ICT design and content development. Both literacy as well as the use of ICTs are inherently related to language and my findings have reinforced the existence of a digital language divide both as part of the content divide as well as in terms of the ICT designs (Wagner and Kozma, 2005). This language divide was particularly dominated by English, a language that continues to play an important role in the heterogeneous African language environments (Herbert and Robinson, 2001). Even though English was only mastered by a small proportion of the population, as a result of widespread technology transfer it was the operational language of most ICTs and the predominant language of ICT content, especially on radio and television channels. Consequently, the social perception about technology-mediated literacy practices was sometimes even further confined to people literate in English, excluding those literate in local languages. Therefore, in order to avoid ICTs

becoming an exclusivity for a literacy elite of English speaking individuals who find ICTs user friendly, the role of language in ICT practices requires more attention, particularly in heterogeneous language environments (Gunderson, 2000).

This chapter has demonstrated how the reality of the interplay between literacy and ICTs practices is very complex and involves many different factors. Furthermore, the interplay was not socially constructed in a vacuum, but was rather greatly shaped by the specific context in which it occurred. The following chapter concentrates in more detail on how this context in which the low-literate participants lived shaped their ICT practices, by exploring different physical and cultural constraints to ICT use.

6 The Role of Context in Constraining ICT Use: 'Earphones are not for Women'

6.1 Introduction

The conceptual framework (Chapter 2) stressed the role of context in the use of ICTs; how the interaction between a user and an ICT always emerges in a context that shapes the interaction and how it can therefore not adequately be understood outside this context (Dourish, 2001a). The impact of a context on ICT use can both be accelerating and constraining (Randall *et al.*, 2007), depending on the synergies between the ICT design and contextual factors. In other words, constraints and affordances of ICT use are not always inherent in the device itself, but sometimes arise from contextual circumstances in relation to the design. For example, technology transfer often causes a mismatch between the design and contextual factors, due to which ICT use can be constrained (see Section 2.3). As Hughes (1987) has argued, a system usually embodies characteristics suiting it for survival in a particular time and place, and therefore difficulties often arise in transfer to a different environment, which requires adaptation to the characteristics of this different time or place.

To understand better how the context in which the low-literate participants lived shaped their ICT use, this chapter addresses the most significant constraints incurred by the context of use and sheds light on their underlying reasons. As it is difficult to grasp the entire fabric of the physical, cultural, political and economic context of use, the chapter focuses primarily on the first two, structured according to Norman's (1990) distinction between physical and cultural constraints. Physical constraints are incurred by a mismatch between the physical design and the physical context and therefore make some actions impossible. The most significant physical constraints that are further explored in this chapter are the challenges of power supply, the dependence on broadcast and communication networks, the durability of ICTs and the geographical dependencies of ICTs. Cultural constraints are conventions shared by a cultural group that evolve over time and are embedded in a community of practice (North, 1990). The most significant cultural constraints that are explained in further detail are the role of gender and respect for authority.

However, as pointed out in Section 2.3, contexts of use are subject to constant change and therefore this section only provides a snapshot of the situation during my field research, which might have meanwhile radically changed and become out of date. For example, the way in which the 'Indian taxis' had changed public transportation and the street view in Nazret only one year after my field research (see Section 4.2), demonstrated how quickly contexts, and consequently the meaning of practices within them, can change.

6.2 Physical constraints

Low-literate users in Ethiopia and Malawi identified four main physical constraints to their use of ICTs, namely challenges of power supply, the dependence on broadcast and communication networks, the durability of ICTs and the geography of ICT use. The following subsections discuss how and why these were constraining the use of ICTs.

6.2.1 Power Supply

There is widespread agreement that shortage of electricity is a major deterrent to the use of ICTs in developing countries, particularly in rural areas (see for example Mansell and Wehn, 1998; Adam and Wood, 1999; Steinmueller, 2001; Thioune, 2003; Brewer *et al.*, 2005; Heeks, 2008). However the term 'electricity' has different meanings and most writing on the subject does not explore what is exactly meant by this 'shortage of electricity'. It is better to talk about the shortage of electric power rather than electricity. ICTs need electric power, which can be provided by different sources, such as the power grid, batteries, generators and solar panels. Graham and Thrift (2007: 13) called this dependency of ICTs on electric power the 'electric-electronic nexus', which they argued makes us all 'hostages to electricity'. My field research reinforced that this nexus was indeed one of the most important constraints to the use of ICTs. Other than the lack of power grid infrastructure, which has internationally received most attention (see for example Ebam Etta and Parvyn-Wamahiu, 2003), participants also identified other aspects of power sources that were limiting the use of ICTs. The following four main aspects that participants identified are discussed in further detail throughout this section: accessibility, availability, safety and affordability.

Accessibility

The international attention for the lack of power grid infrastructure and its impact on ICT use (see for example Ebam Etta and Parvyn-Wamahiu, 2003) was further reinforced by participants:

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

'This one uses electricity, but where I live there is no electricity' (Zomba-19-F).

The specific reference to 'countryside' reflected that the accessibility to the power grid was especially an issue in rural areas (Gyamfi, 2005). Only about 15% of the population in Ethiopia and 7% of the population in Malawi officially had access to the power grid and most of these people were living in urban areas (International Energy Agency, 2006). In Ethiopia the access to the power grid in the rural areas, where about 85% of the population lived, was below 1% (Wolde-Ghiorgis, 2002; Gashie, 2006), as the following participant was aware:

'Most Ethiopians are farmers and don't live in towns. In rural areas there is no electricity' (Shakisso-13-M).

As Mulugetta (2007) has highlighted, one of the reasons why the rural areas in Ethiopia were lagging behind was because the energy development programs have been biased towards the urban areas.

Consequently, inhabitants of rural areas mostly relied on standalone appliances that were not dependent on a power grid, but could instead run on alternative sources of power, such as batteries, generators, car batteries or solar power (Kenny, 2002). As the following participant explained (see also Figure 6.1):

'Tape is available in the countryside and if there is no electricity, you can use drycell' (Shakisso-13-M) (tape refers to ICT card with ghetto blaster).

The absence of a power grid influenced how participants in the rural areas ranked their ICT cards; they favoured ICTs that could be used independently of a power grid, such as those running on batteries, over those that could not. As the following participants suggested, the dependence on the power grid was the key reason why the market for ICTs such as television and mobile phones was more limited in the rural areas:

'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).

'If you want to make a good business with mobile phones, electric power should be constructed in the countryside, then all farmers can use it' (Shakisso-13-M).

Correspondingly, participants suggested transforming ICTs that were fully dependent on the power grid into standalone appliances that could also be used in rural areas, such as televisions running on batteries:

'Television should also work on battery, so people in rural areas will have access to it' (Nazret-17-F).

'A very small television that can run on battery, because some people don't have electricity in their houses and they will not find difficulties in buying batteries' (Zomba-15-M).



Figure 6.1: Radio running on batteries in Ntaja (taken by Ntaja-11-M)

Besides the preference and suggestions for standalone appliances that could be used independent of a power grid, at the same time there was an aspiration to be connected to the power grid. This was for example evident in Gidhe, a rural village near Shakisso that had been scheduled to be connected to the power grid. Although the poles had already been placed, the power itself had never come. However, the prospect of the upcoming power grid had tempted many residents already to purchase a television. These televisions were now locked away in cupboards waiting for the day that the electric power would arrive. In Ethiopia such television cupboards were a common way for people to safeguard their televisions (see Figure 6.2). Furthermore, similar to the locked keypads of telephones (see Section 6.2.2) they provided a way for those with the key, such as parents, to regulate when, what

and how long the television was being watched. However, although the televisions were hidden away in the cupboards, these cupboards themselves indicated its distinctive status and function when it arrived in the living room (Silverstone and Haddon, 1998).



Television cupboard in Gidhe
(taken by Shakisso-17-M)

Television cupboard
(taken by Shakisso-10-M)

Figure 6.2: Television cupboards in Shakisso

As the accessibility to electric power was linked to specific places, such as towns or commercial centres connected to the power grid, getting access to power sources to charge or use ICTs sometimes required mobility of users to travel to these places. The following participant for example indicated 'Ntaja', which was connected to the power grid, as the place to go to power ICTs:

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

Not only did the access to a power grid require travelling elsewhere, but also buying or charging batteries or buying fuel for a generator often involved travelling to selling or charging points (see Figure 6.3).

Different scholars have made a case for renewable energies in order to tackle what Mulugetta (2007) called 'energy poverty', as well as wider impacts of deforestation and land degradation, particularly in rural areas (see for example Wolde-Ghiorgis, 2002; Mulugetta, 2007). Such renewable energies could also provide new opportunities for the use of ICTs in areas without a power grid, but this might require their designs to be made compatible to these sources of power. Participants demonstrated vivid awareness of this potential by making different suggestions to make ICTs suitable for other sources of power, such as solar energy:

'Produce technologies that don't use electricity, but solar energy'
(Zomba-20-M).

Furthermore, participants also considered new sources of renewable energy to power ICTs, such as the use of daylight:

'Electricity power that does not come from solar or what we use now, but from daylight. That would be useful, because there will not be any cut offs, whether there is sunlight or not, because it will just be using daylight' (Zomba-12-M).

This idea was motivated by the shortcomings of current means of power supply in terms of continuity, a physical constraint that is discussed in more detail later in this section.



Figure 6.3: Battery charge service in Malawi (Source: Author)

Other than for the use of ICTs, these renewable energy sources were also recognised as opportunities for other needs, such as alternative ways of cooking that were less harmful for the cook:

'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, that is good, because then the women won't be harmed'
(Shakisso-18-M).

'A machine for cooking, it will be cooking each and everything. Because women are facing difficulty in cooking. For a woman to cook you must have firewood, charcoal or electricity, but it is very difficult to find firewood' (Zomba-19-F).

The latter quotation explicitly refers to the different types of energy supply that were traditionally used for cooking and the effort and time women put into fuel collection tasks (Mulugetta, 2007). The traditional gender role model of women doing the cooking underlying these quotations was supported by the observation that approximately 30% of female participants mentioned cooking as something they were good at or wanted to learn, compared to 5% of the male participants.

Availability

Access to infrastructure has little effect if the services are not available (Briceno-Garmendia *et al.*, 2004). Once access to a power infrastructure was guaranteed, the availability and continuity of electrical power posed another constraint (Adam and Wood, 1999). Power cuts are common occurrences in Africa (Ebam Etta and Parvyn-Wamahiu, 2003; Gyamfi, 2005), which I frequently experienced in both Ethiopia and Malawi. The power supply in both countries relies heavily on hydro electrical power (International Energy Agency, 2006) and therefore the power cuts are more frequent towards the end of the dry season or after a period of limited rainfall. Furthermore, in Malawi urban, industrialised areas were spared more from power cuts to keep businesses running and therefore the power cuts were more prevalent in rural electrified areas, such as Ntaja.

In accordance with the limited number of people who had access to the power grid, the actual electricity use per capita was also low. In Ethiopia annual electricity use averaged 30 kWh per capita and in Malawi 97 kWh per capita (African Development Bank, 2007), which was only a fraction compared to for example the United Kingdom that used 6192 kWh per capita (International Energy Agency, 2006). With such limited usage, the frequent power cuts demonstrated that providing sufficient electricity for the current infrastructure was already a challenge, let alone if the network and electricity demand would expand. This is another important motivation to explore alternative energy sources to power ICTs. Alternative sources of power, particularly generators, were already utilised in for example hospitals, banks and other industries to ensure continuity of power during power cuts:

‘For example in the hospitals they use some technologies for the sick people to survive. When there is an energy cut, they use generators’
(Zomba-18-F).

However, for most people alternative power sources such as generators were not an alternative to power cuts, because of the costs involved (ITU, 2007b). For example, in Nazret the smallest generator, enough to power just one computer, cost about 3000 Birr (\$360) and an additional 7-8 Birr per litre of fuel to keep it running for a few hours, for a teacher more than three months salary (see Section 4.2). Consequently, a disadvantage of ICTs running on electricity was that during power cuts they became unusable:

‘When there is a cut off, you can’t use television’ (Zomba-15-F).

Furthermore, the power cuts affected the continuity of smaller ICT businesses that relied on electric power, such as Internet cafés and video houses. The computer rooms at FSCE also remained unused during power cuts and the classes postponed until the power returned.

Safety

Even when people had access to a power grid and electric power was available, another factor that hampered the use of ICTs was the safety of the facilities. In Ethiopia over 15% of the participants mentioned the risk of getting an electric shock as a downside of ICT use:

‘Sometimes they (ICTs) might be harmful. For example when I tried to plug in the tape I was shocked by the electric’ (Nazret-17-M).

‘Television is working with electricity, if someone touches the wire, they may die. I have seen many who died of electric shock’ (Nazret-13-F).

In Malawi, the danger of electric shocks was perceived as being less important given that only 2% of the participants mentioned this risk. This could indicate that the electricity facilities in Malawi were safer than in Ethiopia, but it could also indicate that participants in Malawi had less access to the power grid and were therefore less familiar with the dangers involved. I personally had some hands-on experience with electric shocks in Ethiopia when I tried to plug my laptop into a socket. The main reason for these electric shocks was the quality of the electricity facilities, in my case an unprofessionally assembled socket consisting of a bunch of wires coming together in a plug-socket. Figure 6.4 gives an impression of how dangerous electricity facilities in Ethiopia were sometimes set up. As the majority of the research participants came from disadvantaged backgrounds without the financial resources to get the electricity facilities properly and safely constructed, they were more likely affected by this safety issue.



Figure 6.4: Electricity facility in Ethiopia (Source: Author)

Although it is difficult to judge just from the participant responses alone, there could be a relationship between the safety of the electricity facilities and the views of parents who were not allowing their children to touch ICTs (see Section 6.3.2). The reasons some parents kept their children away from ICTs might have just been to protect them from the dangers of the electricity facilities. As one participant commented with regards to children:

'Sometimes children play with the plug of tape, if they touch a broken part of it, they might experience an electric shock' (Shakisso-12-F).

Affordability

A fourth important constraining aspect of power supply was its affordability:

'All need a kind of energy costing money' (Shakisso-13-M).

As Briceno-Garmendia, *et al.* (2004) have argued, affordability is a key determinant of poor people's access to infrastructure services. This was reinforced by participants who frequently commented on the cost of electric power. Even if power sources were accessible and available, the affordability eventually determined whether or not people used them and therefore indirectly whether or not they made use of their ICTs. Given that poor people spend a sizeable proportion of their income

on their minimum daily energy needs (Mulugetta, 2007), the energy consumption of ICTs can represent a disproportionate financial burden to them.

In areas not connected to a power grid, people relied on alternative power sources to run their ICTs and these often came at a higher price. For example, in Ethiopia electrical power cost around 0.50 birr per kWh (Ethiopian Electric Power Corporation, 2008) and the price of an AA battery ranged from one to five birr (approximately \$0.10 to \$0.50), depending on the brand. To run a radio for three hours a day required approximately seven kWh per month (SLEMCO, 2008), which cost the user around 3.5 birr per month (not taking a small monthly service charge into account). My translator estimated that a small radio with two AA batteries of the lowest quality ran approximately eight days of three hours, whereas with the best quality ones it ran about 36 days of three hours. This meant that running a radio on batteries for three hours a day cost around 7.5 to 8 birr per month, more than double compared to using the power grid. Although these are only estimates, it indicated that the use of batteries was less advantageous compared to powering ICTs through the power grid and thus particularly those in rural areas were further disadvantaged. This was reinforced by the following participant whose ranking was motivated by the lower cost of using the power grid compared to batteries:

'The radio isn't working with socket (electricity) and therefore it will cost me a lot of money for batteries. That's why I prefer the ghetto blaster working on electricity' (Shakisso-18-F).

The use of batteries was not only more expensive than using the power grid, but also having to go and buy or charge them was an extra burden:

'Maybe you can add electric power, so that we don't need to take the batteries to the charge and the money for charging them' (Ntaja-17-F).

The lack of financial resources for electric power was an important reason why ICTs remain unused, which reinforced what Spitulnik (2000) found in Zambia regarding the use of radios. The following participant for example explained how a mobile phone became useless if there was no money to power it:

'When the mobile phone battery is finished and you don't have money means you will not use it anymore' (Ntaja-19-F).

In Wyatt's (2003) taxonomy of non-use this is an example of 'expelled users', who stopped using the technology involuntarily due to costs (see Section 2.3). Moreover, sometimes the lack of power sources even made people decide to sell their ICT, as the following participant did:

'We sold radio because of lack of batteries' (Zomba-17-M).

The 'lack of batteries' refers to a lack of financial resources to purchase new batteries, which made the radio 'useless'.

Not only did ICTs remain unused when financial resources for electric power were lacking, but the costs of electric power also influenced the way people used their ICTs, particularly in terms of duration (Spitulnik, 2000). One participant for example clarified how the length of ICT use was directly related to power consumption and therefore to costs:

'Whenever I use videocassette or computer for a long time it will consume a lot of power, which will cost a lot of money' (Nazret-10-M).

In other words, the longer an ICT was used, the more expensive it became. Limiting the length of ICT use was therefore a strategy to save money. This explains why the added value of ICTs was often expressed in terms of their use in emergency situations (see Section 7.2). Emergencies justified the financial investment, whereas the cost for powering less urgent ICT uses had to compete with the costs of other more fundamental needs such as food. In other words, spending money on power sources to run ICTs reduced the budget available for other needs. For example, according to one participant, the downside of the midi-set (card) was that some people chose to spend their money on power resources to run them, rather than on their other needs ('things at home'):

'Some people who have a midi set go and buy a car battery to use it, but after maybe one or two months the battery gets damaged, so they have to go and look for another battery to buy. So instead of buying things at home they will go and buy a battery so that they can listen to the news from the districts and some other things' (Ntaja-13-M).

Furthermore, the costs involved in the power consumption of ICTs influenced how participants valued different ICTs, which was demonstrated in the way they explained their motivation for the ranking of the ICT cards. For example, battery consumption was a motivation for participants to place an ICT at the end of their ranking:

'Because radio consumes too many batteries' (Ntaja-10-F).

'Because you can spend a lot of money on this one [ghetto blaster] for batteries' (Zomba-13-F).

Moreover, ICTs with low power consumption were preferred over ICTs with high power consumption. Sometimes the lack of financial resources left people no other choice than using an ICT that used cheaper power sources:

'I like walkman because it uses small batteries so if you don't have batteries for the ghetto blaster you can use this one' (Ntaja-14-M).

The availability of 'small' or 'big' batteries indirectly referred to the difference in their price and therefore the difference in affordability.

The hampering costs of power sources inspired suggestions about ICTs that consume less or no power as well as batteries that lasted longer:

'You should produce radios that when you put the batteries, the batteries should be lasting longer' (Zomba-19-M).

'When you want to listen radio you need to buy batteries, so is it possible that you make it functioning without batteries?' (Ntaja-19-F).

Affordability thus provides another important motivation to explore alternative, cheaper power sources for ICT use, and developing ICTs with low energy consumption, such as low energy screens. However, although alternatives such as solar power are being explored, their viability is also hampered by affordability (Mansell and Wehn, 1998).

6.2.2 Broadcast and Communication Networks

Apart from electrical power, the actual use of various ICTs depends on the existence of broadcasting and communication networks, such as mobile phones, radio, television and the Internet. The field research demonstrated how these networks posed a crucial constraint on the use of ICTs that relied on them, although it was less explicit than participants' concerns about electrical power. Similar to electrical power, the following three constraining factors of these network services were identified: accessibility, availability and affordability.

What distinguishes broadcasting from other communication networks is the direction of the information flow (Economides and White, 1994; Rasmussen, 1997). Broadcasting networks, such as television and radio, are one-way networks in which information is sent from a broadcasting station to the receivers. The receivers cannot directly respond to the sender within the network, but can potentially use other means to respond, such as telephone or email. Contrastingly, in two-way networks information is sent both ways and each node in the network can act as a sender or receiver, such as in telephone networks. Another important distinction is between wired and wireless networks (Gunasekaran and Harmantzis, 2007). Wired networks restrict the use of ICTs to 'wired places', whereas wireless networks allow ICTs to be moved around within the range of the network. As a consequence, wireless

technologies require less time and investment to deploy, which is an asset in the context of developing countries (UN, 2002).

Accessibility

ICTs such as telephone or radio are of little use without access to a communication or broadcast network, but in many developing countries such key infrastructure services are still of poor quality and of limited availability (Briceno-Garmendia *et al.*, 2004; Brewer *et al.*, 2005; Gyamfi, 2005; Heeks, 2008). Network coverage was also an issue in Ethiopia and Malawi:

'Sometimes mobile phone doesn't work in some areas, because there is no network' (Zomba-18-M).

'If there is network you can communicate with anyone even if they are far away' (Shakisso-13-M).

Similar to electrical power, network coverage was particularly an issue in rural areas. In Sub-Saharan Africa the already limited teledensity is particularly low in rural areas (Kenny, 2002). In places where it is difficult to install landline networks mobile networks have therefore become an attractive alternative (Hamilton, 2003). As a result, most of the coverage in the rural areas is now provided by mobile networks (45%) with only a small share of landlines (2.6%) (ITU, 2007d). This resonated with the reason why the following participant favoured mobile over landline phones:

'We don't have telephone in the countryside, therefore I prefer mobile' (Shakisso-11-M).

Ethiopia has among the lowest penetration rates of mobile phone subscribers in Africa (see Section 4.2). Also compared to Malawi the number of mobile phone subscribers in Ethiopia is low (see Table 6.1). The main reason for this discrepancy is the big difference in mobile coverage between the two countries (see Figure 6.5). Another possible reason why fewer people in Ethiopia subscribed to mobile phones was the higher cost to subscribe, as evident from the comparison of the SIM card prices in Table 6.2. The wage of a waitress in Nazret of 80-120 Birr per month gives an indication of how prohibitive the purchase of just the SIM card was for an average Ethiopian. The high price of SIM cards in Ethiopia was a fixed rate that was set by the government-owned ETC. Furthermore, because of the limited network coverage, ETC had restricted the sale of SIM cards to the capital and only to people with a valid I.D. showing they lived in the capital. This created a flourishing black market in SIM cards outside the capital with even higher prices. In Shakisso, for example, the SIM cards were sold for 600 Birr (\$71.43), almost double the official price.

	Main telephone subscribers Per 1000 inhabitants	Mobile subscribers Per 1000 inhabitants
Ethiopia	0.91	1.09
Malawi	1.26	7.55

Table 6.1: Telephone subscribers in Ethiopia and Malawi
(Source: derived from ITU, 2007c)

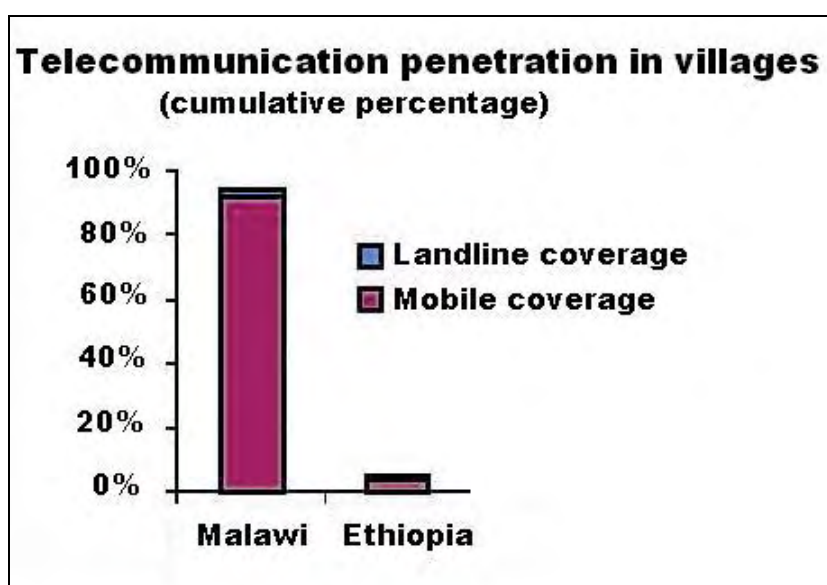


Figure 6.5: Telecommunication penetration in villages in Ethiopia and Malawi
(Source: derived from ITU, 2007d)

	Price SIM card	Price in \$
Ethiopia	368.10 Birr	\$ 43.84
Malawi	450 Kwacha	\$ 3.39

Table 6.2: Price SIM card in Ethiopia and Malawi in 2007 (Source: Author)

Radio coverage was much more widespread than mobile coverage, in Ethiopia for example the two main radio channels claimed to cover 80% of the country (BBC, 2005). Nevertheless, participants also experienced problems with the coverage of radio and television networks, such as the following participant explaining difficulties with the radio network:

'When I put it (ghetto blaster) in the house, the antenna wasn't able to receive the signal anymore' (Zomba-12-M).

Furthermore, the goldmine company in Shakisso used freely to provide the town with a television signal, but since their transmission equipment stopped functioning in 2006 (see Section 4.2) the only way to receive television broadcasts in town was

through satellite (see Figure 6.6). As a consequence, the televisions of people who used to rely on the free transmission from the goldmine and who did not have money to purchase satellite remained unused at home:

'We don't use television, because at the moment there is no transmission and we don't have satellite' (Shakisso-12-F).

According to Wyatt's (2003) taxonomy of non-use, this is another example of 'expelled users' who stopped using the television involuntarily, because of loss of access to the broadcasting network.



Figure 6.6: Satellite in Shakisso (Source: Author)

Availability

Once the accessibility to a broadcasting or communication network was guaranteed, the availability of network services posed another constraint; in other words, network coverage had little impact if the network services were not available. According to Adam and Wood (1999), in Sub-Saharan Africa telephone line failures are as common as power cuts. However, data on network coverage usually do not take service quality into account and therefore do not distinguish between locations with all-day access and places with access for just a few hours a day (Briceno-Garmendia *et al.*, 2004). To determine the effectiveness of a network, it is therefore important to take both the network coverage as well as the availability of its services into account.

'With mobile phone I faced the problem of network failure' (Zomba-17-F).

I personally experienced mobile phone and Internet network problems, similar to those described by the above respondent, especially in Ethiopia. During network

failures users relied on alternative networks, such as the following participant who reverted back to using landline when the mobile network was down:

'If there is not network, mobile phone is useless, and then I use fixed line' (Shakisso-13-M).

However, such alternatives were not always available. Running an Internet café for example was an unpredictable business, because neither the Internet connection nor the availability of electrical power was guaranteed. Therefore, participants made different suggestions about improving the network coverage of ICTs:

'Television and radios should be more powerful so that each and everywhere it should be receiving signal' (Ntaja-20-M).

'The radio and ghetto blaster should have a better signal' (Ntaja-16-F).

'Mobile phones with better network service' (Nazret-18-M).

Interestingly, all these quotations ascribed the network problems to the performance of the ICTs, rather than to the network. This might be due to the nature of the question that was explicitly asking about improvements to the ICTs rather than the network, but it might also indicate that these participants had no good understanding of the function of the networks and assumed that it was somehow built into the ICT.

The lack of network services was not only caused by technical challenges, but also as a conscious decision of those controlling the network, as was evident in Ethiopia. For example, during my field research it was not possible to send or receive text messages in Ethiopia. After election protests in 2005, the government owned ETC blocked the text messaging service and only since the Ethiopian millennium in September 2007 has the service been functioning again (BBC, 2007a). Furthermore, after a conflict in the nearby countryside, the mobile network in Shakisso and surroundings was cut-off for about a week until things quietened down (see Section 4.2). This demonstrated the power of those in charge of the network and infrastructure services to exert control and censorship over ICT use (Rice, 2005). Similarly, the power supply was subject to conscious cut-offs by those in control of the network.

Affordability

Affordability is a key determinant of poor people's access to network services; network coverage and availability of network services have little effect if the services are not affordable. As Briceno-Garmendia, *et al.* (2004) have pointed out, it is important to consider the extent to which service prices are consistent with the ability

of consumers to pay. In many African countries people cannot afford to pay for ICT services (UN, 2002), as emphasised by what the following participant said:

'Mobile uses airtime and some people don't have money for it'
(Zomba-12-F).

Participants frequently complained about the costs of network services as a burden, particularly with respect to mobile phones:

'The only disadvantage I can see is that these things need money, for example the cell phone needs units' (Ntaja-20-F).

Furthermore, the use of other network services, such as landlines at home or at the 'telephone bureau' (see Figure 6.7), was also conditioned by the availability of financial resources:

'Nowadays the price of phone service (monthly payment) is high, this is economically not good. We have phone and mobile at home, but we don't use telephone (fixed) that much, because last month we had a very high bill' (Nazret-10-F).

'If I find money I go to the bureau and make a phone call'
(Zomba-19-F).



Shakisso



Ntaja

Figure 6.7: Telephone bureaus in Ethiopia and Malawi (Source: Author)

Not only the running costs of the network services, such as airtime, but also the starting up costs to get connected or subscribed to network services were often an insurmountable burden. Other than the high costs of SIM cards in Ethiopia and the cost of a satellite dish for watching television in places without television transmission, the cost of Internet subscription is worth emphasising, although only a small number of participants (7) mentioned this technology. The monthly subscriptions of leasing a 64 kbps line (see Table 6.3) give an indication of the exorbitant prices for the normal Ethiopian or Malawian (wage of a waitress in Nazret 80-120 Birr per month) to subscribe to the Internet, particularly given the speed of the connection. As a comparison, in the UK an Internet connection with a speed of 8MB for £15 is almost ten times cheaper than the 64 kbps line in Ethiopia.

	Monthly lease 64kbps line	Price in \$
Ethiopia	1986 Birr (initial installation 4608 Birr)	\$ 207 (initial installation \$480)
Malawi	\$ 365	\$ 365

Table 6.3: Tariff lease 64 kbps line in Ethiopia and Malawi

(Source: derived from Ethiopian Telecommunications Corporation, 2008; SNDP, 2008)

Most participants who commented on the cost of network services were female. Although my research data gave no clear indication about why women were more concerned about this than men, a possible reason could be that women had lower incomes than men, because of which the cost of network services was a bigger burden to them (Dwyer and Bruce, 1988; Hafkin, 2000). Furthermore, four main strategies to deal with the costs of mobile network services became apparent in the field research: text messages, 'missed calls', going there yourself and strictly regulating the consumption of services.

Sending a text message was a cheaper alternative to making a phone call:

'If you have little airtime you can just text' (Zomba-17-F).

This alternative was only mentioned by participants in Malawi, because at the time of my field research the functionality to send or receive text messages was blocked in Ethiopia. However, this strategy was mainly feasible for users with reading and writing skills:

'Sending messages through the phone if you don't have enough airtime can't be done by someone who can't read and write' (Zomba-13-M).

Furthermore, this alternative only worked for mobile phones and not for landline phones:

'But for normal phone you don't have the possibility to send SMS if you don't have airtime' (Zomba-17-F).

This suggests that there might be a market for landline phones with text message functionality, provided that the text messages are a cheaper alternative to normal phone calls.

Another alternative and even cheaper communication strategy compared to text messages was using 'missed calls' (Ethiopia), 'flashing' (Malawi) or 'beeping'. These synonymous terms mean calling a number and hanging up before the call is answered. Donner (2008) has identified two ways in which missed calls are different from sending a text message. First of all, missed calls are free, which explains why it is a more attractive strategy to deal with the costs of network services. However, for those without a mobile phone, making a flash sometimes still involves a small payment to the owner of the phone they borrowed. Secondly, a missed call does not have content, which means it needs relational and contextual clues for the receiver to understand its meaning. There is a growing interest in the literature on the 'communicative ecology' (Tacchi *et al.*, 2003) of such intentional missed calls (see for example Adam and Woldekidan, 2005; James and Versteeg, 2007; Donner, 2008; Hahn and Kibora, 2008). The calls have different meanings, but other than communicating a predetermined message, they are mostly requests for the other party to call back (Donner, 2008). Although only a few participants (7/2%) explicitly addressed flashing or missed calls, they did reinforce this particular meaning:

'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).

As this quotation illustrates, most flashes were based on the assumption that the receiving side would call back and in that way pay for the conversation. However, when the receiving side did not have airtime or money either, the communication ended, as the following participant experienced:

'I had only 15 Kwacha to flash, but when I flashed that person didn't call back' (Ntaja-16-M).

Furthermore, Hahn and Kibora's (2008) found how flashing was subject to social obligations about which side was expected to pay, such as the right of an elder to ask a younger sibling to return their missed call and pay.

Another strategy to avoid the cost of network services was completely to ignore ICTs and use other means to go somewhere yourself to deliver the message:

'With phone you can send a message fast, when you don't have airtime in your phone, you can also take a bike to go there' (Zomba-18-F).

This quotation illustrates how the use of network services was subject to cost benefit analysis. For short distances it paid off to go somewhere to deliver a message, but once the distance increased telephone communication started to pay off compared to the cost of transportation. As the following participant explained:

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

Furthermore, the immediacy of the message further influenced the cost-benefit analysis and worked in favour of swift telephone communication (see Section 7.2). However, my data did not provide any evidence of the critical distance people were willing to travel before reverting to telephone communication.

A final strategy to deal with the costs of network services was by disciplining the consumption of services by keeping strict control over when ICTs were used and by whom. In contrast to mobile phones that allowed their owners a certain control over its use by for example keeping it with them and securing it with a password, the use of landline phones was much harder to control, particularly when they were unattended. In Ethiopia they had found a solution to this problem by in various ways locking the keypad of a phone (see Figure 6.8). Ready-made items to cover the keypad with a small lock were sold in shops and the local authorities in Shakisso had constructed a wooden box around their phones that only uncovered the handset. In this way anyone could answer the phone, but making phone calls had to be authorised by someone with a key to the keypad:

'I haven't used telephone; my parents have locked the number buttons' (Shakisso-15-M).

These solutions are an example of 'creative appropriation' and 'continuing-design-in-use' in which users initiated change to an artefact to make it fit the use situation better (Feenberg, 1999; Oudshoorn and Pinch, 2003b; Löwgren and Stolterman, 2004). Therefore, it reinforced the criticism of the notion of ICTs stabilising to a predominant meaning and use, and hence the need for more research on how users reshape technologies in long-term use (see Section 2.3).



Figure 6.8: Telephones with locked keypad in Ethiopia (Source: Author)

The affordability of network services posed the biggest constraint to those with the most limited financial resources. Therefore, different participants suggested improving existing ICTs by making them independent of these network services, such as mobile phones that do not use airtime:

'Mobile phone should be without airtime' (Zomba-12-F).

'A phone that doesn't need airtime or to be recharged' (Zomba-14-F).

Furthermore, the YONECO child helpline in Malawi is a promising initiative to reach out even to the poorest, who would normally not be able to afford the network services (YONECO, 2007). The helpline is a toll free number that gets young people connected to a team of counsellors who are there to listen and respond to issues related to for example reproductive health, gender based violence and HIV/AIDS.

6.2.3 Durability

Once electrical power and network services are guaranteed, another potential constraint is that an ICT becomes damaged and thus out of function. Throughout the field research durability of ICTs was a serious concern for participants. As the following participants advised:

'They should be durable. They should be more durable than they are now' (Ntaja-16-M).

'Bring us no second hand material, but the new ones and ones with long durability' (Shakisso-10-M).

The main reason for concern was the financial consequence of ICT damage, as illustrated by the following quotation:

'You might damage it which means you will loose all the money you invested in it' (Shakisso-18-F).

	Repair	New purchase
Radio	50 Birr	80-200 Birr
Mobile phone	150 Birr	420-2000 Birr

**Table 6.4: Cost of ICT repair and purchase in Nazret
(Source: personal communication, January 2007)**

In developed countries ICTs are often thrown away before the end of their lifecycle, because it is cheaper to buy a new and more up-to-date version than to get the old ICT repaired (Graham and Thrift, 2007). Contrastingly, in developing countries the repair of an ICT often still pays off compared to buying a replacement. The average prices of repair and replacement in Nazret in Table 6.4, for example illustrate how replacing an ICT can cost four times getting it repaired. However, as Mansell and Wehn (1998) have observed, the costs of using ICTs are usually defined in terms of infrastructure, hardware, network services and content, and therefore do not take additional user costs such as for maintenance into account. As the following participant commented:

'If radio gets damaged you need money for the repair' (Zomba-19-F).

The lack of financial resources for maintenance or repair was a reason why ICTs remain unused (Spitulnik, 2000), such as the following participant's radio:

'Radio got damaged, lack of money to take it to the repair' (Ntaja-20-F).

This is another example of 'expelled users', who had involuntarily stopped using the technology because of insurmountable costs (see Section 2.3).



Figure 6.9: ICT repair businesses in Zomba (Source: Author)

The demand for repair of ICTs had led to a thriving repair industry, such as the ICT repair businesses in Figure 6.9. For example, the introduction of mobile phones had created new business opportunities related to their maintenance; in other words innovative opportunities for entrepreneurship (Hahn and Kibora, 2008). The ICT repair industry was a male dominated business, which was reflected by the difference among male and female participants expressing an ability or interest in learning how to repair ICTs (Table 6.5). This reinforced Kline and Pinch's (1996) observation of how repair of technologies formed a defining element of masculinity and thus gender identity.

	Male	Female
Ethiopia	6 (8%)	1 (1%)
Malawi	22 (22%)	5 (5%)

Table 6.5: Number of participants interested in repairing ICTs (Source: Author)

Participants identified the following four main factors influencing the durability of ICTs: environmental conditions, unreliability of power supply, ensuring continuous profit for manufacturers, and fake replications. Different scholars have commented on the negative impact of environmental conditions such as humidity and dust on ICTs that were originally designed for less humid and dusty environments (see for example Adam and Wood, 1999; Marsden, 2008). Also in the research countries the dusty environments caused damage to particularly CDs, cassettes and videocassettes, which were difficult to repair once they got damaged:

'If cassette contacts some dust it stops producing sound'
(Zomba-12-M).

This led to different recommendations for improving durability, for example:

'Once a CD is scratched it isn't working properly and the movies are always stopped and frozen. If you could produce something to protect CD's from being scratched, it would be more durable' (Nazret-16-M).

A second factor negatively affecting durability was the unreliability of power supply. Steinmueller (2001) has pointed out how power failures and fluctuations in voltage are problematic for ICTs that are designed for relatively constant voltage. Honold (2000) has for example found in a study about adopting washing machines developed in Germany for the Indian market that the design of the machines was not capable of dealing with the quirks of the Indian power grid. The power fluctuations can damage ICTs unless voltage stabilizers are used, but these can be difficult to find and users might not always be aware of their need and purpose (Brewer *et al.*, 2005). Adam and Wood (1999) have for example argued that some of the equipment failure is caused by a lack of knowledge about line voltages. In both Ethiopia and Malawi, participants highlighted damage caused by too high voltages:

'The integrated circuit and adapter of ghetto blaster can be damaged very easily, because of electric breakdown' (Nazret-17-M).

'There was an over voltage and then the television burned' (Zomba-20-M).

Furthermore, not only did the power fluctuations pose a risk, but also lightning strikes caused damage to ICTs. For example, in 1995 11 solar panels had been donated to the district education office in Shakisso for distribution to remote schools to overcome the cost and lack of batteries to power radios that were used for radio education. However, within three to five years later nine of them had been damaged by lightning. This emphasised the continued importance of training people in the use of relatively inexpensive surge protectors when using mains electricity for ICTs as well as to repair ICT equipment in case it breaks down.

Graham and Thrift (2007: 18) have argued that increasingly ICTs are 'made to be replaced and disposed of through accelerating cycles of acquisition and almost immediate disposal'. This sentiment was shared by participants, who suggested that ICTs were only produced for temporary use:

'This radio they made it for temporary, you cannot use it for a longer time (it breaks). I don't have the money to get it fixed all the time' (Zomba-12-M).

According to the following participants, the main reason why manufacturers purposely produced non-durable products was to ensure a continuous profit:

'According to my point of view, these things should be damaged easily to produce continuous income for the manufacturer' (Nazret-17-M).

'I prefer to have more durable technologies, but the company would not make profit if they make durable items' (Nazret-18-M).

Moreover, Graham and Thrift (2007) pointed out how modern ICTs are deliberately designed to foreclose the possibility of maintenance and repair, which particularly affects users in developing countries. As a consequence, electronic waste or e-waste, is becoming an emerging problem (Widmer *et al.*, 2005).

A fourth reason for the low quality and durability of ICTs sold in Ethiopia was a flourishing market in cheap and low-quality reproductions of branded ICTs that were sold as if they were the real brand:

'There are several fake and smuggled technologies in the market that are of less quality' (Nazret-16-M).

The following participant explained this 'deception' in more detail:

'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).

6.2.4 Geography of ICT Use: 'At the Road Someone Shows Videos'

Similar to the geographical dimension of literacy skills being more widespread in urban than in rural areas (see Section 2.2), the field research demonstrated how also ICTs were geographically dependent and similarly disadvantaging those in rural areas. Geographical dependency means that as a result of different physical and social factors, the use of ICTs was confined to certain places. This section discusses this geographical dependency in more detail and examines how it affected participants' encounters with and knowledge about ICTs as well as its relation to mobility.

The main physical factors geographically limiting the use of ICTs were the reliance on the power grid or broadcast and communication networks discussed in Sections 6.2.1 and 6.2.2. Consequently, ICTs agglomerated more around places where a

power grid as well as the necessary broadcast and communication networks were available, in other words more in urban than in rural areas. For example, ‘at the road’ in the quotation used for the title of this section was used by participants in Ntaja as a geographical indication of where they had encountered ICTs. As discussed in Section 4.3, Ntaja was a rural town stretched along an asphalt road and the power grid ran parallel to the road (see Figure 6.10). As a result, ICT use had agglomerated along this road, which explains why participants often referred to the road as the place where they had seen a certain ICT:

‘At the road someone shows videos’ (Ntaja-13-M).

‘I saw some people were making calls at the road’ (Ntaja-10-M).

‘Someone at the road has it (computer)’ (Ntaja-11-M).

Similarly, Shakisso was only served by a power grid in the central part of town and consequently participants frequently referred to ‘in town’ as the place where they had encountered an ICT:

‘Once I watched video in town’ (Shakisso-13-F).

‘In town people are using it (videocassette)’ (Shakisso-18-M).

Furthermore, dependence on electricity or other wired networks often confined the use of ICTs to indoors. Spitulnik (2000) for example found in Zambia that radios remained inside the house if electricity was used to power them. Similarly, one participant’s description of a landline telephone indicated how these were typically found inside:

‘Indoor phone’ (Zomba-23-M).

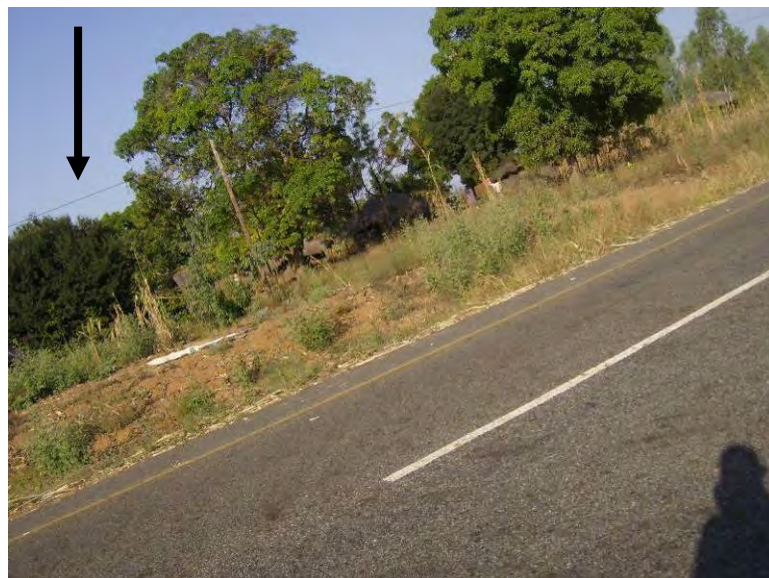


Figure 6.10: Electricity facilities along the road in Ntaja (taken by Ntaja-16-M)

The social shaping of ICT use (see Section 2.3) created further geographical dependencies, as ICTs became used and therefore known in particular kinds of places. For example, computers were mostly recognised as something from offices, computer centres, educational institutions, and in Nazret from the computer rooms at FSCE:

'I know it (computer), but don't know the name. I have seen it in the office, but I don't know the use' (Zomba-20-M).

'If you take laptop, people working in offices use these' (Nazret-18-F).

Apart from physical places, another more 'virtual space' where computers and other ICTs had been encountered was on television or in movies:

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

As a consequence of these geographical dependencies, the sale of ICTs was also geographically constrained; they were more widely available in urban than rural areas. In rural areas the most commonly sold ICTs were radios (see Figure 6.11), which is part of the reason why this ICT was the one most widely recognised by participants. There were different underlying reasons for the smaller consumer market in rural areas, both in terms of demand and supply. First, because rural areas were less populated, the demand and therefore the market feasibility were lower than in the more populated urban areas. Kenny (2002) has argued that the market feasibility of network services is more dependent on geography and population density than it is on income. Furthermore, as a result of lacking power supply and network services in rural areas, the demand for ICTs needing these for their operation was lower. Moreover, the majority of poor people lived in rural areas and therefore they had more difficulty with the affordability of ICTs and were therefore more likely to share ICT use in order to reduce the costs. Apart from this demand side, supplying to remote areas without a good transport infrastructure was more difficult and the transport costs were often calculated in the selling price. Section 6.2.2 explained how the selling price of a SIM card in Shakisso was almost double the official price. Moreover, making photocopies for my research in Shakisso cost eightfold of what I paid in Nazret. The owner explained to me that because his turnover of photocopies was much lower than in Nazret, he had to ask a higher price in order to keep his business running.



Shakisso



Ntaja

Figure 6.11: ICTs for sale at markets in Ethiopia and Malawi (Source: Author)

The geographical dependencies of ICT use had an impact on participants' encounters with and knowledge of ICTs. The ICT card recognition task provided convincing evidence that participants' knowledge was often based on encountering them in specific contexts or places. Apart from computers known from offices, the video camera was another example of an ICT that was mainly known from particular contexts, such as wedding ceremonies:

'Camera for wedding ceremonies' (Zomba-14-M).

Table 6.6 illustrates the four most important contexts from which the video camera was known. It for example shows how in Malawi the video camera was known from presidential meetings and visits:

'Camera for presidential meetings' (Zomba-12-F).

A visit of the former president to Ntaja had contributed to how the video camera had become contextualised:

'I saw it the day when the president was in Ntaja' (Ntaja-16-M).

Participants' knowledge of ICTs was partly based on encountering them in the 'virtual space' of television and movies without having ever seen them in reality, particularly fax, PDA and computers. For example, all six participants that recognised the fax as well as the only participant that recognised the PDA indicated that they had only seen

	Ethiopia (102)		Malawi (80)	
Wedding	37	36%	12	15%
Church	6	6%	7	9%
On television	13	13%	0	0%
Presidential meetings	0	0%	12	15%

**Table 6.6: Contexts of participants' encounters with video camera
(of participants who recognised video camera) (Source: Author)**

it on television or in a movie. Furthermore, one male participant in Nazret knew six out of 17 recognised ICT cards from seeing them in movies. Consequently the knowledge about the functionality of these ICTs was partly constructed based on how they were used within these virtual contexts. This explains why the knowledge of the functionality of ICTs seemed sometimes inspired by popular action movies (see Section 5.5):

'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' (Nazret-10-M).

'I am not sure about the name, but I saw it (fax) in different movies. You can use it to receive message in text form and it will bring out on paper. They use it in police stations' (Nazret-18-M).

The geographical dependence of ICT use had in different ways a strong relation to mobility (Kakihara and Sorensen, 2002). Mobility is not only the geographical movement of people, but also of objects, symbols, such as the broadcast of visual images through satellite, and space itself, through for example symbolic travel on the Internet (Urry, 2000). Throughout the field research it became evident how the mobility of users as well as the ICTs themselves affected their use.

ICTs had a degree of mobility that was determined by a combination of different factors such as their portability in terms of size and weight, mode of power supply and reliance on broadcast or communication networks:

'Looks like a computer you can walk with' [ICT card with laptop]
(Ntaja-18-M).

Heavy or big ICTs that relied on wired power supply or network services had the lowest degree of mobility, whereas small and lightweight ICTs that relied on wireless power supply or network services had the highest degree of mobility. However, a

high degree of mobility alone did not always guarantee successful use. For example, a mobile phone was of not much use in an area that was not covered by a mobile phone network or where the network was cut off. Different participants made reference to these differences in mobility of ICTs:

'I use radio with the dry cells and therefore it is mobile. Television is used at a fixed place and I can't easily take it from place to place, that is why I put it low in ranking and ghetto blaster high. Sometimes I travel to the countryside and if electricity is not available television cannot be used' (Shakisso-15-M).

'Telephone is fixed at home, mobile phone is portable' (FG Shakisso-18-F).

The higher the degree of mobility, the easier ICTs moved around and therefore the less their use was restricted to place. Moreover, the mobility made them more adaptable to different types of social spaces and situations (Spitulnik, 2000). As a consequence, the mobility of ICTs increased their appearance in different places and therefore the chances of exposure to them. As the following quotations demonstrate, mobile technologies were more part of the 'street scene' and therefore better known:

'I have seen radio on the street when people listen to it' (Nazret-10-F).

'I saw some people on the street with camera' (Zomba-14-F).

Participants had a strong preference for ICTs with a high degree of mobility, which was for example reflected in the recommendations for improvements to existing ICTs:

'Television is not as easily portable as a camera, and it is too heavy to carry' (Shakisso-11-M).

'Maybe you should make a ground phone without wires so that you can take it with you anywhere' (Ntaja-17-M).

Mobile devices also had the potential to shape contexts and social relations beyond their technological functionality, as Spitulnik (2000) demonstrated with her research in Zambia on radios. She found that the radio not only served for radio reception, but that its portability also allowed circulation within the community which tapped into other local patterns of creating status and reproducing social ties through exchange relations. Furthermore, mobile ICTs created a greater sense of individual ownership and use compared to ICTs fixed at places. For example, when participants were asked where they had seen mobile technologies they often referred to a *person* having it, whereas for less mobile technologies they predominantly referred to a

place, such as 'at home'. The reason one participant gave for never operating a mobile phone, further reinforced how mobile technologies were more likely to move and stay with their 'owner':

'My father always takes it (mobile phone) with him' (Zomba-10-M).

The use of ICTs that were not mobile and therefore restricted to places required mobility of its user to go to these place, as illustrated by what a ten year old female in Ntaja said:

'If you don't have a phone, you can go to Ntaja and pay the money and make a phone call' (Ntaja-10-F).

However, even mobile technologies required some mobility of their users, for example to go and charge or buy batteries and airtime. Therefore, as a result of the geographical dependencies of ICTs, the combination of someone's location and mobility greatly determined their exposure to ICTs. In rural areas, the exposure to ICTs was more limited, as reinforced by this comment from a 14 year old male in Shakisso:

'Because I am a boy from countryside, I don't know much about these ICTs' (Shakisso-14-M).

However, 'the penetration of mass media into rural areas and the increased mobility of rural residents had collapsed the spatial distance that once separated urban and rural cultures' (Schwartz, 1989: 150). This was for example evident from participants in rural areas referring to visits to urban areas and watching television and movies as to where and when they had seen certain ICTs.

6.3 Cultural constraints

Section 2.3 pointed out how ICTs both shape and are shaped by the contexts that they are used in. As ICTs are integrated in the cultural practices of their environment, they are for example shaped by local constraints and preoccupations (see for example Murray, 2000; Spitulnik, 2000; Gajjala, 2002). Furthermore, Murray (2000) has argued that technology is more likely to amplify existing social values and beliefs than to change them. This section explores whether or not this is the case among low-literate young users in Ethiopia and Malawi, and focuses in particular on the two most notable values and beliefs that limited the use of ICTs: gendered use and respect for an authority that forbids ICT use.

6.3.1 Gendered Uses

ICTs are not gender neutral and the way that ICTs are used by men and women reflects the socio-cultural and economic context within which they are used (see for example Silverstone and Haddon, 1998; Hafkin, 2000; Huyer and Sikoska, 2003; Cooper, 2006; Farrell and Isaacs, 2007). As Silverstone and Haddon (1998: 60) have argued, 'new technologies are defined very much in accordance with the dominant and insistently gendered character of domestic life, an insistence which is expressed in the gendering of space and time as well as in the division of labour'. Therefore, gendered power relations are inherent in the production, distribution and consumption of ICTs (Farrell and Isaacs, 2007). Huyer and Sikoska (2003) have named the disparities in access and use of ICTs as the 'gender digital divide'. They have emphasised that the contexts in which ICTs are introduced determine the way men and women use these them. This gendered use of ICTs was reinforced throughout my field research, with much evidence showing that men had better knowledge about, more ownership of and more experience with the use of ICTs than did women. Moreover, there were differences in the ways that men and women used the ICTs.

This section examines this gendered use of ICTs by first discussing how the research data revealed a clear difference in ICT knowledge, use and ownership, after which the underlying reasons for this gender disparity and their relation to the context of use are examined. The latter analysis is based on a number of specific gender-based constraints to women's use of ICTs as identified by Huyer and Mitter (2003), namely literacy and education, language, domestic responsibilities and therefore time, affordability, geographical location of facilities, content and socio-cultural

norms. My research found similar factors relating to the gendered use of ICTs; only the affordability constraint was not strongly supported as being more problematic for women. These gender-based constraints all mutually influenced each other, which made identifying the interrelations between them complex. For example, the geographical location influenced the educational possibilities and education on its part influenced language skills.

6.3.1.1 Differences in knowledge, use and ownership

The discussions with participants about the ICT cards gave insight in their familiarity with a range of ICTs, such as where they knew them from and whether they had ever used them before (see Section 3.2). This showed a difference between male and female participants as well as between participants from rural and urban areas, which is illustrated in Table 6.7. As women were less familiar with ICTs than men, they presumably also had less experience with the use of ICTs. Furthermore, even among the participants who recognised an ICT, female participants still had less experience with the use of that ICT than their male counterparts; 92% of male participants indicated they had operated a radio themselves, whereas only 78% of female participants ever operated one. The data further suggested that ICTs were possessed more by men than by women, which is similar to the gender difference in mobile phone ownership that Adam and Woldekidan (2005) found in Ethiopia. Participants sometimes gave an indication about the owner of an ICT under discussion, which in 81% of the cases referred to a man, such as a male relative, and only in 19% of the cases to a woman.

The field research thus demonstrated that rural women were the most disadvantaged in terms of ICTs and urban men the most advantaged (Spitulnik, 2000; Hafkin and Taggart, 2001; Hambly Odame, 2005). This inequality suggested that ICT use was divided along similar lines as literacy, by factors such as gender and geographical area (Stromquist, 1999; Wagner and Kozma, 2005). Both these disparities are a result of a set of social factors; the gendering in daily life shapes the gendering of both literacy and technology use as well as environments in which they are used (Silverstone and Haddon, 1998; Gajjala, 2002). The use of ICTs therefore has the potential to either change or further reinforce the already existing gender patterns. Which of these two possibilities eventually manifests is the outcome of a complex interplay between the ICTs and their social context; whereas in one social context ICTs might change the existing gender patterns, in another context they might actually reinforce them.

	Male				Female									
	Urban		Rural		Urban		Rural							
	Total	%	Total	%	Total	%	Total	%						
Telephone	80	94%	74	80%	154	87%	83	94%	56	62%	139	78%	293	83%
Television	81	95%	83	90%	164	93%	83	94%	67	74%	150	84%	314	88%
Radio	83	98%	86	98%	169	98%	83	94%	78	87%	161	93%	330	94%
Midi set	80	94%	67	73%	147	83%	69	78%	38	42%	107	60%	254	72%
Scanner	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
I-pod	2	2%	0	0%	2	1%	0	0%	0	0%	0	0%	2	1%
Walkman	37	44%	29	32%	66	37%	13	15%	7	8%	20	11%	86	24%
Mouse	40	47%	4	4%	44	25%	29	33%	3	3%	32	18%	76	21%
PDA	2	2%	0	0%	2	1%	0	0%	0	0%	0	0%	2	1%
Mobile phone	82	96%	82	89%	164	93%	87	99%	70	78%	157	88%	321	90%
Fax	4	5%	0	0%	4	2%	1	1%	1	1%	2	1%	6	2%
CD	82	96%	80	87%	162	92%	75	85%	35	39%	110	62%	272	77%
Computer	71	84%	26	28%	97	55%	46	52%	6	7%	52	29%	149	42%
Laptop	62	73%	18	20%	80	45%	30	34%	4	4%	34	19%	114	32%
Videocassette	69	81%	52	57%	121	68%	39	44%	4	4%	43	24%	164	46%
Floppy	21	25%	2	2%	23	13%	6	7%	0	0%	6	3%	29	8%
Digital Camera	77	91%	56	61%	133	75%	62	70%	26	29%	88	49%	221	62%
Digital Video Camera	25	29%	15	16%	40	23%	10	11%	4	4%	14	8%	54	15%
Printer	8	9%	0	0%	8	5%	7	8%	1	1%	8	4%	16	5%
Portable CD player	63	74%	35	38%	98	55%	37	42%	6	7%	43	24%	141	40%
Keyboard	36	42%	9	10%	45	25%	23	26%	1	1%	24	13%	69	19%
Video camera	70	82%	38	41%	108	61%	44	50%	16	18%	60	34%	168	47%
Remote control	76	89%	43	47%	119	67%	55	63%	15	17%	70	39%	189	53%
Ghetto blaster	83	98%	90	98%	173	98%	86	98%	88	98%	174	98%	347	98%
Earphones	72	85%	59	64%	131	74%	52	59%	36	40%	88	49%	219	62%

Table 6.7: Participants' recognition of ICT cards (Source: Author)

Insight into existing gender patterns was obtained from three focus groups in Shakisso in which the issue of gender equality was discussed. Particularly female participants expressed their appreciation for talking about the rights of women:

'I especially liked talking about the rights of women, which touched our internal feeling' (FG Shakisso-15-F).

The views about gender equality were divided among the genders. Female participants agreed that despite the law declaring equality between men and women, the reality was 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' (FG Shakisso-17-F).

Most of the participants in a male focus group on the other hand perceived that men and women were also treated equally in practice:

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

However, neither the female nor the male participants were persistent in their reasoning. Although female participants aspired gender equality, the perception of inequality was reinforced when I enquired how they would raise their own children:

'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 see girls less in ranking than boys by nature' (FG Shakisso-15-F).

Furthermore, the same male participant who affirmed gender equality later on admitted that the equality law was not workable within the household:

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

6.3.1.2 Domestic responsibilities and time limitations

Different scholars have drawn attention to the contrasts in domestic responsibilities between men and women in developing countries and how as a result of this the time of women is more constrained than that of men (see for example Stromquist, 1999; Rathgeber, 2000; Hafkin and Taggart, 2001; Puchner, 2003; Gibbons, 2004; Nicholl, 2006). These time limitations have wide reaching implications for female participation in, for example, education and literacy programs (Stromquist, 1999;

Rose and Al-Samarrai, 2001; Puchner, 2003). As Puchner (2003) has argued, it is often forgotten that, unless others take over some of the domestic responsibilities from the women, education only adds an extra time burden for them. This impact of time constraints on education was reinforced by the following participant:

'The reason why we are less in position is because we are too occupied by housekeeping activities compared to the boys. Parents decide that it is the women who should do the housekeeping work. We don't have enough time to study for our education' (FG Shakisso-15-F).

Not only does this quotation show the impact of gendered domestic responsibilities on education, but also the gender inequality within household dynamics.

When I tried to challenge the young women in this focus group to claim their equality to men by refusing the housekeeping work and going to play football as their brothers do, one explained how disobedience led 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' (FG Shakisso-15-F).

All the women in this focus group indicated that they were beaten at home with items such as whips, sticks and power cables whenever they disobeyed. Furthermore, they proclaimed that they were 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' (FG Shakisso-16-F,18-F).

In Nazret I was shocked to be witness of such physical punishment myself:

'When I was conducting an interview this afternoon, I noticed the guard quite badly hitting some of the children with a stick, for example on their hands, apparently because they had done something wrong. Seeing this happen in one corner of my eye shocked me' (Field diary Nazret, 22/11/06).

Although corporal punishment was not explicitly discussed with Malawian participants, Leach, *et al.*'s (2003) work has shown that it was not uncommon in Malawi either.

As a consequence of these household dynamics, the exposure to and use of ICTs by women was influenced and restricted by time constraints in the same way as their participation in education and literacy programs; women had less time to engage with ICTs than men due to the social division of labour (Silverstone and Haddon, 1998;

Rathgeber, 2000; Hafkin and Taggart, 2001; Nicholl, 2006; Kleine, 2007). This was, for example, supported by the explanations two participants gave for their low ranking of an ICT card:

'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).

'Because we women don't have time to be using this one (earphones) and we also don't know how to use them properly' (Ntaja-19-F).

The answer from the last participant implied that the lack of skills to operate an ICT was a further constraint preventing women from using ICTs.

6.3.1.3 Geographical dependency and mobility

Various scholars have highlighted how women face gender-related constraints to their mobility (Stromquist, 1999; Hafkin and Taggart, 2001; Ling and Haddon, 2002; Hambly Odame, 2005; Nicholl, 2006). The lives of women tend to be more geographically restricted to the direct environment of their homes, in particular in rural areas, because of their domestic responsibilities or other social influences restricting women's movement outside the home. The following participant explicitly expressed how her domestic responsibilities made her less mobile than her brother who could 'move wherever he likes':

'We don't have equal opportunities, for example after school I am occupied with housekeeping, while my brother can move wherever he likes' (Shakisso-18-F).

Section 6.2.4 discussed how the accessibility and availability of ICTs was constrained by (geographical) location, particularly in non-electrified rural areas. As a consequence, because of their limited mobility and gendering norms, women had less exposure to ICTs that were only found in certain geographical locations. This is one of the underlying reasons why female participants were less familiar with ICTs than their male counterparts (see Table 6.7). This disparity was further exemplified by the difference in ICT knowledge of a brother and sister who were interviewed around Ntaja. Whereas the 18 year old sister recognised only three of the ICT cards, her younger brother was able to recognise as many as 19, which demonstrated that even when men and women grew up and lived in the same environment they had different exposures to ICTs.

The impact of women's limited time and mobility on the use of ICTs was for example evident from the male dominated audiences in the video shows (Million, 2008). Apart from my own observations that the majority of the visitors at video shows were male, the following quotation further supported this observation (see Figure 6.12):

'Boys go there (video show) and watch war movies' (Ntaja-16-M).

This quotation directly addresses the impact of mobility, indicating that the video show was something you 'go to', not something that comes to you. Not only was it socially unacceptable for women to be seen there (Million, 2008), they furthermore did not have as much time and freedom to go and travel to the video shows, which were mostly located in the towns and commercial centres. This suggests that the few women who did actually visit the video shows were more likely to live nearby than the male visitors. It would therefore be interesting for future research to examine the geographical spread of the video show visitors to determine whether male visitors indeed travelled longer distances to get there than female visitors.



Figure 6.12: Male visitors at video show in Ntaja (Source: Author)

As discussed in Section 6.2.4, movies and television virtually contributed to people's exposure to and knowledge about ICTs, and therefore the video shows added to the ICT knowledge of its visitors. The gender imbalance of the audiences at the video shows therefore played a role in the observed gender differences regarding ICT knowledge. From the number of times ICT cards were recognised as something from a movie or television (57/70% male participants and 25/30% female participants), it was indeed evident that women had less exposure to television or movies and therefore to the ICTs displayed in there.

6.3.1.4 Socio-cultural norms

The gender difference in domestic responsibilities discussed earlier is only one of the differentiating gender roles that exist in traditional societies (Sachs, 2005). During my field research I observed and learned about different existing gendered stereotypes, not necessarily related to ICTs. For example, in Ethiopia riding bicycles or other vehicles was a male activity and to a lesser extent this was also true in Malawi. Moreover, these gender stereotypes were still stronger in rural areas than in urban areas, as exemplified by what the following participant said:

'In Addis & Awassa [big cities] I know women drive cars, but here in the countryside people will probably be laughing at her'
(FG Shakisso-19-M).

Furthermore, in both countries women traditionally wore skirts and were not expected to wear trousers. As discussed in Section 3.7, as an outsider I was treated differently and therefore tolerated in trousers. Furthermore, the question that asked participants what they were good at or wanted to become good at uncovered that in Malawi football was the sport for men (see Figure 6.13) and netball for women (Table 6.8).



Aspiration to be a football player
(drawn by Zomba-17-M)



Men playing football in Nazret (Source: Author)

Figure 6.13: Popularity of football among men

	Male	Female
Netball	0 (0%)	10 (10%)
Football	14 (14%)	1 (1%)

Table 6.8: Number of Malawian participants interested in football and netball
(Source: Author)

Different scholars have highlighted the relationship between technology and masculinity (Kline and Pinch, 1996; Thioune, 2003; Obayelu and Ogunlade, 2006). For example, Obayelu and Ogunlade (2006) referred to a study in Nigeria that showed how women considered the word 'technology' to have a masculine connotation. Furthermore, Thioune (2003) has found during research in different African countries that women felt that ICTs were 'instruments not made for them'. My research further reinforced how gender stereotypes applied to the use of ICTs. This was particularly evident in Malawi. Apart from the earlier discussed masculine stereotype of video show visitors, another stereotype that the field research revealed was earphones and small radios as 'toys for boys', as depicted in Figure 6.14 (Cooper, 2006). In a similar vein, Spitulnik (2000) found in Zambia that gender identity was a significant factor in how and to what degree people engaged with radios, whereby men owned and controlled them more than women.



Young man with earphones in Zomba
(taken by Zomba-13-M)



Man with radio in Shakisso
(Source: Author)

Figure 6.14: Male ICT stereotypes

This stereotype was reinforced by how a female participant recognised earphones:

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

As a result of this stereotype, some (6/6%) female participants in Malawi explicitly expressed their dislike for earphones or small radio:

'I don't like earphones because I am a woman. This is for boys, they connect this with walkman and put it in their pocket and listen while walking' (Ntaja-19-F).

'I don't like this radio, because they are for young men, not for women like me' (Ntaja-19-F).

Once I understood this stereotype, I sometimes asked female participants who expressed their dislike for earphones how they would have liked it if they would have been a boy. Their answers further reinforced the gender stereotype, as illustrated by the following quotation:

'I don't like earphones, putting them in the ears'. [And if you would have been a boy?] 'Then I would have liked them, because boys are the ones that like these things' (Ntaja-16-F).

Additionally, it would have been interesting to ask male participants the opposite question, whether they would have liked earphones if they would have been a girl, to see if they would also reinforce the gender roles.

Women who did not comply with these gender roles risked stigmatisation and shame:

'Because I can't take earphones and put them in my ears and walk with around with them. I can't do that because I am girl and they will laugh at me' (Ntaja-15-F).

'I don't like earphones. When you are using them, people will laugh at you at home. Because at home these are only used by boys and not by girls' (Zomba-13-F).

The latter participant was actually from a rural area, although she was interviewed in an urban area when visiting relatives. Her explicit reference to 'at home' as the place where girls were not expected to use earphones, showed how these gender stereotypes were still stronger in rural areas, which was further supported by the observation that all other female participants who expressed the earphones stereotype were from a rural area.

Although the gender stereotypes for ICTs were not as evident in Ethiopia as they were in Malawi, there was still some evidence that similar social norms existed there. For example, 14 participants who recognised earphones said that they had seen them with a man, whereas none of the participants referred to a woman. Although this suggested a similar gendered stereotype as in Malawi, more research would be necessary to verify whether this was really the case.

6.3.1.5 Gendered content

Another possible underlying reason for the gendered use of ICTs was that the nature of the available ICT content was more appealing to men than to women. Cooper (2006) has for example argued that current educational software is more appealing to boys. His argument is based on a study, which asked teachers to design educational software for male students, female students or 'students' (without any specific reference to gender). The study revealed differences between the software that had been developed for male students or female students and how the software developed for the 'neutral' students most resembled the software that had been developed for male students (Huff and Cooper, 1987). Based on these findings Cooper warns against the 'stereotype threat', of a negative stereotype that influences women's attitude and performance negatively.



Figure 6.15: Video show program in Ntaja (Source: Author)

Software that is based on a sport-, war- or space-oriented featuring competition is an example of content, which Cooper (2006) termed a 'boy-toy', that is more appealing to men than to women. Similarly, the video shows were more appealing to male than to female audiences as a result of the domination by action movies in their programs (see Figure 6.15). The explicit reference to 'boys' and 'war' movies in the following quotation by a male participant further reinforced that watching a 'war' (action) movie was a male activity:

'Boys go there and watch war movies. So when they come back from there, they want to try what they have watched' (Ntaja-16-M).

Additionally, the number of times participants in Malawi referred to action or Nigerian movies (see Section 5.5) in relation to television or video shows further supported this gender difference (see Table 6.9). Whereas male participants had more

affiliation with action movies, female participants preferred less violent Nigerian movies:

'I don't like to watch violence. I like watching Nigerians' (Zomba-13-F).

Observing and comparing the number of female visitors at the video shows during the screening of Nigerian movies and action movies could be a way to verify this difference further.

	Male	Female
Action movies	40 (40%)	10 (10%)
Nigerian movies	15 (15%)	12 (12%)

Table 6.9: Number of Malawian participants relating to action or Nigerian movies (Source: Author)

It was difficult to determine the underlying causes and effects for these gender differences. On the one hand women could be discouraged from visiting the video shows, because they were not attracted to the action movies shown. However, on the other hand, the content shown could have gradually become more biased towards what appealed to male visitors, because not many women visited the video shows for other reasons such as time and mobility. Alternatively, the two could have been interwoven and strengthening each other.

6.3.1.6 Education and language

Gender inequality in education in developing countries has widely been discussed in the literature (see for example Swainson, 2000; Rose and Al-Samarrai, 2001; Huyer and Sikoska, 2003). There is general agreement that women's lower levels of literacy and education compared to men, is one of the factors that contributes to the gender digital divide, which was indeed supported by my research (Hafkin and Taggart, 2001; Huyer and Mitter, 2003; Hambly Odame, 2005). The underlying reasons for the gender divide in education were similar to some of the gender-based constraints to the use of ICTs discussed in the previous sections. Section 6.3.1.2 for example highlighted the impact that the gendered domestic responsibilities and time constraints had on both education for women as well as their use of ICTs. Furthermore, women's limited mobility, discussed in Section 6.3.1.3, implied that the relative distance to the nearest school influenced their chances of and success in education more than for men (Woldehanna *et al.*, 2005). This was for example illustrated by two female participants in Shakisso who spent two to three years in a school close to their home that was teaching in a language (Oromo) other than their

mother tongue (Amharic), because of which they were not able to understand the teacher and the lessons. One was eventually relocated after two years to another school that taught in her mother tongue (language), but had to start all over again from grade one.

Socio-cultural norms were another factor influencing the gender divide in education, and thus literacy. The reason why the following participant did not go to school when she was younger exemplifies the impact of cultural beliefs on education:

'My parents didn't allow me to go to school. They believe that if they send girls to school, they will become prostitutes' (Shakisso-16-F).

The data from Ethiopia further suggested that it was actually men who had the most important role in changing these cultural beliefs, rather than the women themselves. For all the female participants who went to school at a later age, it had been male family members (e.g. brother, uncle, cousin) who had eventually convinced the parents to send their daughters to school. Hence, for making a difference to girls' education it is important not only to involve the women, but also to involve the men in the process. In a similar way, it is important to involve men in changing the gendered beliefs about ICT use. As Puchner (1995) has rightly argued, for improving female literacy or education focusing on women only will not be successful, because the social norms that prevented women from being literate or going to school remain in place.

As a consequence of the lower levels of education, women were more disadvantaged than men in terms of language skills, particularly with respect to foreign languages such as English (Huyer and Mitter, 2003). The language skills reported by participants did indeed show some gender differences. In Malawi 18% of male participants mentioned English skills, compared to only 8% of the female participants. The relation between English skills and educational level was supported by the fact that all of those who mentioned English had at least finished grade 6 or higher. The data from Ethiopia did not show any significant gender difference in terms of English skills². However, these findings did not provide a full picture, as not much was known about the exact proficiency in these self-reported languages. Moreover, another salient gender difference in language skills was that around Shakisso 45% of female participants reported proficiency in only the Oromo language, compared to 20% of male participants. A possible explanation for this

² Both 8% of male as well as female participants mentioned English skills.

difference is that due to their more limited mobility (see Section 6.3.1.3), women had less exposure to the centre of town where Amharic was the *lingua franca* spoken in daily town life, even though Oromo was the dominant language in that region.

As ICTs were perceived as tools that were most suitable for those who were educated and mastered the English language (see Section 5.2), the gender inequality in terms of education and language skills did indeed contribute to the gender digital divide. The following participant, who explicitly referred to an uneducated female to explain which of the ICTs could not be operated by someone without reading or writing skills, was possibly aware of this education and language divide and its consequences for ICT use.

'If a girl is not educated, she can't make a call if she can't identify the numbers exactly' (Nazret-15-F).

6.3.1.7 The complexity of gendered use

As demonstrated throughout this section, gender-based constraints to ICT use were socially constructed and were made up of a complex web of interrelated factors. Therefore, just changing the ICT design is not enough to change the gendered use of ICTs, because simultaneously these other factors need to change as well. In other words, the context of use also needs to change in order to provide an environment in which women have equal chances to use ICTs. The Etuktuk project in Sri Lanka (www.etuktuk.net) is an example of how ICTs could travel to particularly rural women, who otherwise have limited opportunities to access and use them. Furthermore, ICTs can both change existing gendered values and beliefs as well as further strengthen them (Murray, 2000).

Additionally, there was a danger that the research data were themselves gendered and biased towards the perspective of male participants, due to the clear difference in familiarity and experience with ICTs between male and female participants. Although male and female participants had equal chances to express themselves in the research, the better ICT knowledge of male participants made their answers about ICTs more extensive and informative. At the same time, my interpretation of the data as a female researcher was potentially biased in the opposite direction, thus providing a counterbalance. Conscious of these potential biases, I have tried as much as possible to create a gender balance throughout this thesis by equally representing the voices of both genders in the quotations.

6.3.2 Respecting Authority

According to Giddens (2006: 1008), 'authority is the legitimate power which one person or group holds over another' and 'depends on the acceptance by subordinates of the right of those above them to give them orders or directives'. Respect for and obedience to authority, such as elders and parents, is typical for most African cultures (Moemeka, 1996; Asongazoh Alemazung, 2004; Omolewa, 2007). This was particularly evident in Ethiopia, where participants considered 'obeying my parents' as one of their biggest talents:

'Obeying to all my parents' orders, to receive blessings from them'
(Shakisso-16-M).

This section discusses how this respect for authority influenced the ICT use and non-use of low-literate youth (Wyatt, 2003).

The field research evidently demonstrated how a similar hierarchy of respect and obedience to parents and elders was found in the operation of ICTs:

'I haven't operated mobile. He is my elder brother and we aren't that close. I respect him more, so I am not touching his things'
(Nazret-16-M).

Young people often did not have the authorisation to operate ICTs; approximately 15% of participants reported that they were not allowed to operate an ICT, such as the following two participants:

'My father doesn't allow me to operate mobile' (Zomba-12-F).
'My neighbours don't allow me to touch their technologies'
(Nazret-18-F).

As a consequence, the operation of ICTs was often exclusively authorised to parents or older siblings:

'Only my parents operate the radio' (Ntaja-16-M).
'My elder brothers operate videocassette; I am not allowed to use it'
(Nazret-12-F).

However, even those who were not authorised to operate and therefore touch ICTs had the opportunity to make use of them as long as they had the permission and an authorised person operated it for them.

'I haven't operated television, but I watched it. I am not allowed to touch it' (Nazret-11-M).
'I made a call, but my brother operated the telephone' (Ntaja-15-F).

Another example of how respect for authority influenced the use of ICTs was directly evident during my field research when a guard at FSCE used his authority to claim the digital camera from one participant and then started making pictures with it himself. As I noted in my field diary:

'When we finish the interview and I go to get him and the camera, I actually find the watchman taking pictures with it. When I later ask the boy about this, he tells me that the watchman was forcing him to give the camera' (Field diary Nazret, 06/12/06).

As I caught this particular guard on different occasions lashing children (see Figure 6.16), the participant probably did not have much other choice than to obey and share the camera with him. A possible reason why the guard felt he could claim the camera was that letting youth interact with a digital camera was against the common hierarchical conventions, as the following passage from my field diary demonstrated:

'He 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 diary Nazret, 14/11/06).



Figure 6.16: Lashing FSCE guard (taken by Nazret-11-M)

A typical consequence of disrespect for the rules of ICT authorisation was (corporal) punishment:

'The first time when I switched television on, I was beaten by my mother because I switched it on' (Zomba-11-M).

'I am scared to use radio, because I am scared that my father will insult me' (Zomba-12-F).

Furthermore, one of the strategies to avoid unauthorised use of ICTs was locking them away. Section 6.2.2, already discussed how in Ethiopia the keypads of telephones were being locked to avoid unauthorised phone calls and Section 6.2.1 showed the television cupboards in Shakisso. The following quotation is a further illustration of how ICTs were being locked away to avoid unauthorised use:

'The radio is locked by my uncle, he has gone to Ntaja' (Ntaja-13-M).

Apart from preventing unauthorised use, locking away the ICTs was also a safety measure to protect them from being stolen.

The underlying motivation for parents not to allow their children to operate ICTs was the fear for potential damage, as illustrated by what the following participants said:

'I haven't operated mobile phone, because I was told it would be out of function if I would use it' (Shakisso-13-M).

'I am not allowed to operate radio. They fear I will damage it' (Ntaja-10-M).

According to Eswaran and Kotwal (1990) there is a relationship between poverty level and the capacity to absorb risk: the poorer people are, the lower their risk-bearing capacity. Therefore, not allowing children to operate ICTs might have been a risk avoiding strategy to avoid the financial consequences of possible damage.

Another way in which the use of ICTs was affected by respect for authority was when relatives confiscated ICTs after someone had died, which particularly happened in Malawi:

'When my father passed away, his relatives came and took the radio' (Ntaja-16-M).

'My family took the radio when my parents passed away' (Zomba-13-F).

Different scholars have stressed the complexity of rules determining the ownership and inheritance of assets within African households and how they vary with location, ethnicity and religion within the same country (see for example Fafchamps and Quisumbing, 2000; Takane, 2008). However, this literature predominantly focuses on assets such as land and livestock, whereas ownership and inheritance of ICTs have so far rarely been considered. How such ownership and inheritance are socially constructed in Africa would make an interesting topic for further research. Apart from local social conventions, such research should also take the possible influence of widely watched Nigerian movies into account, which frequently portray the confiscation of ICTs by relatives (see Section 5.5).

6.4 Conclusion

This chapter focused on the most significant constraints brought about by the physical and social contexts of the research areas and explained how these shaped the use of ICTs. Furthermore, through the use of direct quotations from the respondents it sought to give a flavour of the ways in which they interpreted these restrictions. The constraints provided a starting point to explore how users (re)shaped ICTs according to their needs during actual use, showing how they got around some of the constraints. In doing so, the chapter moved away from technological determinist views of technology, and, demonstrated how the ICTs, their users and the context of use were all intertwined (Bijker and Law, 1992; Oudshoorn and Pinch, 2003b; Löwgren and Stolterman, 2004). The nature of the constraints represented a complex interplay of interdependent factors that could be divided up further into interdependent sub-constraints, such as the many different factors constraining electrical power supply. Furthermore, the constraints themselves were also closely interlinked, which for example meant that the best solution to a physical constraint was not necessarily just a physical one. Therefore, similar to the ideological stance to literacy practices, addressing these constraints to ICT practices requires a more holistic perspective (Robinson-Pant, 2005).

My findings reinforce arguments that suggest that power supply continues to pose a serious constraint to the use of ICTs in Africa and that this is more complex than simply a lack of electric power infrastructure (Mansell and Wehn, 1998; Adam and Wood, 1999; Steinmueller, 2001; Thioune, 2003; Brewer *et al.*, 2005; Heeks, 2008). For example, expanded access is of limited use to the poorest users if it remains unaffordable to them (Briceno-Garmendia *et al.*, 2004). Despite attention to the overall affordability of ICTs among scholars, it is often unclear to what extent the costs of power supply have been taken into account in these considerations (see for example Gerster and Zimmermann, 2003; Kleine, 2007).

The chapter furthermore demonstrated how existing socio-cultural norms and gender roles influenced the way men and women were exposed to and used ICTs, revealing a clear gender digital divide, in which female users were most disadvantaged (Huyer and Sikoska, 2003). An important finding was the existence of gender stereotypes that defined the use and ownership of particular ICTs, such as earphones and small radios, as a form of masculinity (Kline and Pinch, 1996). Consequently, the use of these ICTs by women carried a social stigma. The underlying cause of this gender

digital divide was a complex interplay of interdependent factors. For example, the existing gender norms in terms of domestic responsibilities gave women less time to interact with ICTs and moreover restricted their mobility. Additionally, due to their limited time and mobility they had less exposure to ICTs beyond the vicinity of their homes. Furthermore, the gender digital divide indicated that ICTs had amplified existing social gender norms, rather than changed them (Murray, 2000). Therefore, tackling this divide poses a similar challenge as the challenge faced in literacy programs for women:

‘Literacy programs for women face a double challenge: how to develop literacy skills in circumstances under which literacy fights for time among many other competing demands in the everyday life of women and how to modify prevailing literacy messages, whose language so deeply expresses embedded gender ideologies that assign mostly reproductive roles to women’ (Stromquist, 1999: 275).

Chapter 5 already provided considerable evidence of the ways in which both traditionally defined literacy and ICT use were mutually reinforcing in Malawi and Ethiopia. Furthermore, although the discussed constraints were not specific for low-literate users, the characteristics of those who were most disadvantaged by them showed resemblance to the characteristics typically associated with low literacy proficiency (Wagner and Kozma, 2005). The physical constraints, such as those caused by power and digital access, were most prevalent in rural areas, where low literacy also prevailed, and they were therefore particularly hitting the rural poor hardest in terms of affordability. Additionally, the gendered use of ICTs was apparent, especially among disadvantaged women who were already more disadvantaged in terms of literacy proficiency. In other words, rural women were most disadvantaged and urban men most advantaged in terms of literacy as well as ICT use.

The final analytical chapter now builds on these arguments to develop a discussion of the (user) needs of the low-literate participants by exploring the most important meanings and uses of ICTs in their lives and how they shaped these according to their needs.

7 Constructing the Use of ICTs: Understanding User Needs

7.1 Introduction

Section 2.3 highlighted the importance of understanding users and their needs both for the interaction design process as well as to understand and interpret the social impact of ICT use. Not only when identifying user needs during the design phase, but also during the actual use of ICTs, a great deal can be learned for future designs from how users actively shape and reshape the use of ICTs according to their needs (Mackay and Gillespie, 1992). This chapter explores how low-literate participants shaped their use of ICTs by examining the most important meanings and uses of ICTs in their lives, such as their role in emergency situations and as a status symbol. Furthermore, the chapter discusses how participants' needs were explored with them and highlights the challenges of this process. The following eloquent quotation from Chambers (1995: 191) was of great relevance to this process:

'Poor people have many priorities. What matters most to them often differs from what outsiders assume, is not always easy to measure, and may not be measurable at all. If poor people's realities are to come first, development professionals have to be sensitive, have to decentralise and empower, to enable poor people to conduct their own analysis and express their own multiple priorities'.

Therefore, as much as possible this chapter is based on the priorities and needs of participants as they themselves saw them, rather than what I assumed was important (Baxter and Eyles, 1997).

7.2 Shaping ICT Use: Perceived Opportunities

As emphasised in Section 2.3, the meaning of an ICT is not inherent in the technology itself, but instead arises from the way it becomes used in the entire fabric of social, political, cultural and economic relations within which it is embedded. Users and the context of use play a crucial role in how ICTs become utilised and the meanings that are assigned to them. The impact of the context of use was already explored in the former chapter, whereas this section is concerned with the meanings that low-literate users assigned to ICTs and their use. In particular, it examines their motivations and explanations about how they had ranked the ICT cards, so as better to understand the role and meaning of ICTs in their lives. The vast majority of

participants considered ICTs as something that had an overall positive impact on their worlds and made meaningful contributions to their lives, voiced as follows by a participant:

'If these technologies didn't exist, the world would have been uncivilised' (Shakisso-15-M).

At the same time, the following participant expressed the important caveat how for 'non-users' not much had changed:

'Without these technologies there would be no change for me, because I am not making use of them now' (Shakisso-18-F).

This section explores the most important ICT uses expressed by participants, better to understand the meanings that they assigned to ICTs. The following important ICT uses are discussed in more detail: improved communication, use in emergency situations, business opportunities, learning opportunities, leisure and its role as a status symbol. Nevertheless, participants were not only praising ICTs, but also identified some of their dark sides that are important to consider as well. Furthermore, it is important to remember that the interaction with ICTs is subject to constant change and reshaping and therefore this section only provides a snapshot of the situation during my field research, which might have meanwhile radically changed and become out of date.

7.2.1 Improved Communication

Participants considered that improved communication offered by ICTs was one of the major contributions of ICTs to their lives:

'Without these technologies it would be bad. You would not be able to communicate quickly' (Zomba-18-M).

The introduction of ICTs had inevitably changed existing communicative practices. Traditionally drum signals were used as a means of communication in many African countries (see Section 2.2) and the following quotation shows that this communicative practice was still sometimes used:

'When there is a ceremony here and you want to communicate with someone far away, sometimes they use a drum' (Zomba-12-M).

At the time of my field research, participants identified the following four main practices to communicate over long distances: going somewhere yourself, sending an oral message through someone else, sending a letter, or making a phone call. As the two main advantages of the latter ICT practice compared to more traditional communication methods, they mentioned faster speed:

'If these technologies weren't there, there would be difficulty with communication. In ancient times the postman had to travel many kilometres to bring a letter from one place to the other. On his way he could face different problems (sick, thirsty), but these days you can use fax machine to send message and deliver it within fraction of seconds' (Nazret-16-M).

and reduced costs:

'What I like about the mobile phone is that if there is a fast message you want to send to somebody, you don't have to spend money on transport, but just use it' (Zomba-18-F).

Prior to the introduction of ICTs, bridging the physical distance between a sender and receiver of a message, for example through a person or a letter, was a precondition for communication over long distances. As a consequence, the spatial distribution of social networks was more restricted by physical distance. The introduction of ICTs has greatly reduced this distance barrier and therefore not only changed communicative practices, but also the spatial distribution of social networks (Chéneau-Loquay, 2007; Unwin, 2009). The following quotation for example shows how telephones allowed a family that had been displaced to the other end of Ethiopia to keep in touch with their relatives hundreds of kilometres away:

'If there is no telephone, I can't keep in touch with my relatives in Harar' (Shakisso-15-F).

The potential of telephone as the future channel of communication in Africa is based on orality being a central element of African communication (Obijiofor, 1998). Phone calls did indeed dominate the communicative ICT practices reported by participants, although particularly in Malawi (30/15%) radio was also mentioned as a tool for communication:

'You go to the MBC radio station and tell them the message you want to send and then they will announce it' (Zomba-16-F).

At the same time, participants were relatively unfamiliar with other communication technologies such as fax and Internet. Those who did recognise or bring these ICTs up mainly knew about them from encountering them on television or in movies (see Section 6.2). In accordance with the different Internet penetration rates (see Chapter 4) only two participants in Ethiopia referred to the Internet or email, compared to eight participants in Malawi. However, only a few of these participants seemed really to know what the Internet was; others only used the word in relation to computers:

'It (laptop) looks like an Internet that is a certain thing that looks like a computer' (Ntaja-15-M).

Furthermore, those who did have some understanding about the Internet, only referred to it as something to communicate with people abroad, and thus did not seem to be aware of its potential as a source of information:

'Without these technologies we would have not been seeing each other through Internet. I don't know how to operate it, but I know if you have a relative outside this country you can communicate' (Zomba-13-M).

7.2.2 Emergency

The main reason why the improved communication offered by ICTs was considered of great importance, was for its use in emergency situations, which is in accordance with findings from other scholars (see for example Souter *et al.*, 2005; Hahn and Kibora, 2008).

'Telephone can be used for immediate cases' (Shakisso-13-F).

According to a comparative study by Souter *et al.* (2005), telephone served as the most important channel for emergency information and communication. Hahn and Kibora (2008) found in Burkina Faso that it was through the shared use of mobile phones in emergency situations that people in rural areas became convinced about the usefulness of this technology. The most important advantage offered by ICTs in emergency situations is an increased speed of communication. The following participant for example reasoned that as a result of telephone communication people did not need to rush through traffic to get an emergency message across and were therefore less likely to cause traffic accidents.

'If the telephone would not exist people might be causing more accidents in traffic when they are trying to pass the message quick' (Zomba-16-F).

Participants held ICTs particularly important for the following three emergencies: to inform relatives about the death and funeral of a loved one (Table 7.1), to be informed of approaching wars and conflicts, and to call for help in case of problems, such as illness, financial hardship or criminal offences. The latter was for example evident from the following quotations:

'With a mobile phone I can ask a relative for money' (FG Ntaja-20-F).

'With mobile phone I can call the police if I am in danger' (Shakisso-18-M).

'If someone is sick you can make an emergency call to hospital' (Nazret-14-F).

Ethiopia	4 (3%)
Malawi	64 (32%)
▪ Zomba	21 (21%)
▪ Ntaja	43 (43%)

**Table 7.1: Number of participants referring to ICTs for communicating funerals
(Source: Author)**

Similar to Hahn and Kibora's (2008) findings in Burkina Faso, in Malawi the most salient emergency situation in which communication through ICTs played an important role was the death of a relative in the home village, which required the immediate return of all relatives to the village:

'I like mobile phone because there was a funeral at my home village and they used this to inform me' (Zomba-13-M).

In the absence of communication through ICTs, someone had to deliver the funeral message in person, as the post was not reliable or quick enough for this purpose. The reason why the following participant was not in school demonstrated how these funeral messages were given higher importance than education and therefore the indirect positive impact the use of ICTs to communicate funeral messages had on education:

'I didn't go to school today, because I was sent by my brother to send a funeral message' (Ntaja-15-F).

Table 7.1 shows how this communicative practice of communicating funerals through ICTs received more attention from participants in Malawi, particularly in rural Ntaja, than it did in Ethiopia. There are many possible reasons, or perhaps a combination of reasons, why this communicative practice was of less concern to Ethiopian participants, such as different cultural importance given to funerals, a higher prevalence of funerals in Malawi due the HIV/AIDS pandemic (see Section 4.3), a more limited landline and mobile network coverage in Ethiopia making this practice less feasible, or simply because the use of ICTs for this purpose had not yet been fully exploited. Another salient difference between Ethiopia and Malawi was the type of ICT used to communicate a funeral message. In Ethiopia mainly telephone communication was used for death and funeral messages:

'I like the mobile most because if someone is dead in the family we can be informed in time. If mobile wasn't invented they were supposed to come on foot' (Nazret-12-F).

In Malawi on the other hand, additional to telephone communication, radio communication was also commonly used to broadcast funeral messages throughout the country:

'When there is funeral, they use cellular or radio to send the message to relatives living very far' (Ntaja-15-F).

As Kenny (2002) has observed, community radio can fulfil a role as community telephone and in that way become sustainable even in poorer areas.

Within Malawi, particularly participants in Ntaja referred to the role of ICTs in sending funeral messages; twice as frequently as in Zomba (see Table 7.1). One of the possible reasons for this significant difference within the country was the religious setting of the Machinga district. As pointed out in Section 4.3, the majority of people in this district are Muslim as opposed to the Christian majority in the rest of the country. The custom within Islam is to bury the dead as quickly as possible, which explains the important role of ICTs in providing fast communication to announce funerals. On top of that, there was a high emigration rate from this district to South Africa, because of which most people had relatives there, who could not quickly be informed about funerals other than through ICTs. This difference reinforced how the importance of ICTs is relative to and shaped by users' needs.

The role of ICTs in informing people about approaching wars and conflicts was only brought up by participants in Ethiopia, particularly in Shakisso. For example:

'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).

As this participant explained, the information served as an alarm for people to leave the area in an attempt to avoid the conflict. Not only human conflicts, but also approaching natural disasters were a reason for people to seek safety:

'We can get the news from different regions by radio and if there is any natural disaster, we can get ready to protect ourselves' (Shakisso-14-M).

This difference is another example of varying communicative practices between the two research countries. One of the reasons for this difference is that Malawi has recently been a peaceful country without any major conflicts, whereas Ethiopia has been more prone to conflicts and wars. Particularly around Shakisso there had been different conflicts that led to the displacement of people, which explained the concern among participants there. Furthermore, my stay in Shakisso coincided with the start

of the war with Somalia, which could be a further reason for their heightened awareness (see Section 4.2):

'If you couldn't watch television, you for example wouldn't learn about the dispute in Somalia' (Shakisso-16-F).

7.2.3 Business Opportunities

There is widespread interest and research in the economic impact of ICTs in developing countries, as ICTs are often thought to have a potential to contribute to economic growth (see for example Donner, 2004; Souter *et al.*, 2005; Best and Kenny, 2009). During my field research the economic impact of ICTs was demonstrated by the different business opportunities identified by participants. Those participants, who used the business potential of different ICTs as the main criterion for their ranking of the ICT cards, provided important insights into the different ways that ICTs were used for business, noting in particular their uses for: offering ICT services, facilitating and improving existing businesses, and offering repair services (see Section 6.2).

Income generation by offering ICT services was the most important business opportunity and an important motivation for some participants in the way they ranked the ICT cards. A possible explanation for their aspiration to run such businesses was the observation that they were usually run by wealthy people and were more profitable than most other businesses, particularly in rural areas. The following participant for example explained how it offered poor people a gateway to prosperity:

'They are changing lives of people very quickly; the poor can become rich by using these technologies. Take for example a telecentre owner, with just one phone he can let others use it and collect money with which he can buy other phones and in this way become rich' (Nazret-13-M).

The three ICT businesses that participants most referred to were running a telephone kiosk, running a video show, and offering service as a cameraman for both photography and video. The business potential of running a video show was for example expressed by the following two participants:

'If I have a DVD player and television I will open a film shop and make money' (FG Shakisso-11-M).

'If you have a television and you don't have money, you can take it into town and start showing it so that you can get some money' (Ntaja-12-M).

The latter participant's reference to 'town' signifies the importance of place; most video shows were strategically located in towns and commercial centres to ensure a large potential customer base and therefore profit. Furthermore, the following quotations expressed the business potential of offering services as a cameraman:

'Video camera: I would take training how to use it and make money' (Nazret-17-M).

'Photo camera: because you can take photos of people and make money out of that' (Zomba-11-M).

The possession of cameras was not a common good and therefore taking pictures or recording videos was reserved for special and memorable occasions such as weddings, graduations and church ceremonies (see Section 6.2), for which a cameraman would be hired. In Nazret for example, it was not uncommon to see a cameraman in the back of a truck recording a wedding procession going around the city (see Figure 7.1). However, not all participants were convinced about the business potential of becoming a cameraman; according to the following participant it was unattractive because of market saturation:

'Photo camera: you cannot make good business with this one, because there are so many doing this business' (Ntaja-16-M).

The business opportunity of running an Internet café did not occur to any of the participants, which was in accordance with their limited familiarity with computers



Figure 7.1: Cameraman recording wedding procession in Nazret (Source: Author)

and the Internet. A possible reason why those who were familiar with this technology did not perceive it as a business opportunity was because they did not identify themselves with computers, which were considered tools for literate and educated people (see Section 5.2).

The two main ways in which existing businesses were supported by ICTs was through improved communication and access to information. One participant explained the business potential of a mobile phone in terms of communication as follows:

'I can use mobile phone for business. I can receive my calls if someone wants me for business and I can make a call as well for business' (Nazret-17-F).

This response was typical of many others that emphasised ways in which mobile phones could be used for business. Furthermore, one of the potential benefits of ICTs frequently addressed by scholars is farmers' and local traders' improved access to market information, helping them to reduce costs and increase their profits (see for example Souter *et al.*, 2005; Molony, 2008b). This potential was reinforced by participants, who for example stated that:

'Brokers and merchants used to have difficulty to get the current price of vegetables. They had to travel to the place to find out (which costs 20-30 birr) and the outcome might be negative (no vegetables). These days the brokers and merchants can get this information easily by mobile phone. Merchants can call from Dire Dawa or Harar to a broker in Nazret and prepare them whatever they need in whatever quantity' (Nazret-17-M).

'Radio: to listen to the news and broadcast of coffee prices' (Shakisso-18-F).

As coffee is Ethiopia's major agricultural product and export commodity, the latter quotation illustrates how context specific these ICT practices were.

Another way in which ICTs facilitated existing businesses was by providing entertainment to attract customers:

'Some hotel owners put a television in their hotel and people come to enjoy themselves watching television, at the same time you have to order something, so this is business for the owner; without television he would make less good business' (Shakisso-13-M).

I personally experienced in both countries, how musical entertainment was considered an indispensable element of customer service:

'If they don't have these technologies in their business, they can't entertain their customers (like in hotel or café)' (Shakisso-11-M).

For example, in Ethiopia permanent musical entertainment was considered an essential service of hotels. Therefore my hotel in Shakisso 'entertained' me every morning with a musical wake-up call and music till after bedtime with such a volume that a conversation in my room became impossible. My constant requests to decrease the volume were fruitless, because the owner reasoned this would negatively impact his business. For the same reason a shop owner in Ntaja refused to lower the volume of his music, which overruled my focus group discussion taking place nearby.

Those who referred to the business potential of ICTs as a motivation in their card rankings were mostly male and from Malawi, as illustrated by Table 7.2. This resonated with the observation that ICT businesses were mostly a male affair, such as the cameramen and the video shows dominated by male visitors and mostly run by enterprising young men (Assefa, 2006). This was another example of the 'gender digital divide' discussed in Section 6.3 and reflected how typical gender roles within the wider socio-cultural context influenced the way in which technologies were used (Huyer and Sikoska, 2003). However, why participants in Malawi had more interest in the business opportunities of ICTs than participants in Ethiopia was less clear.

	M	F
Ethiopia	6 (4%)	3 (2%)
Malawi	21 (10%)	3 (1%)

Table 7.2: Number of participants alluding to business potential of ICTs
(Source: Author)

7.2.4 Learning Opportunities

The potential of ICTs for education in developing countries is widely recognised (see for example Wagner *et al.*, 2005; Unwin, 2009). Participants also demonstrated awareness of the educational potential of ICTs:

'You will not get information and education without these technologies'
(Shakisso-15-F).

They identified ICTs both as a tool to support education as well as an information source from which to learn new things less formally. The following quotations for

example demonstrate how both radio and television were valued for the broadcasting of educational content:

'Radio transmits different educational things' (Shakisso-16-F).

'On television we can watch some educational things' (Shakisso-13-F).

This suggested the potential of ICTs as an alternative to conventional text-based learning for people with limited literacy skills or when printed materials are scarce.

The ICT that was most associated with education was the computer:

'Laptop: you learn school from it' (Zomba-12-M).

'Computer: to take lesson, to get more information in relation to my education' (Nazret-15-F).

A possible explanation for this perceived link with education was that computers were, apart from offices, mostly found in schools or training centres. In Ethiopia for example, *'after grade 10, students learn with the help of computers'* (Shakisso-14-M). Even participants, who did not really know about the functionality of computers, were aware of their educational potential, such as the following participant explaining why he gave high importance to the computer in his ranking:

'Because I heard that with respect to school it is very important to know the computer' (Zomba-19-M).

Also the computer rooms at FSCE were predominantly used for educational purposes as part of their non-formal education program. This meant that children at risk of living and working on the streets, who might otherwise be seen as being very underprivileged, were actually much more knowledgeable about ICTs than would normally be expected. Most students enrolled in this program did not know about computers before enrolling.

'When I came to school at FSCE I hadn't seen a computer before so it was completely strange to me' (Nazret-12-F).

The computers were mostly used for an educational program, called ABCD that had been developed in collaboration with the BBC (see also Section 5.3):

'At FSCE I use the computer for the ABCD program' (Nazret-13-F).

The computers at the drop-in centre on the other hand, were hardly used for educational purposes, but mainly seemed to be there as a means of entertainment for the girls, who used them to play games and watch (music) videos. According to one participant, the girls themselves had an interest to be further trained with the computers, but had been told that they could only do so once they had reached a

certain educational level, in that way reinforcing the perception that ICTs were for the educated only (see Section 5.2).

'Computer: when we asked at FSCE to train us with computers, they told us we have to be grade 10 and above' (Nazret-16-F).

Apart from their more formal role for education, ICTs also served as an information source to learn new things from. Although different scholars have argued that ICTs have not yet played a major role in getting livelihood information across to the poor (see for example Schilderman, 2002; Unwin, 2009), my field research demonstrated how such information did indeed reach my low-literate participants through ICTs, although not to what extent:

'There are some things I didn't know, but learned through television, things about cultures and school. I learned for example the way we can take care of our environment' (Zomba-17-F).

'Television: I watch how to produce different crops and you can watch about different people' (Shakisso-18-F).

Furthermore, participants showed a particular interest in learning about the rest of the world through ICTs. In other words, similar to what Ambler (2002: 133) found among radio listeners in Zambia, 'knowledge of the larger world was a necessary accessory of modernity'. At the same time, however, because information can easily reach vast masses through ICTs, it also has great potential for special interest groups, such as governments, donors or religious groups, to control and manipulate information according to their interest and benefit. For example, in Malawi religious donor organisations were providing 'informative' radio programs on HIV/AIDS, teaching listeners that abstinence was the only way to prevent HIV/AIDS infection:

'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).

7.2.5 Leisure

'Without these technologies the world would be full of silence. People would get bored' (Shakisso-10-F).

The field research demonstrated how ICTs were influencing and changing the way people spend their leisure time (Kellner, 2002; Mokhtarian *et al.*, 2006). Similar to literacy and ICTs, leisure is a social construct of which the meaning can sharply vary between different contexts (Akyeampong and Ambler, 2002; Parr and Lashua, 2004). As Mokhtarian *et al.* (2006: 270) have highlighted 'the more closely the concept of

leisure is examined, the more slippery it becomes'. Akyeampong and Ambler (2002) found how, from a historical perspective, the African notion of leisure widely varied across time and space. Leisure is often conceived in terms of free time or activity, but the notion of what comprises 'free time' is slippery (Parr and Lashua, 2004):

'Sometimes when you have free time you can play music and listen to it' (Zomba-14-M).

Therefore, although some participants explicitly made reference to free time in relation to leisure activities, this section primarily focuses on leisure in terms of activities and considers 'leisure time' as the time spent on these.

Mokhtarian *et al.* (2006) identified the following three aspects for an activity to be considered leisure: freedom of choice, enjoyability and contributing to psychological well-being. However, given the subjective nature of these aspects the boundaries between leisure activities and other activities are permeable and therefore leisure activity is not a fixed category, but a fluid phenomenon (Akyeampong and Ambler, 2002). For example, the same activity may be perceived differently by different people or the same activity may be experienced differently by the same person at different times (Mokhtarian *et al.*, 2006). This was supported by the focus group discussions in which participants expressed different opinions about the enjoyability of activities. For example, in one female focus group in Nazret one participant commented that she liked to play *Eka Eka*, which meant creating a family and neighbourhood with dolls and other items, whereas two other participants in the same group expressed their dislike for this game.

Participants indicated that ICTs had come to play an important role in their leisure activities, especially in terms of enjoyability and the contribution to psychological well-being. In accordance with what other scholars have found, particularly broadcast media such as radio and television were valued for their entertainment value (see for example Fardon and Furniss, 2000; Souter *et al.*, 2005):

'Without these technologies the world would not be looking good. A lot of people need entertainment, they use the radio to listen in their homes and they use a television to watch in their homes' (Zomba-20-M).

This quotation further showed that these media have changed the nature of home and public entertainment (Crystal, 2003). ICTs have introduced new forms of entertainment, which provide alternative leisure activities to traditional leisure. In Ethiopian culture, for example, chewing the stimulating leaves of the khat plant has

traditionally been one of the most important leisure activities (Kebede *et al.*, 2005). Not only have ICTs introduced an alternative to chewing khat, but they have also provided additional entertainment to accompany this leisure activity:

'When they are chewing khat and these technologies wouldn't have been there, it would be boring for them and they would leave the house to go away' (Nazret-8-F).

The following participant further explained how leisure activities in urban areas had been more affected by ICTs than in rural areas:

'In the countryside there is no electricity, so the people adapted to this and won't feel anything, but in the town you will not get relaxed if you don't have tape' (Shakisso-16-F).

However, compared to the earlier discussed uses, such as learning and business opportunities, the entertainment value ascribed to ICTs had lower priority. This was for example evident from why the following participant gave a low ranking to earphones:

'Earphones: this is only for entertainment and you can't get any knowledge from it. It's only for listening music' (Nazret-19-M).

The entertainment provided by ICTs was primarily a way for people to relax and in that way improve their state of mind:

'If ghetto blaster wouldn't exist people would be unable to relax and refresh their mind' (Shakisso-18-M).

The most important situations in which ICTs helped positively to affect their state of mind were: to overcome loneliness or boredom and to forget about problems or a bad mood. This was for example illustrated by the following quotations:

'When I am lonely I operate ghetto blaster and get relaxed. I amuse myself by listening to this item' (Shakisso-10-M).

'If you have some problems and think too much, you can just switch on the stereo and you stop thinking of anything' (Ntaja-17-M).

'If I am in a bad mood I can listen to tape or watch television and forget about my bad mood and get entertained' (Nazret-11-F).

7.2.6 Status Symbol

As pointed out in Section 2.3, apart from their instrumental functionality, ICTs also fulfil important symbolic functions. They acquire meanings and values in the environment where they are placed and therefore within any social structure with aspects such as social position, status, role, authority and prestige, ICTs can be used

to express things such as our lifestyle, the values we believe in and the subcultures we belong to (Bourges-Waldegg and Scrivener, 1998; Hallnäs Redström, 2002). Similar to what other scholars have found, my field research revealed the importance of ICTs as a status symbol; and in particular as an expression of prosperity (see for example Spitulnik, 2000; de Angeli *et al.*, 2004; Donner, 2004; Musa *et al.*, 2005; Molony, 2008a).

A series of similar pictures taken by one participant depicting different family members posing with a telephone emphasised the telephone's role as a status symbol (see Figure 7.2). Furthermore, the following quotations demonstrated how ICTs served to impress other people and were a reason for admiration:

'I admire my friends when they are using mobile phone' (Zomba-14-F).

'I don't have radio, so if my friends are carrying this I admire them'
(Zomba-12-M).

However, at the same time the following participants expressed that too much showing off with ICTs held a negative stigma, although this might have just been an expression of their personal envy:

'Some take it to school just to show off to others and boost their ego'
(Ntaja-16-M).

'When you are having this one, you can be taking yourself as a superior person that you are the only one having it' (Zomba-15-M).

Contrastingly, ICTs can also play a symbolic role in expressing low status. As a Kenyan colleague shared with me, certain types of cheap radios had become unpopular in Kenya, because they were associated with lower class groups.



Figure 7.2: The symbolic value of the telephone (taken by Shakisso-15-F).

The following interrelated factors help to explain how ICTs obtained, or perhaps inherited, their symbolic role as an expression of status: affluence, literacy, and English. ICTs were mainly affordable and accessible to rich people and were therefore indirectly a symbol of affluence:

'Printer is only found with rich people here in Malawi' (Zomba-20-M).

'We are from poor background. If we had the opportunity to be from a rich family we would have the experience with different technologies' (FG Nazret-13-M).

Additionally, as discussed in Chapter 5, literacy and English skills had a symbolic value both as a status symbol as well as a prerequisite for operating ICTs. Therefore, ICTs might have inherited the symbolic value of status symbol from the association with their literate and English speaking users. In other words, ICTs were a symbol for the rich, educated and English speaking elite, out of reach for the low-literate poor. However, these factors do not stand alone, but rather mutually reinforce each other in attributing status to ICTs. Furthermore, the observation that some ICTs, such as photo and video cameras, were particularly known as something used by white foreigners, might have further contributed to their status (Table 7.3):

'I saw some foreigners were here at FSCE and took pictures' (Nazret-13-M) (see Figure 7.3).

'In Ntaja some white men were using such a camera' (Ntaja-15-M).

Ethiopia	6 (4%)
Malawi	7 (3%)

Table 7.3: Number of participants referring to cameras with white foreigners
(Source: Author)



Figure 7.3: White photographer visiting FSCE (taken by Nazret-11-M)

ICTs have meaningful presence in people's lives as a status symbol without necessarily serving any functional purpose (see Section 2.3). Molony (2008a) for example observed in Tanzania how people walked with dysfunctional handsets on display in an attempt to participate, if only by simulation, in the experience of modernity; the visible handset served as a display of status, whether functioning or not. In a similar vein, during the field research it became evident that dysfunctional ICTs, after they lost their instrumental functionality, remained a piece of furniture as part of the interior, suggesting that their presence was still meaningful as a display of status (see Figure 7.4). This further reinforced the need for a broad conception of the term 'user', not only to include those who use the instrumental functionality, but also those who use it for symbolic purposes (see Section 2.3), because as Oudshoorn and Pinch (2003b: 1) have pointed out, 'there is no one correct use of a technology'. As Musa *et al.* (2005) have warned, merely an increase in the number of ICTs such as mobile phones, does not always say much about their real contribution to socio-economic development, as they might primarily be used as a status symbol. This further reinforces the argument that international ICT statistics do not always provide a representative image of whether and how the instrumental functionality of ICTs is actually used in practice.



**Figure 7.4: Participant surrounded by functioning and non-functioning ICTs
(note research cards on the table) (Source: Author)**

7.2.7 Negative Uses

The increased international attention to and effort on ICT4D is based on an underlying presumption that ICTs are drivers of positive change and therefore much work in this area is producing corresponding success stories (see Section 2.3). At the same time there is very little attention for ICTs as drivers of (unintended) negative change; in other words the potential negative impacts of their use need to be explored further (for an exception see Heeks, 2002). Even if development initiatives aim to bring positive change, they can also have negative, unintended side-effects; as someone at YONECO for example reflected, *'the construction of a road to a rural village brings advantages, but at the same time opens a world of new problems, such as a more rapid spread of HIV/AIDS'*. In a similar vein, although participants were predominantly positive about the role of ICTs in their lives, they also identified some negative meanings and uses that are addressed in this section.

The most important negative uses and meanings that participants expressed were the impact of television and video shows on education and behaviour, loss of cultural values, use in criminal practices, facilitating social conflicts, loss of jobs and physical damage caused by the use of ICTs. The negative impact of television and video shows on education and behaviour has been addressed in detail in Section 5.5. The main concerns participants expressed were increased school absenteeism to visit the shows and the negative impact that the sex and violence shown in such shows has on people's behaviour. Furthermore, the following participant expressed his concern about cultural values getting lost, when people adapt to the cultural values they get exposed to through ICTs:

'Some Malawians forget their own cultures by adapting to the Western and Eastern cultures they see on television' (Zomba-18-M).

This concern indirectly demonstrates the importance of cultural relevant content to promote and preserve local cultural values, at least among some of the participants in my research.

Another concern participants raised was the potential of using ICTs for criminal activities:

'A group of thieves can design a kind of thief operation with mobile phone. One can watch the owner and the other is somewhere else, the first one can use mobile to inform the other that the owner is away from his house and that the coast is clear to rob' (Shakisso-18-M).

However, these concerns might have been influenced by examples that people had seen in movies or on television, rather than by the reality of their own lives. Furthermore, as was evident from the stories from one participant who worked as a domestic worker, ICTs had also come to play a role in social conflicts:

'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).

'If there is a girlfriend here and a boyfriend somewhere else and the parents of the girlfriend don't want their daughter to marry this guy, they can take a picture of another woman and send it to the boyfriends family to cause conflicts' (Zomba-14-F).

Movies and television, such as for instance Nigerian drama, might have again played a role model here.

Moreover, participants demonstrated an awareness of the potential physical damage caused by ICT use, such as hearing damage from earphones (Vogel *et al.*, 2008):

'I heard that when the phone receives a call it exposes a kind of radiation that might be harmful' (Shakisso-15-F).

'Earphones can damage your ears and when you are listening while walking on the road a car can hit you' (Ntaja-14-M).

'If you are very close to the television, your eyes might get ill because of the light' (Shakisso-15-F).

Finally, one participant remarked on how computers were replacing people and therefore increasing unemployment:

'Computer has increased unemployment by making some jobs unnecessary' (Zomba-18-M).

7.3 Exploring User Needs

Section 2.3 emphasised the importance of identifying user needs in the interaction design process. One of the objectives of my research was to understand the needs of the low-literate participants and this section discusses the process of identifying these needs with them, which turned out to be a greater challenge than expected. The first subsection discusses the challenges faced in identifying participants' needs. Subsequently, the next subsection discusses how their fundamental needs related to their information and communication needs. Finally, participants' aspirations for the future as well as innovative inventions they came up with are discussed.

7.3.1 Challenges in Identifying Needs

Although there is frequent reference to the importance of identifying user needs in design literature (see for example Bannon, 1992; Preece *et al.*, 2002), much less is written about the actual practicalities of this process. Given the fluid and subjective nature of 'needs' addressed in Section 2.3, needs assessment is rarely a straightforward procedure, but rather an ongoing learning process (Roman and Colle, 2003). In interaction design this learning process is aimed at understanding the characteristics and capabilities of the users, what they are trying to achieve, how they achieve it currently, and whether they would achieve their goals more effectively if they were supported differently (Preece *et al.*, 2002). This section is intended to be more explicit about the practicalities of this learning process by discussing the challenges faced in the particular context of my research. Four main challenges in identifying participants' needs are discussed in more detail, namely participants' own understanding of their needs, thinking outside the box, explanation and reflection on answers, and censored answers.

My research explicitly sought to adopt a bottom-up approach starting from the priorities and needs of participants as they themselves saw them, rather than what I considered to be important. However, in practice this turned out to be a challenge, as participants were often not aware of their needs or priorities. As Noyes and Baber (1999) pointed out, non-expert users often do not know or understand their own needs and requirements, let alone being able to express them to designers. Particularly in Ethiopia it became evident from participants' responses that they were not used to being asked about their needs and priorities:

'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).

This helps to understand why participants were not always aware of their needs and had never considered what they still wanted to learn in the future:

'I haven't ever thought over this matter' (Shakisso-11-M).
'I never thought about this before' (Nazret-18-F).

This suggested that the dominant notion of self typical in the Western society and culture, which encourages people to think of themselves as beings with individual needs to which they have a 'right' (Frenk, 1995), did not necessarily apply to the participants within the communal culture that is typical for Africa.

Apart from not being aware of their needs, additionally participants had difficulty with explaining or reflecting on their answers. Although there is much attention to the reflexivity or self-reflection of a researcher in the research process (see Section 3.8), at the same time reflexivity of research participants is rarely discussed. On many occasions when participants were asked for further explanation about an answer, *yelem* and *palibe*, meaning 'nothing' in Amharic and Chichewa respectively, were common answers. Furthermore, the following interview extract is an example of how persistent attempts to find out more about the motivation behind their answers, regularly resulted in the participant persisting an answer that did not disclose much:

MG: What do you think the world would have looked like if these technologies did not exist?

RES: *'The world would have not been looking good'*

MG: Why not?

RES: *'Because these things would have not been there'*

MG: If these things would have not been there, what would have been different in the world?

RES: *'The world would have not been looking good'*

MG: Why?

RES: *'Because these things would have not been there'* (Ntaja-11-F).

At the heart of critical and innovative thinking is the ability to imagine alternatives to what is given (Tuman, 1992b). When a need is understood as a gap between what ought to be and what is (see Section 2.3), such thinking plays an important role in identifying needs. However, as I reflected in my field diary, participants had difficulty in thinking beyond what they knew was possible, in other words 'thinking outside the box':

'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, 14/11/06).

This was particularly a challenge when exploring possible innovations to existing ICTs or new inventions with participants, because they were often simply accepting ICTs the way they were or thinking that the limits of technological development had already been reached:

'All the technologies already exist, so there is no way to produce a technology that does not yet exist' (Zomba-18-F).

'These technologies cannot be improved. This is the only design possible' (Shakisso-15-F).

An analogy for such reasoning is what in formal logic is called 'a closed world assumption', which presumes that what is not currently known to be true is false or not existing (see for example Minker, 1982; Bossu and Siegel, 1985). In other words, these participants reasoned from what was given and therefore the needs they identified often did not go beyond the boundaries of this closed world or box. Scholars, who still believe that literacy universally leads to higher order cognitive skills, might attribute this to the low literacy skills of participants, but as others have argued this primarily represents the value attributed to such cognitive skills in Western cultures and overlooks that cognitive skills are possessed and valued differently by different cultural groups (Scribner and Cole, 1981; Bernardo, 1998; Walter, 1999).

Although there are many possible explanations for these challenges, three important factors help to explain their roots within the African context: respect for authority, conformity and poverty. As explored in Chapter 6.3, respect for and obedience to the authority of elders, parents and teachers is common in most African cultures (Asongazoh Alemazung, 2004; Omolewa, 2007). As a consequence, African children who are questioning or challenging something, for example by asking 'why', are often physically punished for being disrespectful and disobedient, as friends from different African countries confirmed from personal experience. Therefore, already from a young age people are taught not to question, but to obey authority and take things the way they are. Within this power structure of obeying authority it might also be less likely to be asked what you want or what your needs are. Furthermore, as Silavwe (1995: 73) has pointed out, 'in African society the emphasis is on conformity and conservatism; there is relatively little room for the display of individual initiatives, self-direction or self-determination, and a disproportionate amount of initiative or self-direction may even lead to jealousy and suspicion'. In other words, there is little room for people to 'think outside the box' or have needs that do not conform to the norm, without being stigmatised. Moreover, under the poor circumstances in which most of my participants lived, they did not have many alternatives and their main priority was surviving today, which could explain why they were not very used to reflect on their needs or to think beyond what is there.

A final challenge in identifying the needs of participants was that they censored their answers by not talking about anything that was considered bad, such as sex, smoking, chewing khat, stealing, fighting and drinking alcohol. Particularly, the group

dynamics in focus groups revealed that there were topics better avoided, as illustrated by the following examples from my field notes:

'The other girls are laughing ashamed when one girl talks about 'bad' things like chewing khat' (Field notes Nazret, 13/11/06).

'While we are gathering boys for the focus group one is saying: "Don't talk shit there, don't tell her that you smoke"' (Field notes Ntaja, 06/06/07).

Furthermore, when I explained to one participant at the beginning of the interview that all answers to the interview questions were right answers, his response revealed that there were topics that were normally considered 'wrong answers':

'When I tell him any answer is the right answer, he is asking "even fighting or having intercourse?"' (Field notes Ntaja, 20/06/07).

If participants did talk about the 'bad' activities it was either negatively about others engaging in such activities or to indicate that they did not like to engage in those activities themselves. Only rarely did participants talk about these topics, such as during a focus group in Ntaja when the male participants openly admitted they enjoyed having sex (see Section 3.2). There are many different possible reasons why they censored what they were telling me, such as wanting to hold up an upright impression to an outsider or older person, or in focus groups not wanting to disclose their 'bad habits' to peers. As a consequence, it was important not only to be aware of what participants shared with me, but also to have an understanding of what they purposely did not share with me.

7.3.2 Fundamental versus Information and Communication Needs

The question 'bread or computers?' has become a symbol for a debate in the development arena, about the necessity of a 'luxury' such as ICTs for those who face challenges in meeting their needs for daily survival (Rice, 2005; Leach, 2008). My field research provided strong evidence for the argument that ICTs were of lower priority than other fundamental needs in the lives of my low-literate participants. As one participant for example made clear when she was asked to rank the ICT cards:

'I first need a house before I need any of these technologies'
(Nazret-16-F).

The importance of needs for daily survival was particularly evident from the new inventions suggested by participants, most of which were in some way related to these fundamental needs, such as housing, water and clothing (see Table 7.4), whereas inventions related to information and communication needs were negligible.

Figure 7.6 illustrates the kind of inventions participants proposed corresponding to the different types of fundamental needs identified in Table 7.4. These inventions were evidently inspired by participants' daily lives, as most of them were of use to the most common daily activities that participants brought up in the focus groups, such as cooking, farming, fetching firewood and water and cleaning the house.

	Ethiopia (110)		Malawi (136)	
Agriculture	10	9%	22	16%
Food	10	9%	7	5%
Housing	7	6%	12	9%
Water	3	3%	6	4%
Clothing	5	5%	16	12%
Transport	8	7%	17	13%
Total	43	40%	80	59%

**Table 7.4: Number of participants with inventions serving fundamental needs
(Source: Author)**

The high number of agriculture related inventions was not surprising, given that in both countries 85% of the population was relying on agriculture (see Chapter 4). Most of these inventions were aimed at replacing manual or animal labour:

'A machine that can work in the farmland, instead of using oxen to plough the farmland' (Shakisso-15-F) (see Figure 7.5).

'A machine for harvesting maize and it should also do the processing. Because when you are using your hands to process the maize, you will get blisters' (Zomba-15-M) (see Figure 7.5).



Oxen ploughing the land in Shakisso



Processing of maize in Ntaja

Figure 7.5: Examples of agricultural activities (Source: Author)

Agriculture

'A technology which if you take it and put it in the farm, it should be doing all the farming activities on its own' (Zomba-23-M).

'A machine that can sow seeds, cultivate the land and harvest the crops' (Shakisso-12-F).

Food

'Machine for testing food, to determine whether something is rotten or not. Because here people they don't know whether the meat they buy is good or not. So if this machine would be there people would be buying good meat' (Ntaja-16-M).

'Machine that can cook food, because I hope it is faster than man' (Shakisso-14-M).

Housing

'A machine which can build a house by itself, excluding participation of human labour' (Nazret-15-M).

'Machine for building houses, because people here face so many difficulties when they are building houses' (Zomba-13-M).

Water

'Machine for making wells; that one can be useful because a lot of people here in Malawi drink dirty water' (Ntaja-17-M).

'A machine for water that can filter the water' (Shakisso-12-F).

Clothing

'Machine for making clothes, because if there wasn't this kind of machine people would have been walking around naked' (Zomba-10-M).

'A machine that can stitch shoes, because often the shoes are glued together and the glue will loosen, in order to stitch things back together' (Shakisso-15-M).

Transport

'Machine for making roads, because then the roads like the ones here can be made properly' (Ntaja-10-F).

'A technology that will not be using fuel, but should be operating on its own, carrying people from one place to the other' (Zomba-15-M).

**Figure 7.6: Examples of participants' inventions serving fundamental needs
(Source: Author)**

Maslow's (1943) hierarchy of needs ordered human needs into a hierarchy of five levels, often represented in a pyramid, starting from the lowest level of basic physiological survival needs, such as food, water, clothing and shelter. He has argued that the higher level needs can only be addressed once the lower level needs are satisfied. Although Maslow's (1943) hierarchy of needs is contested (see for example Wahba and Bridwell, 1976; van Kempen, 2003), the idea of hierarchically ordered needs helps to understand the priorities expressed by participants in terms of their fundamental needs and ICTs. My field data suggested that, apart from their use in emergency situations, ICTs were indeed a higher-order need in the hierarchy that was mostly addressed once more fundamental needs were satisfied. This hierarchy was for example evident from participants who used to have an ICT at home, but had meanwhile sold it in order to overcome their (financial) hardships:

'We sold it to get money to go to the hospital' (Zomba-17-F).

'We don't have it anymore, it was sold, my brother had some credit somewhere and he wanted to pay back the money' (Ntaja-17-F).

'I sold it, because I wanted to pay my brothers school fees' (Zomba-16-M).

Therefore, in the future a question such as 'which ICT would you sell first/last when you need money to go to the hospital?' could guide the ranking of the ICT cards by providing participants with a very concrete ranking criterion that is relevant to their daily lives.

In Wyatt's (2003) taxonomy of non-use the participants who sold their ICTs are classified as 'expelled users', because they stopped using an ICT involuntarily (see Section 2.3). This showed how in times of pressing fundamental needs the importance of ICTs moved to the background and if necessary they were even sacrificed to satisfy these needs. In other words, needs were relative and dependent on each other and the need for ICTs was fluid and relative to the satisfaction of other needs. These findings are similar to what scholars have found for literacy as being less urgent than the satisfaction of more fundamental needs (Robinson-Pant, 1994; Stromquist, 1999). Robinson-Pant (1994) for example found, how people in Nepal reasoned as follows about literacy classes: 'Why eat green cucumbers in the time of dying?'. The analogy of the green cucumbers served to point out that when someone is struggling to satisfy their fundamental needs (dying) a luxury such as literacy (green cucumber) is not a priority.

Although fundamental needs had higher priority, participants also expressed different information and communication needs, most of which have already indirectly been addressed elsewhere in this thesis. However, it is appropriate here to bring them to the fore. In terms of communication the most important needs were communication in emergency situations and keeping in touch with relatives far away (see Section 7.2.2). In terms of information, the most important needs were information about upcoming conflicts and national disasters, national and international news, business information and educational information. Furthermore, there was a particular need for more local content in local languages (see Section 5.3 and 5.4).

7.3.3 Thinking of the Future: Participants' Inventions

The famous example of a Malawian village boy, who at first was stigmatised by his village as crazy when he was building a windmill that brought his family electricity, but has now become an international hero, illustrates how innovative thinking is not always stimulated or even stigmatised in the African context of conformity (Kamkwamba and Mealer, 2009). In combination with the reasons explored in Section 7.3.1, this helps to explain why discussing potential new uses of technologies for the future was a challenge. However, with a little encouragement and persistence, several participants came up with inspiring ideas for the future, demonstrating the innovative thinking capacity that was there, which might just be underutilised in their daily lives. This section discusses the recommendations participants made about improvement of existing ICTs and new technologies and is most of all meant to voice participants' innovative ideas.

The most important recommendations made by participants regarding the improvement of existing ICT designs were in terms of price, durability, portability, video functionality for telephones and different functionalities in one device. Given that most participants came from poor backgrounds, the recommendation to produce ICTs more cheaply so that they become more affordable for the poor was not surprising:

'Maybe they can be made at a cheaper price so that anyone who is having a problem can manage to buy them' (Ntaja-20-F).

'They should be cheap so that people will be able to buy them' (Zomba-15-F).

Additionally, as discussed in Section 6.2, participants were asking for durable technologies that lasted long and did not incur repair or replacement costs. Moreover, in accordance with the popularity of ICTs with a high degree of mobility

(see Section 6.2), participants made different recommendations about the portability of technologies, such as reducing the size and weight and fitting it with handles or cords to make it easier to carry:

'You should make stereo lighter to carry' (Zomba-10-M).

'This one doesn't have a handle to carry, with such a handle it would be easier to carry' (Shakisso-13-M).

Nine participants (3%) made suggestions about equipping telephones with video camera functionality so that they could have a live connection, particularly with their relatives:

'The phone should have a screen where you can watch things like maybe when you miss your relative and you call your relative, you can see each other. I have seen something like that in the film I was watching' (Ntaja-20-M).

As indicated at the end of the quotation the inspiration for this recommendation mostly came from watching movies (see also Section 6.2). Furthermore, this recommendation also demonstrated the importance given to face-to-face communication. Similarly, Molony (2007) has found among micro entrepreneurs in Tanzania that despite the enthusiasm for mobile phones, face-to-face interactions remained important for building and maintaining trust. Furthermore, increasingly the functionality of different ICTs is combined into one device and participants expressed a particular interest in such multifunctional ICTs:

'Television should also be a radio at the same time. The mobile phone should also have facilities such as television, camera and radio' (Zomba-17-F).

However, not all participants were in favour of combining functionalities. The following participant for example reasoned that extra functionality made an ICT more expensive:

'Some of the mobiles have cameras, they should be removed, because they are expensive. They make the phones expensive' (Ntaja-13-M).

This was, however, a minority viewpoint.

Apart from the ideas for new technologies related to fundamental needs discussed in the previous section, participants had other good ideas, which were however difficult to categorise. A few of the most inspiring inventions are illustrated in Figure 7.8 and 7.9. Furthermore, the following observations in relation to their inventions are worth

mentioning: the role of context, participants' consideration for disadvantaged people and sustainability, and educational technologies.

The context of participants' daily lives was an important source of inspiration for their inventions. This was most evident from the observation that it was only in the mineral rich environment of Shakisso that five participants (6%) came up with inventions related to the excavation of gold and other minerals:

'If you take magnet, it can collect some metallic substances. A machine with the property of magnet that can attract different minerals. This region is full of materials' (Shakisso-16-M).

Furthermore, participants demonstrated a concern for sustainability issues and disadvantaged people (see Figure 7.7), which also inspired some of their inventions:

'If it is possible, maybe a machine that can help the handicapped people. A machine that receives orders from them and then executes all the orders they give it' (Shakisso-15-F).

'A machine that can prepare food. Instead of cutting too much trees for cooking, a machine that can use something else than wood for cooking' (Shakisso-15-M).



Figure 7.7: 'Very poor and disabled person begging on the street' (drawn by Nazret-14-M)

Participants further explored the educational potential of technology in their inventions. For example, the inventions of the following participants indirectly addressed the potential of e-learning:

'A machine that can teach different languages and a machine that can teach difficult lessons and explain it in an understandable way'
(Shakisso-15-M).

'Machine for teaching, because it can help you to read and write'
(Zomba-10-F).

Similar to Wagner and Kozma (2005), the latter participant recognised the potential of new technologies in teaching literacy skills.

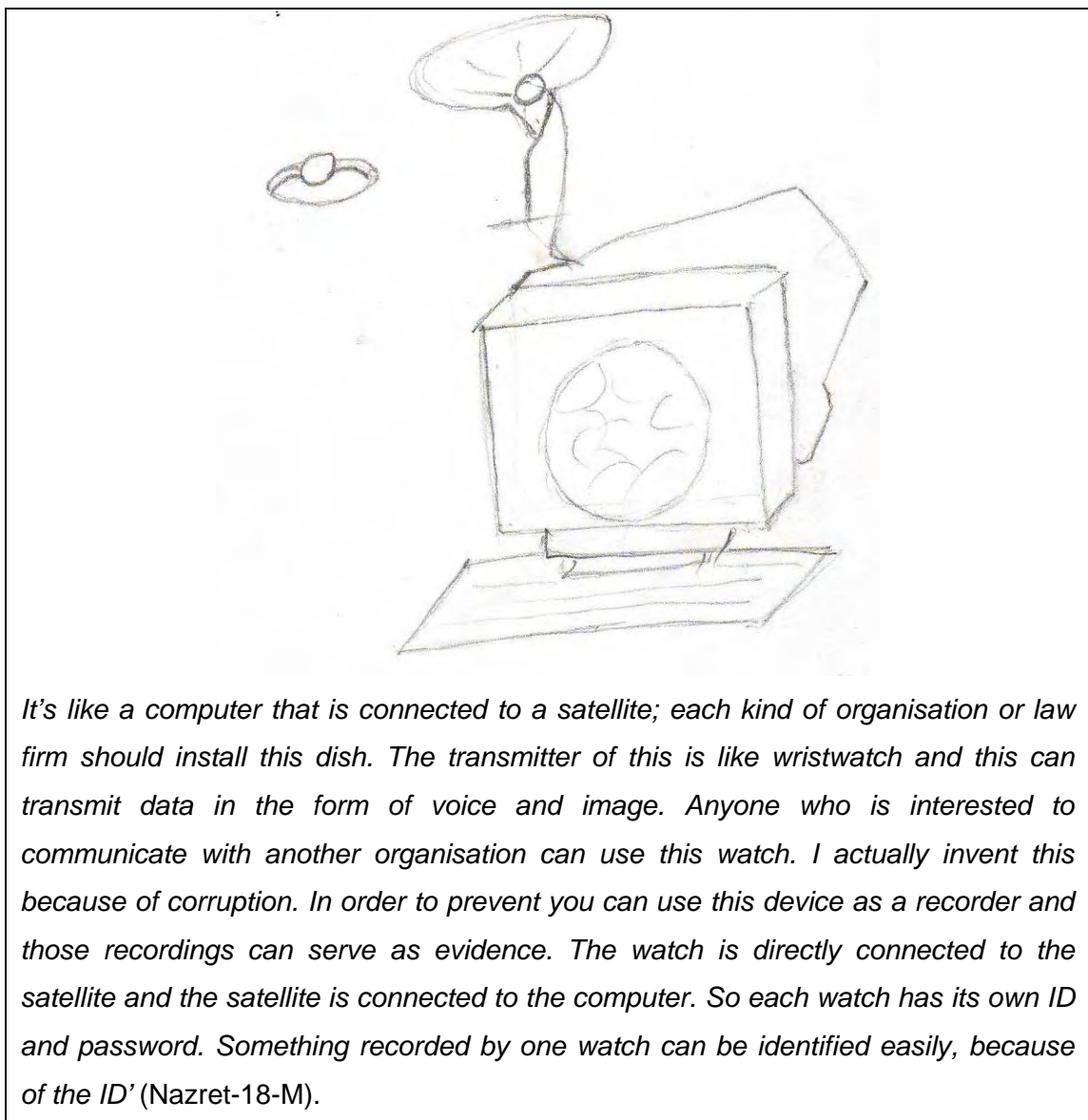


Figure 7.8: Participant's innovative invention (drawn by Nazret-18-M)

'Take Ethiopia, we might have enemies anywhere in the world. A technology that could identify what kind of enemy we have and their potential and the reason why this country became our enemy, this would be a good technology for our country' (Nazret-16-M).

'Last night I heard of a plane crash, something which is awful. I advice the invention of a machine that can prevent planes from crashing and keeps them in the air' (Shakisso-13-M).

'Metal shoes, because people here make some witchcraft traps for people, when a person stepped on it, he will die. So maybe if he puts on these metal shoes and steps on that trap he will not die' (Ntaja-14-F).

'A machine that can within a group of people identify the person who did something wrong, but is refusing to reveal. Because here in Malawi there are some people committing some cases, but they are not caught' (Zomba-18-M).

Figure 7.9: Most inspiring inventions from participants

7.4 Conclusion

This chapter concentrated on how low-literate users defined their needs, by examining the most important meanings and uses participants assigned to ICTs as well as exploring their needs with them. It illustrated the importance of really listening to users about their experiences with and views about ICTs, which are reflected by direct quotations from respondents. All too often, even when researchers working in the field of ICTs for development have claimed to have listened to users, they may not have really heard what users were trying to tell them. Most significantly, the chapter reinforced the role of users in actively shaping the meaning and uses of ICTs according to their needs (Mackay and Gillespie, 1992). One of the most important uses of ICTs was their use in emergency situations. Furthermore, their role as status symbol expressing prosperity reinforced how ICTs not only served an instrumental functionality, but also fulfilled important symbolic functions and had meaningful presence in people's lives, even when they were not operable (Hallnäs Redström, 2002). The chapter further illustrated the importance of not only paying attention to ICTs as drivers of positive change, but also to their potential negative meanings and uses as a way to better understand users needs.

The chapter has contributed to understandings about the needs of low-literate users and signified a hierarchy of needs in which ICTs were of a lower priority than other more fundamental needs in participants' lives, such as housing and food (Rice, 2005; Leach, 2008). Only once these more fundamental needs were satisfied, did ICTs get into the picture. This hierarchy was particularly evident from the inventions that participants proposed and the sale of ICTs as a sacrifice to overcome hardships. The latter again showed how beyond their instrumental functionality ICTs also served other functions, such as this role as a financial reserve. Identifying the user needs together with the low-literate participants was not without its challenges. Some of the major difficulties were that participants were not always aware of their needs and found it difficult to reflect on their answers and explain the motivations behind them. Furthermore, they had difficulty in thinking outside the box of what they knew was possible. This highlighted how conventional 'Western' methods in design might not always be suitable in an African context (Oyugi *et al.*, 2008) and thus emphasises the need to explore alternative methods that are more appropriate to the local context. A successful example of such a localised method is the 'Bollywood Technique', a usability evaluation technique used in India, in which participants imagine themselves as characters in a melodramatic storyline of a Bollywood film (Chavan, 2002).

8 Conclusion

'If users can't use it, they will find a way to make it work!'

The above slogan stands in glaring contrast to that noted at the beginning of this thesis: 'If the user can't use it, it doesn't work!' (Dray, 2002). This contrast symbolises my personal transformation during this research from someone who began with a largely deterministic perspective to someone who now advocates a social constructionist perspective to technology. My research began as a response to the dearth of knowledge about the interconnections between literacy and ICTs. On the basis of an investigation into the ways in which low-literate youth in Ethiopia and Malawi interact with ICTs, I have argued in this thesis that this interplay between literacy and ICTs is fundamentally socially constructed. This chapter concludes my transformation with an overview of the main findings and conclusions, as well as providing some directions for future research.

As outlined in Chapter 1, the aim of my research was to understand the social construction and interplay of literacy and ICTs in the context of Ethiopia and Malawi through the eyes of low-literate youth. There were three related objectives that cut across different aspects of the interplay. First, the thesis sought to understand the interplay between literacy and actual ICT use. Second, it wished to understand how this interplay was shaped by the context in which it took place, particularly in terms of how the context constrained ICT use. Third, it explored how this interplay was shaped by users and their needs, particularly in terms of the most important meanings and uses that people attributed to ICTs. This chapter summarises the conceptual, methodological and empirical contributions of my thesis in relation to these objectives. Subsequently, some of the challenges and constraints of my research are highlighted. Finally, directions for future research are considered, highlighting specific topics which extend the ideas presented in my thesis.

8.1 Conceptual Contributions

This thesis developed as a response to the dearth of knowledge about the interconnections between literacy and technology in the context of development (Wagner and Kozma, 2005). This section addresses what I see as being the most important conceptual contributions to this knowledge gap. First of all, the thesis has

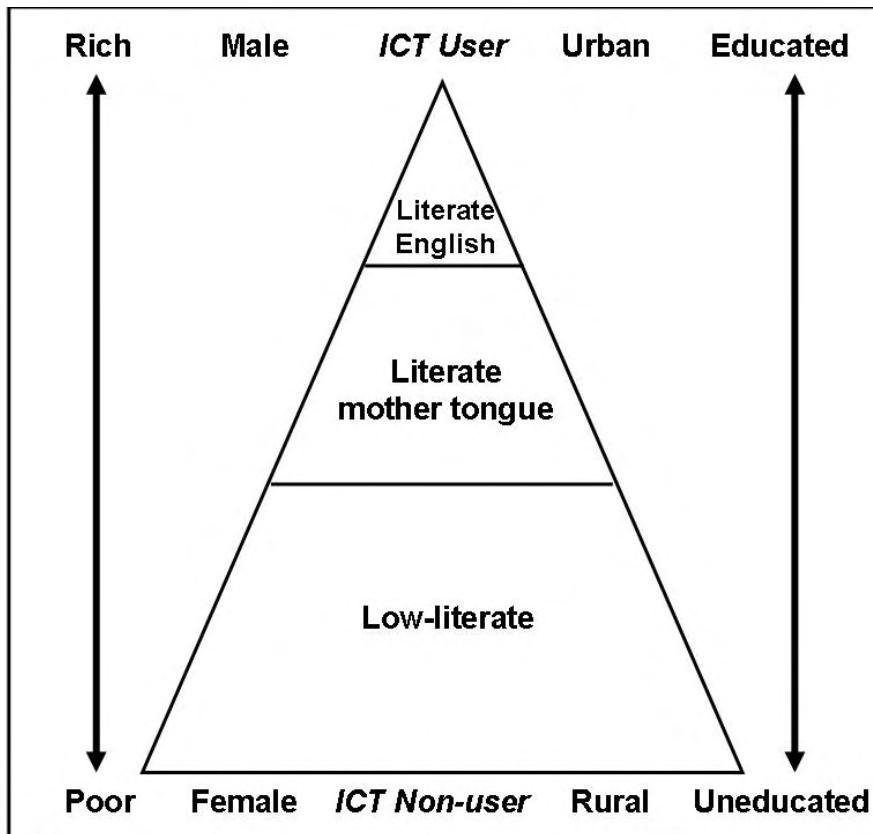
brought wider discourses about literacy and technology development together and examined their commonalities and interplay (see for example Street, 1984; Bijker *et al.*, 1987; Wagner *et al.*, 1999; Barton *et al.*, 2000; Oudshoorn and Pinch, 2003a). It has illuminated how conflicting epistemological commitments have similarly divided both literatures into roughly two camps: the deterministic group that considers literacy and ICT as something autonomous and objective that can be studied independently, in contrast to the social constructionists who consider literacy and ICT use as social practices that can only be understood in their social context. Furthermore, the thesis has illustrated how both literacy and ICT face similar challenges in being considered as solutions that can lead to development. The latter assumption has contributed to the widespread belief in universal literacy and ICT use for each individual as a desirable norm, and has led to stigmatising dichotomies that seek to classify people and measure progress towards this norm. As a consequence, it is often forgotten that neither literacy nor ICT should be an end in themselves, but rather they are means to a particular kind of end in a specific context of use. Moreover, many literacy and ICT initiatives are top-down or try to replicate formulas that were successful elsewhere, but do not actually serve the needs of people (Unwin, 2009). The comparison has highlighted how these two bodies of literature have much to learn from each other, both because of the commonalities between the discourses as well as the growing interdependence between literacy and ICTs.

By demonstrating throughout how literacy and ICT use are social practices that are situated and develop in social contexts, this thesis has pursued and contributed to the social constructionist literatures of both literacy and technology development. At the same time it has reinforced the growing criticisms of deterministic discourses in both fields (Street, 1984; Feenberg, 1991; Bijker and Law, 1992; Mackay and Gillespie, 1992; Street, 1999b; Barton *et al.*, 2000; Dourish, 2001b; Street, 2001; Oudshoorn and Pinch, 2003a). By exploring local meanings and understandings of reading and writing skills, my work reinforces the ideological model of literacy as a social practice rather than an autonomous set of skills (Street, 1984, 1999b, 2001) and hence the difficulty of reaching agreement on a single definition for this fluid and complex phenomenon. Whilst criticising the pluralist perspective of 'literacies' for making any kind of skill or competency a potential 'literacy', I have argued for a more focused understanding of literacy practices as 'communicative practices involving textual representations' and moreover for adopting the term 'low-literate' to move away from the conventional dichotomies (Hillerich, 1976; Wagner, 1990). Most importantly, the thesis has sought to demonstrate how the interplay between literacy

and ICT use is socially constructed as a result of a complex web of interrelated factors and thus more complicated than simply the compatibility between literacy proficiency and ICT design as a deterministic perspective would assume. On the one hand, ICTs impact existing literacy practices by introducing new or replacing existing literacy practices, while, on the other hand, literacy also influences ICT practices, particularly when textual representations are involved.

Literacy proficiency in developing countries is typically related to a range of interrelated demographic characteristics, such as poverty, gender, geographical area and education level (UNESCO, 2005; Wagner and Kozma, 2005). As a consequence, rich urban men tend to be the most advantaged and poor rural women the most disadvantaged in terms of literacy proficiency. Based on my field research findings, the thesis has argued that ICT use is divided along similar lines, by factors such as gender, language, geographical location and therefore by literacy proficiency as well. It illustrates how in a similar vein women were less acquainted with the use of ICTs than men, and people in rural areas likewise less acquainted compared to those in urban areas. However, despite the causal relationship between literacy skills and the usability of ICTs with textual representations, the full ecology behind this similarity is much more complex than just a correlation between literacy and ICT use. For example, the lower use of ICTs in rural areas is more related to the lack of power supply and network services to run the ICTs, than to the low literacy in these areas. The correlation between these factors is schematically represented by the pyramid in Figure 8.1. As my field research illuminated how ICTs and their content were predominantly in English and how there was a corresponding social perception that ICTs were primarily usable for those literate in English, the pyramid explicitly distinguishes the elite of people literate in English from those only literate in a vernacular tongue. However, this pyramid figure is a very simplified representation of a reality that is much more complex and difficult to grasp with its full complexity in a two-dimensional image.

The thesis has sought to respond to a major criticism about the social constructionist perspective of technology development for its exclusive focus on the development of technologies and the notion that after some point ICTs stabilise to a predominant meaning and use, thereby disregarding how ICTs are shaped further during their actual use (Mackay and Gillespie, 1992; Winner, 1993). By moving beyond the development phase and explicitly focusing on how users actually shaped their



**Figure 8.1: Pyramid representing correlation between literacy and ICT use
(Source: Author)**

interactions with ICTs, my work has demonstrated how during the actual use of ICTs users also kept on playing an active role in shaping their meaning and uses or even adapting designs to their needs, which further challenges the notion of stabilisation (Kling, 1991; Mackay and Gillespie, 1992; Kline and Pinch, 1996). Moreover, particularly when ‘stable’ technologies are introduced in new contexts of use complete new meanings and uses can evolve, as the gender stereotypes for ICTs in Malawi demonstrated. Consequently, my research findings are meant to inform technology designers about the consequences of their designs for low-literate users in the African context, in the hope that they will potentially influence their future designs (Kling, 1991; Winner, 1993).

Whilst exploring how low-literate youth shaped the meanings and uses of ICTs, the thesis has sought critically to assess the term ‘user’ and what it means to ‘use’ a technology. In doing so, it highlighted how when the use of technologies is collectively shared among people, they can make use of the instrumental functionality of an ICT without ever operating it. Inspired by the idea of proximate literacy skills (Basu and Foster, 1998), the thesis has therefore introduced the idea of

'proximate ICT skills', which allow 'users' to engage in ICT practices through access to people who operate the technology for them. It has therefore contested the 'Western' individualistic approach to ICT use and calls for a more collective focus to what it means to use a technology. Furthermore, it has illustrated how beyond their instrumental functionality, ICTs also fulfil important symbolic functions and meaningful presences in people's lives, such as their role as status symbol (Hallnäs Redström, 2002). Consequently, even ICTs requiring literacy skills for their operation can have meaningful uses for people with low literacy skills. In conclusion, my assessment resonates with Suchman's (2007) argument that the term 'user' represents a multiplicity of actors with very different relations to a given technology.

8.2 Methodological Reflections

This section highlights the most important methodological contributions of this thesis, especially in relation to undertaking research with low-literate participants. In particular, the thesis has illustrated the value of visual methods, such as drawing and photography, as an alternative to the dominant hegemony of 'textocentrism' and methods that rely on respondents' verbal or literacy skills (Valentine, 2001; Singhal and Rattine-Flaherty, 2006). My research has reinforced the strength of triangulation by combining a multiplicity of different qualitative methods (Baxter and Eyles, 1997), which allowed participants to express themselves both verbally as well as visually. More importantly, through the use of direct quotations from participants as well as their drawings and pictures, the thesis has sought to give a direct flavour of their perceptions in my writing and thus 'bring the research to life' (Darlington and Scott, 2002: 161). Furthermore, the thesis has made a case for in-depth qualitative research and has shown how this methodological approach was able to get to grips with the complexity of the way in which the interplay between literacy and ICTs was socially constructed.

By giving low-literate participants opportunities to use a digital camera, my research has sought to contribute to the literature on photographic research methods (Rose, 2008; Hall, 2009) and participatory photography in particular (Wang and Burris, 1997; Clark and Zimmer, 2001; McEwan, 2006). Most of these discourses primarily focus on photographs and the interpretation of how these are socially constructed and framed, but pay insufficient attention to how the actual interaction with the camera influences these research methods. Therefore, a distinctive contribution of my research is its particular focus on low-literate participants' interaction with the camera

despite their limited literacy skills and what their photographs reveal about this interaction. It underlines how the camera is not a neutral tool and therefore how the interaction is not an autonomous variable that can be taken for granted, but rather is part of the social construction of the photographs itself. For example, whereas previously participatory photography has used analogous or disposable cameras, the introduction and use of digital cameras is changing the nature of the interaction. My research has highlighted how for instance the direct feedback to users introduced by the screen functionality of these cameras affects the photographing process and how sharing this feedback with others enables a more collective construction of photographs. Furthermore, it has illuminated the impact of the interaction with the camera on participants as a major confidence booster (see also Young, 2001; and Farrell, 2004) that was able to alter their perceptions about the need for literacy skills to operate ICTs and at the same time stimulate their creative potential. Despite the predominant focus on participants' interactions with the digital camera, their pictures and videos at the same time reinforced the potential of participatory photography alongside digital storytelling as a research method that assigns an empowering role to low-literate participants (Wang and Burris, 1997; Meadows, 2003; Tacchi *et al.*, 2003; Burgess, 2006). Through the use of the pictures taken by participants, the thesis has also sought to give a visual flavour of how participants perceived their environment.

Another distinctive visual element of the research design was the introduction of a set of cards depicting a range of ICTs. Their value in exploring participants' ICT knowledge proved particularly useful to 'stimulate memories that word-based interviewing did not', when participants were familiar with the visual image, but not with its name (Harper, 2005: 757). Furthermore, the thesis has illustrated their use in a card ranking exercise that explored participants' technological preferences. However, whereas most card ranking exercises use a fixed set of cards and therefore lend themselves to quantitative analysis and comparison (Boyle *et al.*, 2002; Alsos and Dahl, 2008), in my research the ranking exercise was tailored to the individual participant by using a unique subset of technologies with which they were familiar and therefore made qualitative analysis more appropriate. Other than just revealing participants' preferences, this ranking exercise proved particularly valuable in giving further insight into the role of ICTs in their lives. Additionally, the thesis showed how the visual presence of ICTs on the cards became an important point of reference throughout the research.

As a consequence of the linguistic diversity of the different research locations, the thesis has contributed to the discourses about translation and the use of translators (Gade, 2001; Veeck, 2001; Temple and Young, 2004; Watson, 2004). Most importantly, despite the considerable literature on working with translators, I have argued that insufficient attention has so far been given to the influence of a translator's gender, age and his or her personality on the research process (compare with Twyman *et al.*, 1999). Moreover, I have argued that a loss of meaning and nuances as a result of translation can in part be compensated for by the important 'insider knowledge' provided by translators (Robson, 1997). The thesis has further highlighted how the complexity of translation and working with translators increases with the heterogeneity of a language environment. The more heterogeneous a language environment, the more difficult it becomes to cover the full spectrum of linguistic diversity with translators and therefore the greater the risk of excluding people and their perspectives from the research because of a language barrier. This risk particularly threatens the participation of poor and low-literate people as they are the least likely to speak the dominant vernacular languages (Kenny, 2002). Effective translation is thus an important factor in any bottom-up approach to understanding the needs of users in heterogeneous language environments and especially among the poorest and most marginalised.

8.3 Empirical Contributions

There are many assumptions about the interplay between literacy and ICTs in a developing country, but few of them are actually based on extensive field research and therefore they lack a good understanding of what people in these contexts really want or need. My research has therefore sought to make a distinctive contribution to this lack of empirical evidence about the actual experiences and effects of ICTs on the lives of low-literate people through an in-depth and bottom-up study of how low-literate youths in Ethiopia and Malawi interact with ICTs. This section highlights some of the key empirical findings of my research.

Given how both literacy and the use of ICTs are intrinsically linked to language, my thesis has stressed the important role that language has in the interplay between literacy and the use of ICTs, and it has argued that its role in ICT practices requires more attention. In particular, it has demonstrated the existence of a digital language divide in both Ethiopia and Malawi, a characteristic of the digital divide that has so far received insufficient attention (Wagner, 2009). This divide was mostly dominated by

English, a language that continues to play an important role in many African language environments and to a lesser extent by some dominant vernacular languages. Even though English was only mastered by a small proportion of the population, it was the operational language of most ICTs as a result of widespread technology transfer and the dominant language of ICT content, especially on radio and television channels. As a consequence, English was perceived as *the* language of technology and therefore ICTs as most user friendly for the English speaking elites in both countries, inheriting its symbolic value as a status symbol (de Angeli *et al.*, 2004). However, even beyond the dominance of English, the digital language divide remains complex and difficult to overcome in the heterogeneous language environments that are typical for Africa, although it should be noted that it is easier to overcome than the language-in-print divide, because of the greater ease with which languages can be added or changed on digital content (Wagner, 2009).

The thesis has highlighted the significant impact of the predominantly foreign content screened at informal video shows. As these informal screenings and their wider impact have so far received insufficient attention in academic literature, my findings have made a substantial contribution to this research area (for exceptions see Assefa, 2006; Million, 2008). The most popular and widespread genres at these shows were action movies, football, pornography, Nigerian movies in Malawi and Hindi movies in Ethiopia. My thesis has illustrated how these genres have left their traces in the society as well as in perceptions about the rest of the world. Moreover, the attractive power of the video shows has far-reaching social consequences, such as a negative impact on school attendance and imitation of negative role models offered by action movies and pornography in particular. The screening of the latter is an especially delicate issue that has rarely been explicitly addressed or investigated in an African context (for an exception see Amuyunzu-Nyamongo *et al.*, 2005). My findings have highlighted different understandings of the concept 'pornography' from those that exist in other parts of the world and the encoded ways in which such screenings were announced, given their illegal status in both countries. More importantly, the pornographic materials had a significant impact on prevailing sexual morals and behaviours of the predominantly male audiences and therefore indirectly on sexually transmittable diseases such as HIV/AIDS.

My research reinforces arguments that power supply and network services continue to be a serious constraint on the use of ICTs in Africa, but has at the same time challenged the predominant attention in the literature on the lack of infrastructure and

has emphasised instead the importance of related factors such as the availability and affordability of the services (Mansell and Wehn, 1998; Adam and Wood, 1999; Steinmueller, 2001; Thioune, 2003; Brewer *et al.*, 2005; Heeks, 2008). The challenge of service availability is primarily a result of serious capacity problems in terms of supply and demand particularly at 'peak hours', but in the Ethiopian context the actual provision of such services was also a powerful means of controlling and oppressing people. More importantly, for most of the research participants the affordability of power and network services was a more pressing constraint on the use of ICTs than was a lack of infrastructure. As a consequence, they had developed different strategies for using ICTs in a way that limited the costs of these services, such as limiting the duration of use and sending text messages or missed calls rather than making a phone call. To date few accounts of the affordability of ICTs have been sufficiently explicit about how the costs of these services were taken into consideration (Gerster and Zimmermann, 2003; Kleine, 2007). Furthermore, my findings demonstrate how dependence on power or network infrastructures influences the geography of ICT use and stresses the importance of mobility for ICT use, particularly in areas where infrastructure is lacking; mobility of ICTs, users as well as power and network sources.

Despite the presumed promise of ICTs as a means of enhancing development, listening to the actual experiences of low-literate youth about the effects of ICTs on their lives provided little evidence that ICTs were currently delivering on the basic needs of this group of people, except for their role in emergency situations. Although ICTs fulfilled meaningful roles in their lives, there was a hierarchy of needs in which other more basic and pressing needs, such as housing and food, had a higher priority (Rice, 2005; Leach, 2008). The relative importance of ICTs was therefore directly correlated to these more fundamental needs, and if necessary ICTs were even sacrificed and sold to satisfy these needs. Although this suggests that the actual needs of people in developing countries do not always coincide with the ICT4D agenda, at the same time it is a call to explore further how ICTs can possibly help to deliver on these needs.

8.4 Challenges and Constraints

As Darbyshire *et al.* (2005: 430) have argued, it is important that researchers not only consider the successful stages of their research, but also pay attention to the challenges 'by critically questioning and reflecting on all aspects of the research

process from the generation of questions to the dissemination of findings and by trying to learn as much from our shortcomings as from our successes'. Tacchi *et al.* (2003: 2) have further suggested that 'by critically reflecting on our actions and experiences we can plan our next actions more effectively'. In addition to my reflections on the research process throughout the thesis, this section briefly considers some of the more important challenges and constraints that I faced, particularly in terms of the breadth versus depth of the research.

One of the particular strengths of this research was its comparative nature and breadth in covering four locations in urban and rural areas in different parts of Africa as well as the participation of a wide range of young people. Nevertheless, this expansive breadth was only enabled at the expense of the depth of the research in each of these different locations. A consequence of dividing my time over four different locations was that it gave me less time to acquire an in-depth understanding of each area, or a basic proficiency of the dominant language in an area to communicate with people myself rather than through a translator. At the same time, it required an additional time investment to familiarise myself with the different areas as well as to arrange practicalities, such as finding a competent translator and arranging access to research participants with gatekeepers. Furthermore, despite the strength of the large quantity of over 550 different young people participating in terms of validity, the 'one off' encounters with them were valuable, although at the same time aggravatingly limited (Darbyshire *et al.*, 2005). My approach did not leave much room to build up relationships with individual participants and the opportunity to explore issues further during subsequent encounters.

The thesis has sought to present an in-depth reflection of the actual experiences and perspectives of low-literate youth from disadvantaged backgrounds, but at the same time this was at the expense of the breadth of other perspectives and experiences. As a result, the thesis does not provide much insight about, or comparison with, the perspectives of for example literate youth, low-literate people in different age ranges or related actors, such as parents, teachers and other caretakers. Future research could usefully explore such perspectives to complement the perspectives of low-literate youth explored in the present research and determine to what extent they deviate. Furthermore, the emphasis of my research was primarily on what people said in interviews and focus groups, rather than what they actually did, except for the interaction with the digital camera (Jackson, 2001; Darlington and Scott, 2002). Therefore, future research could pay more attention to the latter, for example through

more active participant observation (Amit, 2000; Dowler, 2001). What participants say about ICT use could for instance be complemented with asking participants to take the researcher to the ICTs in their lives and demonstrate their use. However, this raises a whole new range of issues, such as obtaining permission to enter certain spaces such as people's houses or other places where ICTs are found and possibly disrupting existing power relations of who is allowed to operate and touch ICTs.

In using interviews and focus groups, one of the challenges was structuring and formulating the research questions. Semi-structured, open questions, rather than unstructured questions, were used throughout the research process to keep the data between the two field research countries relatively comparable. However, in practice the predefined questions did not always evoke engaged or insightful responses, whereas responses to spontaneous questions elaborating on participants' personal interests were usually much more insightful. In fact, one of the first and the most unstructured focus group contained the most resourceful data. Furthermore, the way questions were formulated made a big difference on the kind of responses participants gave. For example, whereas asking participants about the impact of ICTs on their lives did not trigger much response, asking them what their world would look like without them, resulted in a whole range of responses that indirectly contained the impact of ICTs on their lives. Generally, concrete questions worked better than abstract ones. Another challenge was exploring and understanding the underlying motivations behind participants' answers, because they often found it difficult to answer the question 'why?'.

8.5 Directions for the Future

Based on my experiences of conducting this research, my most important recommendation for the future would be for literacy specialists, technologists and low-literate users to learn further from each other by working together in a practical context to deliver solutions. Additionally, this section suggests other possible directions for the future.

Comparative studies further exploring the interplay between literacy and ICT practices would be particularly interesting as part of any future research agenda. Such research could be undertaken at several different geographical scales and within diverse environments. It might also move away from low-literate youth to

include the perspectives of literate youth as well as other actors around them and contrast their experiences.

My thesis has stressed the importance of relevant ICT content and therefore further research would be well targeted towards a more comprehensive examination of the digital content divide in relation to literacy (Chéneau-Loquay, 2007). Such an investigation could shed more light on the important role of language in this divide and on how the new modes of representations introduced by ICTs can be taken advantage of to produce content that is relevant for low-literate users. Moreover, it could further explore the possibilities to engage low-literate users in the production of relevant content themselves to close this content divide, for example by using participatory photography and storytelling (Wang and Burris, 1997; Meadows, 2003; Tacchi *et al.*, 2003; Burgess, 2006).

The most interesting topic for future research from my perspective would be a comprehensive investigation into the informal video shows and their screenings in Africa. The limited research in this area has only just begun to unravel the wider implications of this fascinating social phenomenon (see for example Strelitz, 2002; Assefa, 2006; Million, 2008). In particular, the unexplored secret screenings of pornographic materials would be a highly pertinent topic for future research, further to explore their impact on the sexual morals and behaviours of the predominantly male audiences. Furthermore, my research findings suggest interesting topics for further exploration related to the illegal status of pornography in Ethiopia and Malawi, such as the understanding of 'pornography', the concealed ways of announcing these screenings, the origin of the supply and the legal sanctions against this illegal practice.

By highlighting the challenges of identifying the needs of low-literate users, my thesis has argued that conventional Western design methods are probably only rarely suitable in African contexts. Therefore, an interesting direction for future research would be a comprehensive investigation into culturally appropriate needs assessment by exploring new and innovative methods that are more appropriate to African contexts. Chavan's (2002) 'Bollywood Technique' has already successfully shown how such culturally appropriate methods can make a significant difference compared to conventional methods. This usability evaluation technique lets Indian participants imagine themselves as characters in a melodramatic storyline of a Bollywood movie to evoke their responses to new designs. Given the popularity of

these movies in Ethiopia, it would be interesting to explore whether this technique would have any success there.

As the thesis has emphasised, most ICT4D related efforts are based on an implicit glorification of ICTs and are therefore predominantly focused on the positive and desirable aspects of ICT use as well as producing corresponding success stories (Roberts, 2000; Wyatt, 2003). Consequently, the negative and unintended consequences of ICT use are easily overlooked or even ignored (see for an exception Heeks, 2002). Although the thesis has already paid attention to what participants identified as negative meanings and uses, future research could explore such negative consequences further, not only to find ways of preventing or overcoming them, but also to learn from for future designs.

Finally, I want to emphasise some very practical directions for how ICT use among low-literate youth can directly be stimulated. First of all, designing and producing more durable and cheaper ICTs can make them more affordable for low-literate users. Furthermore, ICTs can become more attractive for low-literate users by producing more (audiovisual) local content in local languages and exploring ways for people to produce their own content using ICTs; in other words by closing the digital content divide. Lastly, either improving electricity and network infrastructures or designing ICTs that can run on renewable energy sources reduces the geographical dependency of ICT use, which would particularly benefit low-literate users.

8.6 Concluding Reflections

In conclusion, I would like to leave the final reflections to the words and images of the participants involved in my research:

'Most of the Africans are saying 'we are not creative with technologies', but it is like degrading themselves. For example, in Ethiopia there are a lot of people who have creative ideas.... In order to be creative our schools have a big contribution..... The main obstacle is that if someone wants to create something new, first he has to have the moral and spirit that he can do it by himself without depending on others. Then this person can take his idea to people who have the potential and material support and in that way benefit himself and others' (FG Nazret-16-M).

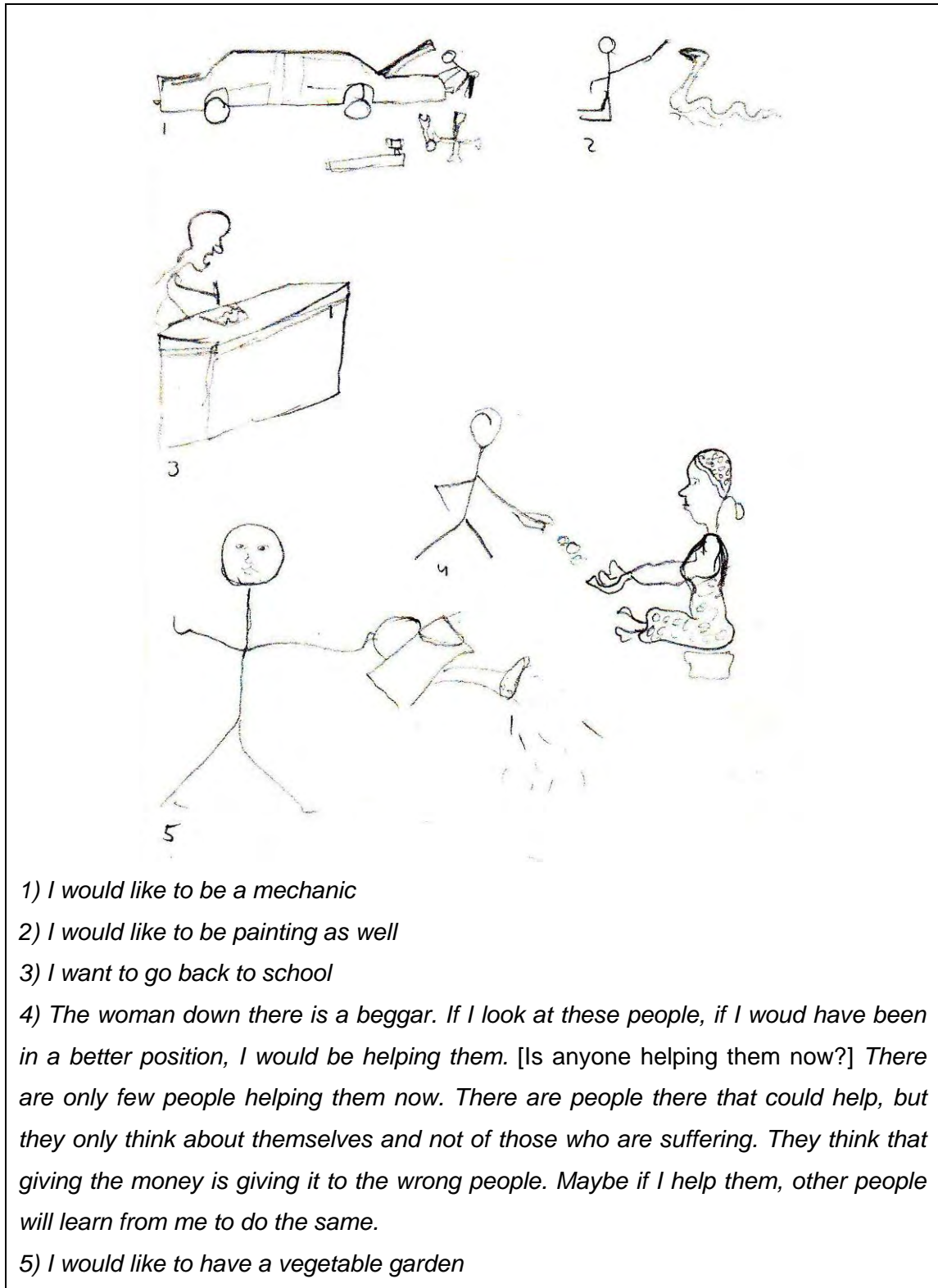


Figure 8.2: Participant's aspirations for the future in drawing (drawn by Zomba-21-M)

Appendix 1: Interview Guide

Location details:

Date:	
Area:	
Name interviewer:	
Interview language:	
Translator:	
Place of interview:	

Card ranking

<i>ICT cards:</i>				
1		<p>Could you split these cards up in the ones that you know and the ones that you do not know?</p> <p><i>After splitting the cards up:</i></p> <p>What is it/What do you think it might be? Where have you seen it before?</p> <p>Have you ever operated it yourself? Do you have it at home?</p>		
Picture	Recognised	Seen	Used	At home
Telephone				
Television				
Radio				
Stereo				
Scanner				
I-pod				
Walkman				
Mouse				

PDA				
Cassette				
Mobile phone				
Fax				
CD				
Computer				
Laptop				
Videocassette				
Floppy				
Digital camera				
Digital video camera				
Printer				
Portable CD player				
Keyboard				
Video camera				
Remote control				
Ghetto blaster				
Earphones				

2		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
---	--	---

Interview questions:

3		Why would you like to have [3 most favourable technologies]? What would you use them for?
4		Why you are less interested in [3 least favourable technologies]?
5		Which of these technologies do you think require reading and writing skills to use them? Why?
6		Have you ever experienced difficulties in using these technologies? In what way?

7	<p>How often do you use reading or writing in your daily life?</p> <ol style="list-style-type: none"> 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?
8	<p>In what ways do you communicate with other people in your environment, for example with people who live in another town?</p>
9	<p>What are you good at? What would you still like to learn to be good at?</p>
10	<p>Do you think these technologies have any disadvantages? In what way?</p>
11	<p>What do you think the world would look like without these technologies?</p>

12		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 Ethiopian/Malawian market, what would you advice?
13		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 Ethiopian/Malawian market?
14		If you would be paid the same salary for any job, what would be your dream job in the future?
15		Did you like participating in this research? Which question or task did you like the most and which one the least?

Participant data:

Name:	
Age & Gender:	
Mother tongue:	
Other languages spoken:	
Highest class completed:	
Working activities	
Family situation	

Appendix 2: ICT cards



Telephone



Television



Radio



Ghetto blaster



Keyboard



Mouse



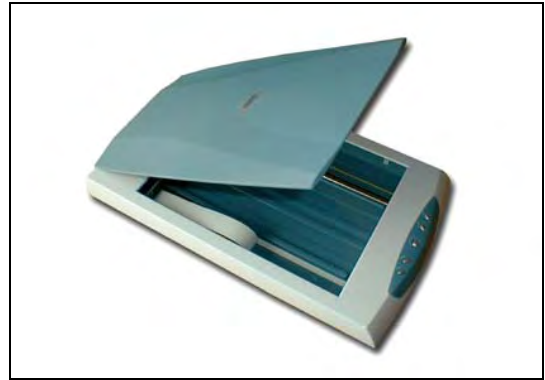
Earphones



Portable CD player



Printer



Scanner



Digital video camera



PDA



I-pod



Walkman



Digital camera



Video camera



Fax



CD



Computer



Laptop



Cassette



Floppy



PDA



Mobile phone



Midi set



Videocassette

Appendix 3: Focus Group Guide

Location details:

Date:	
Area:	
Name interviewer:	
Interview language:	
Translator:	
Place of interview:	

1	What would your dream future look like (drawing) if anything would be possible? (followed by a discussion about their drawings with the rest of the participants).
2	What kind of activities do you normally undertake during the day?

3	Which activities do you enjoy and why? Which are the ones you don't enjoy?
4	What would you still like to learn in the future? And what would you use it for?
5	How well can you read and write? How important do you think the ability to read and write is? What kinds of activities require reading and writing skills?

6	Who knows what is depicted on this card? What is it? What can it be used for? Who has it at home?
	Radio
	Television
	Tape
	(Mobile) phone
	Computer
	Other
8	If all these technologies would disappear from the planet today, which one would you like to have back most of all and why?
9	Did you like participating in this focus group? What did you particularly like or dislike about it?

Participant data:

Name:		
Age & Gender:		
Mother tongue:		
Other languages spoken:		
Highest class completed:		
Working activities:		
Family situation:		

Name:		
Age & Gender:		
Mother tongue:		
Other languages spoken:		
Highest class completed:		
Working activities:		
Family situation		

Name:		
Age & Gender:		
Mother tongue:		
Other languages spoken:		
Highest class completed:		
Working activities:		
Family situation		

Appendix 4: Research Database Screenshots

Interviews

ID_IV	207	Participant Name	xxxx xxxx
Date	15-12-2006	Participant Gender	Female
Area	Nazret	Participant Age	8
Name interviewer	Marije	Participant Mother Tongue	Amharic
Interview language	Amharic	Participant Other Language	little Somali, little Oromic
Translator	Abel	Participant Highest Class Compl	2
Place of interview	next to indoor	Participant Working Activities	householding
		Participant Family situation	??

Card Ranking

1	Television
2	Ghetto blaster
3	Portable CD player
4	Stereo
5	CD
6	Digital camera
7	Video camera
8	Mouse
9	Computer
10	Fax
11	Earphones
12	Laptop
13	Remote control
14	Keyboard
15	Laptop
16	--
17	--
18	--
19	--
20	--

General Comments

- it was not me, but the one with short hair saying I was ten
 - I forgot to take out fax from ranking, that was recognized as telephone
 - remote taken out of ranking, because she recognizes it as mobile

Interviews

	Recognize	Seen	Used	Have
1 Telephone	telephone	yes, at home	yes, I had chance to call. The key is not with me, but with my father. If he	yes
2 Television	television	yes, at home	yes, at home	yes
3 Radio	tape medium	yes, at home, it's not functioning anymore	yes, at home	yes
4 Stereo	biggest CD player with components & remote	yes, in house of friend of brother	no	-
5 Scanner	small camera like the digital video	yes, in Addis in brother's house	no	-
6 I-pod	shower, pointing at earphones	yes, in neighbourhood	yes, in neighbourhood	-
7 Walkman	is it tape	-	-	-
8 Mouse	for computer and you can do like this (moving hand)	yes, at FSCE	yes, at FSCE	-
9 PDA	screen of compu & pen	yes, in Dalate (noth of Addis)	-	-
10 Mobile phone	mobile	yes, my father has it	no, I am not allowed to	yes
11 Fax	telephone	yes, at home	yes, at home	yes
12 CD	CD	yes, at home we have too much of this at home. When they are	yes, at home	yes
13 Computer	computer + keyboard as well as something else next to it	yes, in FSCE	yes, in FSCE	-
14 Laptop	computer	yes, just with you & in school (FSCE)	yes, yesterday in schol	-
15 Videocassette	time for car	-	-	-
16 Floppy	computer after it's closed	yes, in the market	-	-
17 Digital camera	camera	yes, my brother brought for youngest sister birthday party	no	-
18 Dig vid camer	camera, like big one (video)	yes, in local market	no	-
19 Printer	to print out paper	-	-	-
20 Port CDplayer	small CD player	yes, at home	no, my brother does, I am not allowed to touch, I am told by the	yes
21 Keyboard	belongs to compu & it's touchable. You'll touch & can write on the tv	yes, in Addis Ababa	no	-
22 Video camera	big camera	yes, with someone	no, it's in Addis. I never used it before	-
23 Remotcontrol	mobile	yes, in Addis Ababa	no	-
24 Ghetto blaster	tape	yes, at home	yes, at home	yes
25 Earphones	for listening & you can put it in your ear	yes, in Addis, the son of my aunt was using it	yes, in Addis	-
26 Cassettes	??	??	??	??

Interview Questions

3	Why would you like to have [3 most favourable technologies]? What would you use them for?	tv: because I like it. If I don't have this at home, maybe I have to go somewhere in the neighbourhood. I would like to see movie & drama. Ghetto: I would like to listen, for wedding party & birthday party & other occasions. Portable CD: if there is any movie and I am very interested in it I would like to see it, whether in Amharic or not.
4	Why you are not interested to have [3 least favourable technologies]?	mobile: I like the other things more. I don't like mobile, I prefer the fixed phone, why should I go with it everywhere. With mobile you might be interacted with it when you are in a meeting. Keyboard: I am not that interested with it. I am not interested to use compu daily. I prefer to use it sometimes. Laptop: I like it, that's why I put it third from the end. I like the other things more.
5	Which of these technologies do you think require reading and writing skills to use them? Why?	People who can't r&w can easily operate tv & CD. All the others need r&w skill. They cannot use all the others and if you ask them about the technologies they can't answer. Compu, laptop, keyboard, mouse: to use them, even if you can't r&w, if you are trained you can use this. Phone & mobile: if the father of this guy would give him mobile and if he touches the buttons, it might be out of
6	Have you ever experienced difficulties in using technologies? In what way?	phone: when I tried to call somewhere, I heard something from the other side when people are talking. Mouse: yesterday I was trying to use this, the arrow was pointing on another place than I wanted. Compu: the day before yesterday, I think it was running out of battery. I couldn't start it. I tried to touch buttons on the keyboard, but I couldn't start
7	How often do you use reading or writing in your daily life?	a) I read Amharic & environmental science and I copy notes from my textbook. We read only those two things, on Monday always English & mathematics. I read English & environmental science. B) I don't know. I can't tell c) in FSCE
8	In what ways do you communicate with other people in your environment, for example with people who live in	- I have no relatives, only sister who is in Jidda. I communicate with her by telephone - one relative is in Kabele 05, if my sister sends anything for us, we receive it through this lady
9	What kind of talents do you have? What kind of talents would you still like to have?	- I clean dishes - I clean the house - I make tea - I buy bread in the morning
10	Do you think these technologies have any disadvantages? In what way?	Do you mean when it's following down that it can crush easily? CD: one day the small girl broke it into pieces. Mobile: once if it falls down on the floor, it will be out of function. One guy in neighbourhood, his mobile fell down and broke into pieces
11	What do you think the world would look like without these technologies?	When they are chewing chad and these things wouldn't be invented, it would be boring for them and they will leave the house to go away. It would be boring if these things weren't there. For example when you are washing clothes, if you don't have tape it will be boring.
12	If I would be from a company in Europe that produces all these technologies and I would ask you for advice how to adapt	Stereo: as I told you earlier, the guy took this thing to maintenance shop after it was maintained he brought it back home. If the colour would be red rather than white, if it's white it's very sensitive for dirt. Mobile: rather than white, it should be pink remote: this one is black, I want to make it yellow
13	If I would be from a company in Europe that can only produce technologies that don't exist yet anywhere in the world, what	Box with kind of artificial fish in it (something which was apparently in the previous market). I saw electronic stair in Bole airport, you can stand on it and it can take you to the top or down.
14	If you wouldn't have to worry about earning your daily bread, how would you most like to spend your days?	I don't want to work here in Ethiopia. I would like to work in the USA, I would like to work in the buro in court.
15	Did you like participating in this interview and card ranking exercise? What did you particularly like or dislike about	Yes, the question about splitting up the ICT cards

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