Lifelong learning
The social impact of digital villages as community resource centres on disadvantaged women

David Hallberg
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Lifelong learning

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David Hallberg
family comes first:
to my family, in particular my father
if a free society cannot help the many who are poor, it cannot save the few who are rich/j.f.k.
Abstract

Information and communications technology (ICT) has come to play a central role in lifelong learning. Lifelong learning encompasses learning, education, training, and self-development activities of individuals which will equip them to cope with challenges in society. While there are benefits but also considerable challenges with the use of ICT in lifelong learning, a challenge is to create settings that reflect the diversity of an always changing population, and are inclusive to disadvantaged women and users. Examples of such settings have been referred to as community resource centres (CRCs). Another challenge is to evaluate the social impact or future consequences of a specific development programme, or to understand any stressor or force that causes consequences on a social entity (e.g. individual or group of individuals).

The overall aim of this research was to enhance the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women. The subordinate questions were: 1) Using a specific learning academy in rural setting as a case study, what everyday-life experiences do the women portray? 2) What behaviours that affect the social impact of ICT in lifelong learning on disadvantaged women in community resource centre establishment are exhibited in the chosen subsocieties? 3) How do immigrant women reason about the use of ICT in lifelong learning?

In contributing to the field of social informatics, this research employs behavioural theories as strategy and analytic possibilities. This research mainly used the Kenyan digital villages as CRCs as settings but did also look beyond such establishments to provide a more solid picture. The studies were located in Kenya with complementary studies in Bolivia, Cameroon, Sri Lanka, and Sweden. The main strategies and methods used were case study, comparative education approaches, and observations and interviewing techniques.

The findings suggest that ICT and CRCs have the potential to support disadvantaged women and their lifelong learning. However, the positive social impacts are limited because the arrangement of them generally does not favour vernacular languages, illiterate users, female owners and users, or non-students. In general, the use of ICT was sometimes perceived as forced, which is both a barrier and a stressor in the use of ICT in lifelong learning. It also emerged from the comparative studies that discussions among the participants in the CRCs largely covered issues in respect to 1) family and reproduction and 2) self-esteem, i.e. what settles the matter of the social impact of ICT in lifelong learning depends on change attitude among men and women. With minimal if not zero self-esteem a change that would make the difference or break a woman’s “legendary status quo” in order for a woman to feel that she can reach her goal or ambitions in lifelong learning would be difficult. Hence the lack of self-esteem is a stressor in itself.

This research is valuable for stakeholders delving into issues of development and learning using ICTs, not only in Kenya but in a broader, global perspective.

Keywords: community resource centre, digital village, disadvantaged women, lifelong learning, social change, social impact, social informatics, stressor, telecentre
Sammanfattning

Informations- och kommunikationsteknik (IKT) har kommit att spela en central roll i livslångt lärande. Koppling mellan IKT och livslångt lärande speglas i definitionen av det begrepp som används i denna forskning. Med livslångt lärande avses lärande i olika miljöer och nivåer, men också utbildningsaktiviteter samt insatser i syfte att självförsörjliga individer och utrusta dem för att klara utmaningar av ekonomisk, social, demografisk art, samt teknologiska förändringar. Det finns fördelar men även stora utmaningar med användning av IKT i livslångt lärande. En utmaning är att, i ut- satta miljöer, skapa ”sammanhang” för livslångt lärande som avspeglar mångfalden i en föränderlig befolkning men samtidigt är inkluderande för kvinnor och dem som annars missgynnas som användare av IKT. Exempel på sådana sammanhang har kallats ”lokala resurscentra”. En annan utmaning är att utvärdera de sociala konsekvenserna av ett visst utvecklingsinitiativ, att förstå specifika stressfaktorer, dvs ”stressorer”, eller de specifika krafter som orsakar konsekvenser för en individ eller grupp av individer.

Det övergripande syftet med denna forskning var att öka förståelsen för vad som påverkar sociala effekter av IKT i livslångt lärandet rörande gruppen missgynnade kvinnor. De underordnade frågorna var: 1) Vilka vardagliga livserfarenheter skildrar kvinnorna på landsbygden? 2) Vilka beteenden påvisas kunna påverka de sociala effekterna av IKT i livslångt lärandet rörande missgynnade kvinnor i de lokala resurscentra? 3) Hur resonerar invandrade kvinnor kring användandet av IKT i livslångt lärandet?


Resultaten tyder på att IKT och lokala resurscentra har potential att stödja missgynnade kvinnor och deras livslånga lärande. Men de positiva sociala effekterna begränsas av hur miljön är konstruerad. Resultaten tyder även på att användningen av IKT ibland uppfattas som påvingad, vilket är både en barriär och en stressor i det livslånga lärandet. Det framkom också, från de jämförande studierna, att diskussioner bland deltagarna i de lokala resurscentra till stor del innefattar 1) familj och reproduktion samt 2) självkänsla, dvs. det som är avgörande för en förändring beror även på hur kvinnor förmår att ändra sin uppfattning om sig själva. Att ästadkomma en förändring i syfte att förändra en kvinnans ”status quo” och därmed nå sina mål eller ambitioner i det livslånga lärandet, skulle annars vara svårt. Därför är bristen på självkänsla är en stressor i sig.

Denna forskning är värdefullt för intressenter som rör sig kring frågor om utveckling och lärande med hjälp av IKT, inte bara i Kenya utan i ett större, globalt perspektiv.

Nyckelord: digital village, livslångt lärande, lokalt resurscentra, missgynnade kvinnor, sociala konsekvenser, social förändring, social informatik, stressor, telecentre
Preface

The idea of this research arose from my interest in the interaction between humans and artefacts. The interaction was first triggered in the early 90s by my father, a teacher of natural and computer sciences who set up a telecottage, or a kind of community resource centre, hosted in a space availed by the local school. His vision was to make computers connected to the Internet accessible and usable for all without any payable fees, during school and after school. Implementing this vision provided the locals with a location at which to spend their spare-time and also get help with home-work. A few years later, my father and I assisted the public library near where we lived in setting up computers connected to the Internet.

My visits to Venezuela also influenced my decision on the topic. In the year 2005 I went jointly with the university named La Universidad Nacional Experimental Simón Rodríguez to the community of La Soledad (‘The Loneliness’), located in the Plains of Venezuela. Among the many nice people I met was Dr. Argenis Mendez Echenique, former Professor of Geo-History and one of Apure’s leading chroniclers. He presented me a few years later with a book titled Por Los Llanos de Apure (‘Throughout the Plains of Apure’) by Dr. Fernando Calzadilla Valdez (1860-1954) which is considered a classic. It provides a thorough description and picture of the Colombo-Venezuelan plains and how the members of the communities experience their everyday lives. I also met Dr. Wilmer Correa, from the Health Ministry and its programme for the Venezuelan less fortunate people in Apure, who invited me to his home a few years later. His family, two members of whom are anthropologists, taught me about the Apure region and how people there experience their everyday-lives in rural communities, including the challenges they face in their daily survival despite development interventions in these environments. Through these exposures, I decided to carry out research on development interventions in deprived regions in order to better understand social changes.

Figure 0.1: La Soledad, Apure, Venezuela (Photo David Hallberg, 2005)

Shortly after these occasions I met with Associate Professor Jörgen Lindh – whom alongside my father, opened the door of information systems and provided a social view on informatics in general and ICT in education/learning in particular – helping to start off this journey. During this time, when I was assisting on an international project about the use of ICT in education in Argentina and Sweden, we also indulge in discussion amongst other issues my own future research with a tentative focus on language, learning, and aspects of gender, which eventually came to concentrate on what is to be found in this research.

In 2009 I got a grant from the European Commission regarding its Network for
the Coordination and Advancement of Sub-Saharan Africa-EU Science & Technology Cooperation through the International Bureau of the German Federal Ministry of Education and Research to go to Kenya. This happens to be the genesis of this research, alongside fruitful collaboration with various bodies under the Kenyan Government, such as the ICT Board, NEMA, and the Nairobi City Council, and was also one of the reasons why Kenya became the main study in this research. In the course of the year, I was also part of e-learning and ICT projects in Sri Lanka and Bolivia, projects partly founded by SIDA. For instance, I was asked by the project leader, Lars Glimbert to join the NeLC project in Sri Lanka. For these reasons it deemed reasonable to use these settings as comparative case studies. The choice of Cameroon as a comparative case study was more of a coincident, which arose from contacts – like Dr. Richard Boateng, former ICITD, Baton Rouge, and Carole Godem, AISEC – I made at a conference in 2010 organised by Dr. Boateng and the ICITD, Baton Rouge, USA, during which I learned about ICT projects in Cameroon.

Literature suggests that development studies do not need to take place in so-called developing countries only. Rather, in most developed countries there exist environments that are less developed as well as citizens who are disadvantaged and lag behind the country’s overall development. Sweden has since long become a country of settlement for many migrants from all over the world. For this reason, it is also fruitful to enhance the understanding about the reasoning and use of ICT in lifelong learning among immigrants in Sweden. Such a knowledge can provide an enhanced understanding of how a move from one country to another country affects the use of ICT in lifelong learning. For this reason, contact was also established with S:t Olofsskolan, SFI, Norrköping and Learnia SFI, Jönköping, and Håkan Blomqvist, Norrköping Public Library, and other confidential parties. As a result, using Kenya as the main setting, Bolivia, Cameroon, and Sri Lanka as comparative settings, and Sweden as a setting from which to learn more about the issue of migration, this study was set out to enhance the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women.
Acknowledgement

Whilst these lines do not fully express my appreciation, I **express my deepest gratitude to GOD** for giving me this opportunity, for providing me with your strength and inspiration, and for always be there for me.

I owe special thanks to my beloved **family**. Your constant love and unwavering support, has truly kept my moral high throughout the writing of this thesis. I love you all. “Uncle” **Ingvar** and “aunty” **Britta, Lisbeth** – I consider you a part of my family and I thank you for always supporting me. I also extend regards of appreciation to my friends: **Joseline; Mary; Oddrun** – who have been constant pillars of support.

I am deeply indebted to my supervisory team, who made completing this thesis possible, sharing with me your wisdom, positive attitude, and time during this process: **Professor Anders G. Nilsson**, DSV, Stockholm Univ.; **Associate Professor Christina Keller**, Jönköping International Business School and Karolinska Institutet.

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Without any physical exercise it would be too hard to write this thesis. Therefore, I am thankful for your capoeira classes: Mestre Kleber; Mestre Serginho; Contramestra Jaqueline, Göteborg and Ubatuba; Frisks & Svettis, Jönköping – whose efforts make this world a better place. You have giving me energy to conduct my research.

**Thank you very much indeed!**
And, what is worth to reflect on during field studies:

There is an ancient joke among anthropologists to the effect that the typical Navajo family consists of a mother, a father, three children, and an anthropologist (Angrosino 2007c; p. 30).
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## Abbreviations and interpretations

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<tr>
<th>Abbreviation</th>
<th>Interpretation</th>
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<tbody>
<tr>
<td>ANOVA</td>
<td>Analysis of variance</td>
</tr>
<tr>
<td>3G</td>
<td>Third Generation (mobile network)</td>
</tr>
<tr>
<td>CAAST-Net</td>
<td>Network for the Coordination and Advancement of Sub-Saharan Africa-EU Science &amp; Technology Cooperation</td>
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<tr>
<td>(C)IBSG</td>
<td>Cisco Internet Business Solutions Group</td>
</tr>
<tr>
<td>CMM</td>
<td>Capability Maturity Model</td>
</tr>
<tr>
<td>CRC</td>
<td>Community resource centre</td>
</tr>
<tr>
<td>CTC</td>
<td>Computer Training College</td>
</tr>
<tr>
<td>DVP</td>
<td>Digital Villages Project</td>
</tr>
<tr>
<td>FGM</td>
<td>Female genital mutilation</td>
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<tr>
<td>HIPC</td>
<td>Heavily Indebted Poor Countries</td>
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<tr>
<td>ICT</td>
<td>Information and communications technology</td>
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<tr>
<td>ICT4D</td>
<td>ICT for development</td>
</tr>
<tr>
<td>KICTB</td>
<td>Kenya ICT Board</td>
</tr>
<tr>
<td>KRA-PIN</td>
<td>Kenya Revenue Authority - personal identification number</td>
</tr>
<tr>
<td>LUKMEF</td>
<td>Martin Luther King Memorial Foundation</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>M-Pesa</td>
<td>Mobile pesa [mobile money], a money transfer and microfinancing service</td>
</tr>
<tr>
<td>MVP</td>
<td>Millennium Villages Project</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environment Management Authority</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organisation</td>
</tr>
<tr>
<td>PAR</td>
<td>Participatory action research</td>
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<tr>
<td>Pasha</td>
<td>Pasha, meaning “to inform”, or Pasha Centre is also Kenyan Government’s official name for “digital village”.</td>
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<tr>
<td>SFI</td>
<td>Swedish tuition for immigrants</td>
</tr>
<tr>
<td>SNS</td>
<td>Social networking site</td>
</tr>
<tr>
<td>STD/I</td>
<td>Sexually transmitted diseases/infections</td>
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<tr>
<td>UIL</td>
<td>UNESCO institute for lifelong learning</td>
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1 Lifelong learning: a beautifully simple idea

Lifelong learning can be defined as all types, settings, and levels of learning, education, training, and self-development activities of individuals, whatever their previous level of educational attainment, which will equip them to cope with the challenges of economic, social, demographic, and technological changes (Hodgson & Kambouri 1999; p. 176). The view of “setting” is inspired by ecological (e.g. Barker 1968; Gibson 1986) and socio-cultural (e.g. Lewin 1943; Vygotsky 1978) theories (Jaldemark 2009). The definition of the term “setting” used in this research arose from Jaldemark combining these two perspectives. Throughout this research, the term “setting” is referred to as “circumstances, locations, and time in which something occurs or develops. It is understood as something in which a situation exists, including the totality of surrounding conditions” (Jaldemark 2009; p. 32).

In the preface for the book Lifelong Learning and the New Educational Order, Field (2000) expresses that lifelong learning is a beautifully simple idea. In itself, lifelong learning seems to work satisfactorily; most people learn effectively throughout their lives. Although the ever-growing interest in lifelong learning, in which even politicians increase their efforts, is both pleasing and worrying lifelong learning should affect not just politics and economics, but well-being and individual quality of life (Field 2000).

1.1 Keys to lifelong learning

For a country to be competitive in the global knowledge economy, it is essential to create opportunities for learning throughout life - formally, non-formally, and informally (World Bank 2003). The World Bank defines lifelong learning in three settings (World Bank 2003; p. 3):

- **Formal:** structured programmes recognised by the formal education system and lead to approved certificates.

- **Non-formal:** structured programmes not formally recognised by the national system; e.g. apprenticeship training programmes and structured on-the-job training.

- **Informal:** unstructured learning, which can take place almost anywhere, e.g. the home, community, or workplace, including unstructured on-the-job training, the most common form of workplace learning.

To effect the vision of lifelong learning, the EU proposes eight key competences: 1) communication in the mother tongue; 2) communication in foreign languages; 3) mathematical competence and basic competences in science and technology; 4) digital competence; 5) learning to learn; 6) social and civic competences; 7) sense of initiative and entrepreneurship; and 8) cultural awareness and expression (EC 2007). “Learning to learn” is understood as “the ability to pursue and persist in learning, to organise one’s own learning, including through effective management of time and information, both individually and in groups” (Fontelles & Enestam 2006; p. 8).
It is imperative to meet the learner’s need so he or she\textsuperscript{1} can enter and leave a learning system at different points. The teacher should not be a teacher in lifelong learning, but rather a facilitator guiding “to source of knowledge” and also a learner him or herself (Table 1.1) (World Bank 2003). This means that educators are lifelong learners too. A similar notion has been referred to as co-intentional learning and education (Freire 2000).

### Table 1.1: Traditional learning vs. Lifelong learning (World Bank 2003; p. xx)

<table>
<thead>
<tr>
<th>Traditional learning</th>
<th>Lifelong learning</th>
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<tbody>
<tr>
<td>The teacher is the source of knowledge</td>
<td>Educators are guides to sources of knowledge</td>
</tr>
<tr>
<td>Learners receive knowledge from the teacher</td>
<td>People learn by doing</td>
</tr>
<tr>
<td>Learners work by themselves</td>
<td>People learn in groups and from each other</td>
</tr>
<tr>
<td>Tests are given to prevent progress until students have mastered a set of skills and</td>
<td>Assessment is used to guide learning strategies and identify pathways for future</td>
</tr>
<tr>
<td>to ration access to further learning</td>
<td>learning</td>
</tr>
<tr>
<td>All learners engage in the same task</td>
<td>Educators develop individualised learning plans</td>
</tr>
<tr>
<td>Teachers receive initial training plus ad hoc in-service training</td>
<td>Educators are lifelong learners. Initial training and on-going professional</td>
</tr>
<tr>
<td>“Good” learners are identified and permitted to continue their education</td>
<td>development are linked</td>
</tr>
<tr>
<td></td>
<td>People have access to learning opportunities over a lifetime</td>
</tr>
</tbody>
</table>

Each citizen needs a wide range of key competences in order to cope with a modern society. It is particularly important to ensure that the entire population is included in these efforts, particularly those who are vulnerable because of “educational disadvantages caused by personal, social, cultural or economic circumstances” (Fontelles & Enestam 2006; p. 13). These responsibilities are shared between individuals, employers, and state (Field 2000; p. 31).

UNESCO, similar to the network Association for the Development of Education in Africa (ADEA), advocates that non-formal and informal learning are keys to lifelong learning. According to UNESCO (2010), non-formal learning is gaining increasing currency and popularity across Africa. A national credit transfer system should facilitate the transition between formal, non-formal, and informal learning and education. Such efforts are important to give a second chance to people who did not attend school or dropped out of it. A major concern in lifelong learning is the illiteracy level that affects many countries:

In the period 2005-2007, 774 million adults - two-thirds of them women - were judged to be lacking basic literacy skills...If current trends persist, there will still be over 700 million adults without literacy competencies in 2015 (UNESCO 2010; p. 15).

The number has even increased in many African countries and the Arab States, and this tendency is something that must be dealt with on a national, political level. The UNESCO Institute for Lifelong Learning works on this by advocating literacy learning in multilingual and multicultural settings. The reason for such actions is the fostering of exchange of experience and research. To coordinate its strategies, UNESCO strives to include all a country’s stakeholders, strengthen partnerships and networks, and provide information platforms and tools for advocacy, communication, and innovation. UNESCO not only strives to empower the individual with literacy skills,

\textsuperscript{1}The use of “he/she” and his/her in this research will additionally be referred to as “they” or “their” (Bodine 1975).
but the whole family, which is in line with the World Bank’s view that the mother’s educational level is important to understand in order to work with the child. All this seems good, but in order not to be satisfied with ”a beautifully simple idea”, but move to action, UNESCO agreed upon concrete action points at a 2009 conference in Brazil, which resulted in:

The adoption of the Belém Framework for Action inscribes adult literacy and adult education as part of the right to education, linking them with [education for all] and the [Millennium Development Goals] within a lifelong learning perspectives (UNESCO 2010; p. 25).

The concrete action plans suggest legislation for addressing adult literacy, education for all, and lifelong learning; involvement of all a country’s stakeholders, and promoting and facilitating access to, and participation in, adult learning and education by enhancing a culture of learning and by eliminating barriers to participation. Overall, the ability to learn both in one’s first language and in a multilingual setting is key to lifelong learning according to UNESCO and should be promoted.

1.2 Information and communications technology in lifelong learning

As information and communications technology (ICT) has come to take a central role in modern society (Gerster & Zimmermann 2005; Popova & Popov 2006; Davenport & Harris 2007; Andrade & Urquhart 2010) it is reasonable to believe that ICT can support lifelong learning. As a consequence it may be necessary to take account of the uneven distribution of digital media (Uimonen 2012), technical and social choices that influence people’s interactions in communities (Ren et al. 2007; Hallberg 2011b; Jaldemark 2013; Hallberg et al. 2014), how to integrate and consider future users into the implementation process (Keller 2005; Grundén 2009), or the distinction between formal and informal learning (Jaldemark 2013).

ICT is a set of tools for extending the powers of the individual human mind in a social context. ICT is a tool set that enhances the total complexity of the mind and cultural endeavors (Steyn 2011; p. 36).

Criticism raised against the use of ICT in learning overall argues that it has been used not because it necessarily does the job but rather because it is available. Earlier educational institutions that employed ICT were organised as a business industry rather than learning centres and used technology and native speakers to attract customers. The format was successful until some schools had to close down because of financial problems (Cristobal & Llurda 2006).

Technology alone will not improve learning. It is the way we choose to employ the tool that will make the difference (McVay et al. 2008; p. 42).

Similar overusing of other kinds of artefacts has been noted elsewhere (Schiffer 2004). In this research, artefacts are referred to as things made, designed, or altered, and used by humans (Erlandson 2001; Bauer 2002). It has been suggested that artefacts are developed just to maintain and extend the interests of the powerful (Moll 1998; Barry 2001; Winner 1986). Artefacts are employed to bring order into our everyday-lives by ordering human activities (Winner 1986). The concern is the extent to which this
progress includes everyone or not. In building the society upon ICT, other already stable interests could fall apart and not so stable interests could even be more unstable and difficult to stabilise (Moll 1998).

1.3 Blended lifelong learning

Researchers have suggested blended learning to overcome the limitations and over-use of ICT in learning. Blended learning as a practice applies traditional teacher-centred instruction and computer-based activities, either synchronous (proceeds in a real time) or asynchronous (mostly applied) forums, email, or chat for tutor-mediated or peer support, as methods (Lindh 1997; Martyn 2003; Keller 2007; Hrastinski 2008; MacDonald 2008; Hubackova et al. 2011). The unfulfilment of online media adopted stand-alone gave rise to blended learning (Sims et al. 2008). Earlier references to blended learning, which come from workplace learning, were then adopted in higher education (MacDonald 2008). Changing student markets has led to a greater emphasis on lifelong learning (Wall & Ahmed 2008; MacDonald 2008; Behjat et al. 2012).

Sims et al. (2008) question the claim by Mullich (2004) that suggests blended learning would improve learning outcomes by 500% as little pedagogical guidance has been offered to capture such outcomes. Instead, Sims et al. (2008) argue that most guidance offered to practitioners focuses on the technology rather than the educational value of blended learning. Others have made similar claims (Derntl & Motschnig-Pitrik 2005). Apart from questioning improved learning outcomes and a focus on technology, a blended approach to learning has the potential to save on travelling costs and time for students and teachers. However, the modules and courses may be more time-intensive (Glogowska et al. 2011). Another driver, accordingly, is flexibility for students to combine labour, family, and social commitments.

Although blended learning may serve in lifelong learning, this approach still stresses that technology in learning is often perceived as a harbinger of educational change (Kerr 2004). The rise of technology in lifelong learning may provide some solutions but first the scope of differences needs to be identified (Jeffrey 2009). ICTs are effective two-way communication technologies and a number of factors decide the quality of interactivity. Ren et al. (2007) stress commitment, participation, and design emphasising the design of the communities affects how people can interact. In order for ICT to become a means for true two-way communication, nonetheless, the interactivity must be realised in an equal power relation because, “a power relationship is said to hold between two or more persons if they can control each other’s behavior or thoughts” (Allwood 1980; p. 1). If ICT is designed for a specific language, which is not the first or native language for at least one of the users, the other users will have an unequal advantage. Thus, it cannot be uncritically stated that ICT is a just means in lifelong learning. This is a notion that has been challenged recently suggesting that all participants are not necessarily or even should be equal (Hansson et al. 2011).

1.4 Creating lifelong learning settings

Organisations and governments globally initiate numerous so-called village-level package development interventions that are aimed at levelling out inequalities in society. These programmes or settings, which address the eradication of poverty, have been implemented at various levels (Millennium Villages 2008; Clemens & Demombynes
2010). One challenge is to evaluate the social impact of a specific programme, as discussed in the next subsections.

1.4.1 Regional lifelong learning setting: Millennium Villages

As a concept, *Millennium Villages* involves conceptual and physical objects put into practice in a specific location of a country. A key motivation for initiating the Millennium Villages is because Sub-Saharan Africa has shown a slight improvement in reaching the United Nation’s Millennium Development Goals (MDGs) (Millennium Villages 2008). A challenge in evaluating the impact of the Millennium Villages Project was how to conclude whether it has been a failure or a success. According to the Swedish Trade Council’s summary of the Millennium Villages Project, “[t]he social impact has been significant” (Swedish Trade Council 2010; n.p.). The Guardian (2011) and Clemens & Demombynes (2010), on the other hand, assert that the lack of a proper evaluation method makes it impossible to state anything about the impact of the Millennium Villages Project. It is remarkable how various evaluators come to completely different conclusions about the very same project. This is, however, a commonplace in respect of development interventions (Heeks 2002; Steyn 2011). The lack of a proper definition of the term “impact” (Vanclay 2002) may be one reason. Another may be a lack of understanding what forces effect a certain impact on whom. It has been shown that while an event can have a positive impact on someone, the very same event can have a negative impact on someone else (Clemens & Demombynes 2010; Webler & Lord 2010).

1.4.2 Local lifelong learning setting: community resource centre

Generally, a *community resource centre* (CRC) is conceptualised as a local, physical location constructed to provide various groups of people and organisations with access to ICT benefits, to spread governmental and societal information, and encourage universal access with ICT (Jensen & Esterhuysen 2001; Heeks 2006; Hallberg et al. 2011a). A CRC is suggested to be adequate in bridging the digital divide within a nation and between nations (Rogers & Shukla 2001). While having received significant support from international development organisations like UNESCO (Jensen & Esterhuysen 2001), CRCs have not always proven to be successful in providing the have-nots with ICT (Naik 2011; Steyn 2011).

In respect to lifelong learning, Islam & Hasan (2009) in their review of CRCs in Bangladesh noted a poor literacy rate, language barrier (as regards the content representation on the Internet), discrimination against women, lack of ICT skills, financial constraints, and an unreliable supply of electric power. As one of the recommendations, Islam and Hasan propose that the Government assist in bringing about seminars and workshops for spreading information about the roles of the CRCs. They also propose better telecommunication networks. Even though discrimination against women has been noted, Terry & Gómez (2010) provide a list of benefits and barriers of public access ICT (e.g. CRCs) for women (Table 1.2). Their list shows that a CRC has the capacity to strengthen a woman individually in terms of empowerment (e.g. civic awareness), increased self-esteem, and access to markets, which all are components to empowerment. Also reduced isolation can contribute to what Terry and Gómez refer to as empowerment and civic awareness. CRCs also offer women opportunities for
entrepreneurship and access to health information. In addition, ICT implemented in CRCs has the potential to curb obstacles to health hazards (Hallberg et al. 2013).

Table 1.2: Benefits and Barriers of Public Access ICT for Women (Terry & Gómez 2010; p. 6)

<table>
<thead>
<tr>
<th>Benefits of ICT for women</th>
<th>Barriers to fully realise benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual benefits</strong></td>
<td><strong>Collective benefits</strong></td>
</tr>
<tr>
<td>Empowerment</td>
<td>Economic growth</td>
</tr>
<tr>
<td>Increased self-esteem</td>
<td>Improved health</td>
</tr>
<tr>
<td>Reduced isolation</td>
<td>Improved education</td>
</tr>
<tr>
<td>Access to markets</td>
<td>Capacity building</td>
</tr>
<tr>
<td>Access to health information</td>
<td>Cultural transformation</td>
</tr>
</tbody>
</table>

Collectively, CRCs can aid the members of the community to increase economic growth and the level of education. Women often play the role of lay information mediaries in their families and communities with respect to health and education (Hallberg et al. 2012b). Cultural transformation refers to the potential the use of public access computers has, as the ones in CRCs, to contribute transformation regarding issues such as changing stereotypes about gender and technology. Another example of cultural transformation is raising awareness about sex trafficking via the Internet (Terry & Gómez 2010). This later suggestion can also lead to strengthening a woman at individual or collective level. Terry and Gomez’s limit between individual or collective benefit is not sharp but provides an understanding of their reciprocal effects.

In addition to the benefits of public access ICT for women, there are barriers that may prohibit women in developing countries from using these ICTs (Terry & Gómez 2010) (Table 1.2). Poor infrastructure is suggested to be the most common barrier shared by women (and men) in developing countries, particularly in rural areas. Time and money are often obstacles for women in traditionally patriarchal societies. Social, cultural, and religious norms (e.g. restrictions on women’s and girl’s travel), and the physical location of public access venues or related barriers. The same norms may also prevent a woman from doing any labour outside the house, earning her own money. Because of the above mentioned barriers, women and men may use CRCs differently and hence the content may need to be developed accordingly to fit their basic needs. Finally, on the one hand public access ICT for women may strengthen their level of education and awareness. On the other hand, low education and literacy may prevent a woman to use a CRC at all. Even there a woman can read and write, the English language still dominates computer applications (Terry & Gómez 2010).

In 2007, the Government of Kenya agreed to launch the Digital Villages Project (DVP), which uses the CRC concept. Apart from providing societal and governmental information the Kenyan Government intend to use these digital villages as learning centres, providing learning online and face-to-face. The Government of Kenya wants to make the use of computer "a way of life", which is going to take time because of Kenya’s agricultural tradition (Kagwe 2007).
The Kenya ICT Board (KICTB) is supporting the roll out of [sic]...Pasha Centres (and are also commonly referred to as Digital Villages)...[KICTB] will ensure that the people living around the digital villages fully understand how and why they should take advantage of the services available...[T]he Digital villages will this become a relevant and essential part of their daily lives [sic]...It is expected that this will result in wealth creation, employment and poverty reduction (Kenya ICT Board 2010b).

The Government’s plan for this development is called Vision 2030, of which the DVP is a concrete implementation. Four examples of what is included in the Vision are:

1. Taking better account of women in all sectors.
2. Making the use of ICT a way of life.
4. Taking account of Kenya’s diverse cultures and languages.

Apart from providing societal and governmental information, the Government of Kenya intends to use these digital villages as learning centres, providing learning online and face-to-face. For this reason it is imperative to note some critical limitations. In what follows, I illuminate four factors that have emerged as particularly challenging for CRCs to be a concept with which lifelong learning can be addressed in respect of the four examples included in the Vision.

**Taking account of women:** In an independent review of the DVPs pilot programme to identify core factors essential to the success of digital villages, there was no account of gender issues (Drury 2011), despite discrimination against women having been found in other projects (Islam & Hasan 2009). In addition, women in rural environments often lag behind in enrolment compared with their male counterparts (Huyer 2003; p. 101). Women are also more likely to invest their earnings in their children, and to assume life-sustaining responsibilities. Furthermore:

> Women tend to bear the largest and most direct social impacts. For these reasons, gender is a core social impact issue, and a development objective in its own right (Vanclay 2002; pp. 207-8).

A focus on women and girls can have a major impact on a country’s overall development (Mbarika et al. 2007). There is a strong link between mothers’ literacy education and engagement in their child’s development (Sticht & McDonald 1990; Weigel et al. 2006). These findings have important implications for economic growth and lifelong learning from an intergenerational perspective (World Bank 2003; p. 15). Even where women have access to learning opportunities, they are being limited to school subjects that do not lead to well-paid jobs, though differences among countries exist. Figures from 2002 show that in Kenya about two per cent of women undertake courses in engineering, in Colombia about 27% do. As well-paid jobs often require ICT skills, studies need to be undertaken to understand factors that influence a woman to enter and remain in the ICT field (Trauth et al. 2004), but also mentoring so as to change women’s low confidence in respect of ICT as a career (von Hellens et al. 2001). Furthermore:
To expand the pool of women who pursue careers in science and technology, policymakers need to ensure that careers and role models are not stereotyped as gender specific (World Bank 2003; p. 15).

**Payable fees:** The involved stakeholders are not in agreement over whether the DVP would be strategic in strengthening rural environments (Kenya ICT Board 2011) and accessibility to all Kenyans, regardless of income or location (Kuriyan et al. 2012; p. 10), or the pilot digital villages would be commercialised so as to provide better opportunities for technical development of future digital villages (Drury 2011). Payable fees exclude the poorest, which according to the World Bank (2012) includes around 46% of Kenya’s total population.

**The use of languages:** The IBM Corporate Service Corps (2010) noted that users are under-informed on how to reach e-government services. IBM recommends that the digital villages be better differentiated in order for the users to understand what they can expect from them. IBM, further, recommends that Swahili and English be used, or only English, which does not take into account the low level of literacy in the rural areas. Those that are illiterate in Kenya generally have a poor command of English and sometimes Swahili, if any at all. In addition, Ochara (2008) from a study in Kenya stressed that information available in English only, not considering vernacular languages or Swahili in a country like Kenya, may lead to social exclusion. This also means that e-government implementation may socially increase internal and external digital divide among different groups (Grundén 2012).

**Non-formal learning does not reach the very poor:** Non-formal learning is generally related to the learning form that takes place in CRCs and has been criticised for not reaching the very poor. Rogers (2005) critically studied non-formal education and learning and claimed the following:

- It does not reach the very poor.
- Those who have already got an education are the main participants.
- The level of provision of equipment and materials are limited.
- The prefix “formal” and “non-formal” to education no longer fits reality.

Evaluations of non-formal education programmes in the Caribbean show that few such programmes resulted in any major behavioural change that could have strengthened women, which may be the result of a lack of follow-up mechanisms to measure the impacts (Rogers 2005). Another reason may be that the illiteracy level that affects many countries makes it difficult if not impossible for certain groups to use ICTs on their own (UNESCO 2010).

### 1.5 Problem formulation and significance

While there are benefits but also considerable challenges, or even stressors, with the use of ICT in lifelong learning, in general, and with CRCs as particular kinds of ICTs, ICT is perceived as having realistic potential in lifelong learning. In this research,
and as further discussed in Chapter 2, the stressor term is employed in reference to a force that causes a positive or a negative consequence at the level of individual or group of people. Specific challenges highlighted that affect the impact of ICT in lifelong learning were ICT as a male resource, how to reach the poorest, the issue of access, and the use of vernacular languages. Overall, women seem to be a particularly vulnerable group in the use of ICT in lifelong learning. Gender issues, according to the OECD, have received insufficient attention in lifelong learning (OECD 2000; p. 59). The lack of special ICT development theories and few models by which to measure success have also contributed to uncertainties over whether or not ICT can serve in development efforts (Steyn & Johanson 2011):

In fact, despite a large body of literature available, particularly on the Web, very little scientific or systematic research is done on [ICT for development] (Steyn 2011; p. xviii).

Hence, there is both a rationale and a need (Randolph 2008) to enhance the understanding of the challenges that affect the impact of ICT in lifelong learning on disadvantaged women.

In order for ICT to attain the conceptualised visions in lifelong learning there is a need to engage in understanding behaviours and conditions in relation to ICT in lifelong learning, “as they are perceived by the individuals or groups being studied” (Baker 2000; pp. vi; 7). Women’s situation and shared experience, which, as suggested by Walker (2007; p. vi), embraces qualitative data and interpretation to provide critical insights, are important to recognise. Even though this research to a certain degree treats women as a homogeneous category it also recognises their individual experiences (e.g. Hallberg 2011b; Hallberg et al. submitted), bringing forward their voices and interests individually, which are the voices of an unfairly treated group (Morgan et al. 2004).

1.6 Aim and research questions

The overall aim of this research is to enhance the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women. The subordinate research questions are:

1. Using a specific learning academy in rural setting as a case study, what everyday-life experiences do the women portray? (paper 1)

2. What behaviours that affect the social impact of ICT in lifelong learning on disadvantaged women in community resource centre establishments are exhibited in the chosen subsocieties? (paper 2-5)

3. How do immigrant women reason about the use of ICT in lifelong learning? (paper 6)

1.7 Positioning

1.7.1 Computing, information systems, ICT4D

Steyn (2011) suggests that ICT for development (IC4D) is part of computing. Although circularly, as computing Steyn suggests
a convergence of different traditional media, or...the spread of computing power to...non-traditional computer domains, including domestic appliances, motorcars, mobile phones, entertainment, in short, incorporated into most traditional industries and products (Steyn 2011; p. xvii).

Others have suggested that ICT4D also relates to information systems. The field of information systems, which bears traces of Börje Langefors’ research group from the 1960s, as an academic construct extracts knowledge from computer science, behavioural science, and business administration (Nilsson 2006a). Central questions of information system research are: How should the system be developed and designed? What should it perform? How should it be described and specified? Who should operate it? How should it be illustrated and described to non-experts? (Bubenko Jr et al. 2006; p. 267) The notion of evolution of information systems is closely related to the method employed by stakeholders to carry through the Digital Villages Project emphasising the implementing of a system step-by-step where portions of it are delivered or implemented at different stages. The main rationale behind relying on this method is a belief that it would deliver a safer system (Nilsson 2006a).

### 1.7.2 ICT4D, development informatics

While the term “ICT4D” covers the essence, Steyn & Johanson (2011) suggest the term development informatics (DI) be used in reference to social aspects of computing in order not to confuse it with hardcore, mechanistic aspects of ICT4D (Figure 1.1). Whilst there is no meaningful difference between the terms “ICT4D” and “development informatics” (Johanson 2011; p. 8), both of which have a moral agenda (Heeks 2006; Unwin 2009), where it is not clear which term to use, “development informatics” may be the most straightforward term to adopt (Johanson 2011; p. 3).

![Diagram](image_url)

**Figure 1.1: Two aspects of ICT4D**

Local settings and values are central to take into account for a successful usage of ICT in everyday-life (Uimonen 2009; Wamala 2012). In development informatics, researchers have noted challenges brought by mismatches between information system design and a lack of understanding of local settings and values, which is often the result of a top-down approach (Walton & Heeks 2011; p. 6). Johanson (2011) suggests that development informatics assists with:

- Expanding and exploring choices and solutions for life problems.
• The development of collective self-confidence at community level.

• Encouraging development of wealth, social growth, and education (Johanson 2011; p. 3).

Development informatics research has covered areas such as CRCs (Mbarika et al. 2004; Bailey & Ngwenyama 2011), cyber-networks (Rubinoff 2005; Taylor & Marshall 2002), electronic commerce (Boateng 2010), and ICT policy (Heeks 2010; Kleine 2009). Mbarika et al. (2004) delve into how limited access to and sharing of information and knowledge resources affect users focusing on the diffusion of CRCs within the Sub-Saharan Africa region. In their study they mainly report positive impacts such as; despite poor infrastructure and connectivity, CRCs allow users to be connected to the information-based global economy.

Even though Johanson (2011) understands that research carried out in development informatics often takes place in less developed regions, “[d]evelopment is as relevant to disadvantaged groups in developed countries as to those in developing countries” (Johanson 2011; p. 6). The study by Timms & Ferlander (2011) was carried out in Sweden, which is considered a developed country and also, according to the authors, to be at the forefront of the ICT revolution. They motivate the study by; there are areas that still leave parts of the population disadvantaged in Sweden. Their study, which scrutinises the use of ICT to enhance social capital in a multicultural suburb of the capital city of Stockholm, calls for further studies in various countries and regions other than developing countries. Timms and Ferlander conclude that, “ICT can be an effective tool in community building, but the provision of access by itself is not sufficient” (Timms & Ferlander 2011; p. 214). This conclusion also resembles the memory of the distinction between access to and use of ICT (Wamala 2010). Pigg (2011) carried out a study in the USA, which is “one of the most advanced countries on this globe” (Pigg 2011; xviii), to gain knowledge about the adoption and deployment of broadband services in rural communities. According to Pigg (2011), in the year 2000, in rural communities in the USA the median household income was below the national average and the unemployment rate was below the national average. Their study did not find evidence that deployment of broadband led to increased industry use. These two examples explain why studies within development informatics do not necessarily need to be carried out in so-called developing countries. Perhaps this even encourages researchers to view the field of development informatics from a broader perspective.

1.7.3 Development/community/social informatics

In Steyn & Johanson (2011), community informatics and social informatics are depicted as parts of development informatics but with a specific focus on the community and social aspects of ICTs, respectively.

Thus, research which evaluates the impact of the uses of public radio by a community of farmers would be an example of Community Informatics; a study which assesses the social values of Internet interactions generally...would be an example of Social Informatics; and reviewing any benefits that might flow from the introduction for the first time of ICTs into a country at the “bottom of the pyramid”, would fit into the category of Development Informatics. It is possible to combine the three (Johanson 2011; p. 6).
1.7.4 Social informatics

Social informatics covers research about the role, design, use, and consequences of ICTs in people’s lives, including sociocultural aspects and their usefulness for society as a whole; hence, social informatics is strongly related to social change (Kling et al. 2005; Johanson 2011; Lamb & Sawyer 2005). Other names used in reference to social informatics are “social impacts of computing” and “behavioural information systems research” (Kling et al. 2005; p. 5). Furthermore, in respect of social informatics the following have been asserted:

- ICTs are influenced by the socio-cultural setting in which they are adopted; the challenges being examined define the foci rather than the methods and theories employed in a research study; focus is on the issues people experience when “living” with ICTs; it delves into contemporary issues with computerisation (Kling et al. 2005; p. 7-8).

- The paradoxical impacts of ICT take-up and uses is revealed (Sawyer & Eschenfelder 2002; Sawyer & Tyworth 2006; p. 52).

- The use of ICTs creates winners and losers; ICT use has moral and ethical aspects, and these have social consequences (Robbin et al. 2006; Sawyer & Tyworth 2006; Sawyer & Eschenfelder 2002).

While there is no single theory in social informatics (Sawyer & Eschenfelder 2002), social informatics builds around political theories to explain social structures and orders, and social interactionism to understand sociological processes and consequences. In addition, Rob Kling’s undeveloped strategy of socio-technical interaction networks (STIN)\(^2\) has been employed in order to understand social behaviour (Robbin & Day 2006; Meyer 2006). One of the argument made about STIN is its account of technical design choices and the sustainability of socio-technical systems (Meyer 2006; p. 39). One critical limitation with STIN is that it has mostly been employed by colleagues and former colleagues of Rob Kling (Meyer 2006; p. 43). Among the notable choices of data collection are ethnography, interviews, and participatory design studies (Lamb & Sawyer 2005). In principle, social informatics is driven by empirical work and not many researchers dare to use theories outside the social informatics-box, making it another limitation of social informatics research. For this reason it has been suggested that researchers may “borrow” theories from other disciplines and apply them to ICT” (Sawyer & Tyworth 2006; p. 53).

The research notes paper by Chevrot et al. (2006) serves as a typical social informatics research. It targets the topic of the digital divide among the extremely poor, providing a number of inputs and outputs of the social-digital exclusion process (Table 1.3). By the term “extremely poor” they mean persons “in ‘chronic poverty’ and lack of basic security” (Chevrot et al. 2006; p. 310). An important motivation for the study was: so far, CRCs have been the major artificial construct to bridge the gap between the haves and have-nots, however, the extremely poor rarely enter the CRCs. To answer questions such as, why are we emphasising the use of the Internet for the very poor? and, don’t the poor have other priorities such as finding jobs, and keeping their

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\(^2\)Rob Kling is seen as the father of social informatics and his STIN draws on social construction of technology (SCOT) and actor-network theory (ANT).
families together? they suggest asking the poor themselves, which is a bottom-up approach. In order to frame the social-digital exclusion process they suggest inputs and outputs (Table 1.3). Chevrot et al. (2006) suggest that factors such as the lack of access to equipment and net, and literacy (know-how) increase the feeling of exclusion. Better infrastructure, education, and a simplified computer interface may increase the feeling of inclusion. Eradicating or mitigating barriers to entry leads to outputs such as access to information and a space for communication, which, furthermore provide economic and intellectual opportunities. Nevertheless, Chevrot et al. (2006) emphasise that ICT based solutions are a far cry from being enough to go about the barriers these persons face. Drawing from UNESCO, the same authors stress people’s access to their own rights and their cultural development are critical factors.

The conclusion from the 1.5-year experimental project in France was that access to ICT is not enough. The (inexperienced) users also need to understand what benefits ICT can provide, just for them (“what is in it for me?”) and for their community.

Table 1.3: Inputs and outputs of the social-digital exclusion process (Chevrot et al. 2006; p. 310)

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Barriers to entry</strong></td>
<td><strong>Participation to the IS</strong></td>
</tr>
<tr>
<td>Access to equipment</td>
<td>Access to information</td>
</tr>
<tr>
<td>Access to the net</td>
<td>Access to information</td>
</tr>
<tr>
<td>Know-how</td>
<td>Access to opportunities (employment)</td>
</tr>
<tr>
<td>Illiteracy</td>
<td>Access to knowledge (training)</td>
</tr>
<tr>
<td>Fear of the unknown, of ICT’s impact</td>
<td>Access to collective work, networking</td>
</tr>
<tr>
<td>Lack of quality, culturally relevant content</td>
<td>Creation of relevant content</td>
</tr>
<tr>
<td>Motivation</td>
<td>Participation in the democratic process</td>
</tr>
<tr>
<td>Feeling of exclusion</td>
<td></td>
</tr>
<tr>
<td>Existing social networks</td>
<td></td>
</tr>
</tbody>
</table>

This research contributes to the field of social informatics. In this research most studies were carried out in less developed regions of Kenya, but also of Cameroon, Bolivia, and Sri Lanka. One study was nonetheless carried out in Sweden in a so-called multicultural setting.

Drawing from the systems approach by Nilsson & Nilsson (2011) (Table 1.4), this research, from a social informatics perspective, targets four of the EU’s key competences for lifelong learning. The EU stresses that it is particularly important to ensure the entire population is included in lifelong learning efforts, especially those who are vulnerable because of “educational disadvantages caused by personal, social, cultural or, economic circumstances” (Fontelles & Enestam 2006; p. 13):

**Language skills** (target 1-2): The ability to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form, and to interact in an appropriate and creative way in a full range of societal and cultural settings: in education and training, work, home, and leisure. In addition, language skills include mediation and intercultural understanding.
**Digital competence** (target 4): Involves basic skills in ICT: the use of computers to retrieve, assess, store, produce, present, and exchange information, and to communicate and participate in collaborative networks via the Internet. This definition confirms with Lankshear & Knobel (2006) third definition of digital literacy, namely as set of skills or “master competency” needed in life (Lankshear & Knobel 2006; p. 15).

**Learning to learn** (target 5): The ability to pursue and persist in learning, to organise one’s own learning, including through effective management of time and information, both individually and in groups (Fontelles & Enestam 2006; pp. 13-18).

This research also targets three of the Millennium Development Goals (United Nations 2012), and two of UNESCO’s Education for All Goals (UNESCO 2000, 2012a). To contextualise this research further, I also suggest three goals specifically bound to the lifelong learning settings of CRCs, based on the challenges outlined earlier on.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Content</th>
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<tbody>
<tr>
<td><strong>Millennium Development goals</strong></td>
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<tr>
<td>3</td>
<td>Promote gender equality and empower women</td>
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<tr>
<td><strong>Education for all goals</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Achieve a 50 % improvement in levels of adult literacy for women</td>
</tr>
<tr>
<td>5</td>
<td>Achieve gender equality in education</td>
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<tr>
<td><strong>EU Key competences for lifelong learning</strong></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>Language skills</td>
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<tr>
<td>4</td>
<td>Digital competence</td>
</tr>
<tr>
<td>5</td>
<td>Learning to learn</td>
</tr>
<tr>
<td><strong>Current digital village goals</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>“All people...should understand how and why they should take advantage of the DVs”</td>
</tr>
<tr>
<td>2</td>
<td>“Digital villages as relevant and essential parts of people’s daily lives”</td>
</tr>
<tr>
<td>3</td>
<td>“DVP would be strategic for rural empowerment and development”</td>
</tr>
<tr>
<td>4</td>
<td>“The DVP would be “beneficial to all”</td>
</tr>
<tr>
<td><strong>Specific CRC goals proposed in this research</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Promote gender equality in the CRCs</td>
</tr>
<tr>
<td>2</td>
<td>Make the CRCs a secure place for women</td>
</tr>
<tr>
<td>3</td>
<td>Promote the use of vernacular languages (c.f. EC’s 1st &amp; 2nd key competences)</td>
</tr>
</tbody>
</table>

### 1.7.5 Summary and relevance of the thesis

In enhancing the understanding of what affect the social impact of ICT in lifelong learning on disadvantaged women, this research contributes to the field of social informatics. Other names used in reference to social informatics are “social impacts of computing” and “behavioural information systems research”. Characteristics of social informatics is the focus on the “problem” and what to do about it rather than on
methods. Social informatics focuses on issues people experience when “living” with ICTs and reveals the paradoxical impacts of ICT take-up and uses. Social informatics explains social structures and orders, and strives to understand sociological processes and consequences.

According to the literature, it is not clear at which level to find ICT4D, development informatics, or social informatics. The literature explains the relationship in terms of sub-fields, separate fields, or fields derived or emerged from other fields or disciplines. Explanations have even been circularly (Steyn 2011).

In contributing to the field of social informatics, this research employs behavioural theories within archaeology and anthropology as strategy and analytic possibilities (Hallberg et al. 2012a; Hallberg 2011b). This approach was thought of being relevant to fulfil the aim but also to add a new dimension to the field of social informatics, which will be explained further in chapter 3.

I have earlier on employed the term “ethnography” without bringing its definition to the surface. While researchers tend to posit various definition of the term “ethnography”, for some it refers to a philosophical paradigm and commitment, whilst for others it designates a method to be used when appropriate (Atkinson & Hammersley 1994). Ethnography, which basically means writing about and studying people (Gómez & Jones III 2010), is in this research regarded as a paradigm and perspective with its methods. A researcher within ethnography perceives the people in a way that includes taking account of their cultural values and in this regard appreciating them (Cohen et al. 2007). Confirming to an ethnographic perspective means implementing data collection techniques on the condition of the country’s national and view them as collaborators and actors of the researchers. Ethnography means having an interest for exploring the nature of social phenomena rather than setting out to test hypotheses about them (Atkinson & Hammersley 1994; p. 248). Ethnography as a method lies always within the paradigm or perspective of ethnography. This research does not emphasis an ethnographic perspective, but rather the perspective has been used as a source of inspiration (Rossitto 2009), which means that this research favours an ethnographic perspective, appreciating those good values it brings along.

1.8 Organisation of thesis

The thesis, which comprises a cover and six included papers, is organised into the following five chapters:

- Chapter 1 introduces the thesis by highlighting benefits and challenges with using ICT in lifelong learning. In addition, the overall aim and the structure of the thesis is presented.

- In chapter 2, theories of the main concepts of lifelong learning, social impact, and stressor are elaborated on.

- In chapter 3, strategies and methods used to carry out this research are outlined, highlighting cultural validity, case study strategy, qualitative data collection techniques, comparative education, and behavioural archaeology as an analytical possibility in social informatics. A major weight is laid on observations and interviewing techniques.
• Chapter 4 provides a summary of findings from the papers 1-6 with respect to the research questions. The pre-studies do not relate directly to the research questions but they affected the main studies and are valuable to the overall aim of the research. Hence, they are summarised too. Since each study formed valuable input to another study, an abstraction is made based on all studies after summing each paper.

• In chapter 5, a concluding discussion of the research is presented by providing a follow up on the aim and the subordinate research questions, a discussion as regards theory, method, and concepts used. Implications and suggestions for future research are also presented.
2 Concepts and theories

In this chapter the main concepts of lifelong learning, social impact, and stressor are elaborated on. Literature stressed that understanding whether or not the impact of a certain intervention has been fruitful on the target group is difficult (Heeks 2002; Steyn 2011). As illustrated previously, social informatics is related to social impacts. This research proposes the concept of social impact along the concept of stressor to enhance the understanding of what affects the use of ICT in lifelong learning on disadvantaged women. In doing so, this chapter also defines the concept of “social impact”. It then suggests how this concept can be used with the other concept of stressor to understand the paradoxical social impacts of ICTs take up and uses (Sawyer & Eschenfelder 2002; Sawyer & Tyworth 2006) in lifelong learning. The choice of concepts originated from pre-studies (Hallberg 2010a,b; Hallberg & Wafula 2010) conducted in Kenya and pre-knowledge gained from those studies.

From the outset, I did not know much about the Kenyan settings. In this respect, I started as a "tabula rasa". Pre-studies were carried out in order to gain a better understanding of the social and historical background (Klein 1999) of Kenya in regard to current ICT debates in technology and education in Africa and Kenya. By carrying out the pre-studies, I gained a sort of pre-reflective awareness (Kaipayil 2008) of what I was to study later on. During these pre-studies, making language preferences blend with the literacy capacity of the users in multilingual settings when using ICT in lifelong learning was a major challenge found (Figure 2.1). The regards on language and communication barriers over all stand in significant contrast to what has been found in an earlier literature review on ICT in education and learning (Hallberg 2010a).

It was suggested that ICT in lifelong learning has the possibility to function as a setting where interaction and socialisation take place and, by which means, impact positively in terms of enhanced standard of living, competitiveness in the global market, and the literacy skills of women in rural environments. Another challenge, thereby, relates to technical dilemmas in accessing, adopting, and implementing digital resources in rural settings. The Internet may decrease the feeling of having a distance. Or, rather, ICT usages may decrease the felling of having a geographically distance in lifelong learning, but can also be a reminder of the distance in terms of cultural diversities. That is, language and communication barriers do not only arise because of ICT usage, but also because of cultural differences, for instance, in defining terms, concepts, and ways in which a woman lived her life, including conforming to certain social and cultural norms, believes, and traditions. The portrait of males was conveyed essentially in a negative sense in the pre-studies because of women and men communicating and conducting in respect to certain norms in differently ways. It is worth to mention that “barriers” were not only regarded as something bad, but also as something positively. While Internet does have the potential to contribute to lifelong learning, Hallberg & Wafula (2010) also show that ICT can be a reminder of the distance and separation from the rest of the world. As a consequence, it is not sure whether ICT in lifelong learning would enhance the standard of living or not.
The pre-understanding (Figure 2.1) to a significant degree was formed by drawing from Kaipayil’s notion of experience (internal feeling, external objects, previous acquired thoughts, mental images created) (Kaipayil 2002) and was fruitful in covering human aspects to experiences of learning. Nonetheless, it was difficult to clearly separate Kaipayil’s four concepts from one another. Rather, they were proven to be reciprocal and should so be interwoven into the others.

These challenges mentioned were likely to affect the use of ICT in lifelong learning and, therefore, curb the potential ICT has to “empower rural women in Kenya”, as suggested by the founder of Project Africa. The challenges that affect the use of ICT has been termed “stressors” in this research and will be explained later in this chapter. If the stressors are mitigated, it was hypothesised that ICT in lifelong learning has the potential to contribute positively to enhanced standard of living, global competitiveness, and literacy skills.

2.1 Lifelong learning

The concept of lifelong learning means different things depending on country or continent (OECD 2000). The literature stresses the importance of understanding that the African perspective of lifelong learning differs from the Western perspectives (Higgs & Van Wyk 2007; Preece 2006). Preece (2006) illustrates a Westernised and an African world view of lifelong learning. These values, which change with each new
generation, though their basic concepts remain constant, are often practised in the form of folklore, representing the wisdom of time. On South Africa, Preece stresses:

The combined effect of this definition is to capture almost incidentally the spirituality and social situatedness of Africa’s pre-colonial heritage. It stands apart from, but does not reject, European lifelong learning agendas (Preece 2006; p. 35).

Higgs & Van Wyk (2007) also suggest that the emphasis on lifelong learning should be viewed within the context of a nation’s history. It can then have a realistic potential to support those who never got a chance to study. Furthermore they suggest that Western perspectives of lifelong learning are driven by economic and market-related considerations, whereas an African perspective is rather concerned with human and social issues of development and empowerment.

To study ICT in lifelong learning, therefore, we may need to look beyond general discussions about lifelong learning proposed by the EU and UNESCO. Nevertheless, The EU’s perspective of lifelong learning is accepted worldwide (Can & Yuksel 2011). The view of lifelong learning is largely bound to a specific setting. Studying ICT in lifelong learning in Kenyan settings may require a different lens to that used for studying the phenomenon in Cameroon, or Bolivia. To make matters even more complex, Preece (2006) illustrates the diverse views of lifelong learning among the African countries. Botswana, for instance, would take a middle-of-the-road position. Despite this we can find some reciprocal elements. The view of “being an active citizen” and “lifelong learning” as reciprocal elements in African settings is well recognised. In some traditional African settings, lifelong learning continues even beyond death (Avoseh 2001; p. 482), which justifies the question: how long is lifelong?

Studying lifelong learning in various countries requires 1) either a tailored, conceptual framework or 2) a general framework that is drawn from in all settings. Both suggestions have their benefits and drawbacks. A tailored framework is most reliable and needs thorough theoretical and empirical pre-studies. Such studies need to consider different units of analysis. The question is whether even a tailored framework at, say, local level serves or whether different frameworks for different units are needed.

2.1.1 Literature review of lifelong learning

The phases of building a conceptual framework developed by Jabareen (2009) will be used as guidance to gain a better understanding of the nature of lifelong learning. The following working definition of “conceptual framework” is used:

[A] conceptual framework [is] a network, or “a plane,” of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena (Jabareen 2009; p. 51).

This literature review makes no attempt to be complete but is designed to reduce bias and provide a better body of knowledge on the concept of lifelong learning. Understanding that other terms that describe the same concepts may exist, I searched for journals between 2008 and 2013 with “lifelong learning” in the title, abstract, or keywords. I employed the multidisciplinary databases of DOAJ (=241), Emerald (=59), and ScienceDirect (=309). A free online randomiser (http://www.randomizer.org)
was used to select 10^3 journals for closer scrutiny from DOAJ (=164, 106, 199, “110”, “125”, 180, 201, “232”, 11, 54), Emerald (=56, “38”, 47, 41, “39”, 53, 52, 7, 58, 8), and ScienceDirect (=272, 88, “43”, 16, “164”, 239, 59, 226, 257). The remaining journals were still available for lighter analysis. In DOAJ, numbers 110, 125, 232 were not accessible or not research articles and therefore changed with the same randomiser to number 150, 159, and 109, respectively. In Emerald the numbers 39 and 38 were changed to numbers 14 and 30, respectively. In ScienceDirect, 43 and 164 were changed to 177 and 279. The journals are written in English (=28) and Spanish (=2) (Appendix A.3, Table A3.1 ). A broader search including reports and other scientific articles was also performed.

Lack of common definition of lifelong learning: Literature tends not to carefully define the term or concept of lifelong learning. Baris & Tosun (2011) elaborate with various definitions, however, suggesting definitions such as

lifelong learning not only includes acquiring each kind of knowledge, skill, and quality but also updating them...The process covering all the education periods starting from preschool period, to retirement and following educations are considered as lifelong learning (Baris & Tosun 2011; p. 523).

Another definition suggests that lifelong learning should refer to “ongoing professional development’s” (Drobne 2009; p. 121). Instead of defining lifelong learning authors tend to describe settings of lifelong learning, to whom it is of use, or why it exists.

Settings of lifelong learning: It is commonplace that researchers use the formal education as setting to study lifelong learning. A primary school in Slovenia has been used (Hus 2011) but most often higher education institutes on and in various continents and countries such as Iceland (Rennie et al. 2011), Jamaica (Myrie & Mujtaba 2011), Malaysia (Hashim et al. 2010; Noor & Ahmad 2012), Nigeria (Aburime & Uhomoibhi 2010), and the Philippines (Robles 2011), to provide a few examples, are used. Cmor (2009) describes the strategic efforts of the Hong Kong Baptist University Library to build institutional support for information literacy in an environment of major curriculum reform. Accordingly, the education reform in Hong Kong has led to an emphasis on lifelong learning (Cmor 2009). Because lifelong learning is not defined, a reader cannot be sure of what this emphasis entails. Nonetheless, it can be deduced from the article that a lifelong learner should be critical and capable of using various sources of information independently so as to acquire necessary knowledge. de Grip & Smits (2012) set out their study to enrich the discussion on the determinants of training participation and informal learning of scientists and engineers. Using a formal setting, their study shows that lifelong learning of scientists and engineers is fostered by innovative firms and suffers when firms face severe competition in their product markets. Although not explicitly defined, we can understand lifelong learning as an umbrella term for different learning modes (e.g. formal and informal), including workspace learning. Hence, the formal education is believed to be fruitful as a setting in which to study informal and non-formal learning too.

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3 Since the total number of journals in each of the employed databases is unequal this is, of course, not proportionally.
Outside formal education institutions, researchers have studied lifelong learning among farmers in India (Misra 2010) or among musicians in a symphony orchestra-initiated development programme in Australia (Johnsson & Hager 2008). The point of departure for Johnsson & Hager (2008) is that formal courses fail to produce graduates with skills required by workplaces. What skills or attributes are expected of the graduate and how these skills are to be taught remain unclear, i.e. “graduateness” and “employability” (Johnsson & Hager 2008; p. 527). As a solution the authors argue for a living curriculum that considers contextualisation as well as skills for life that is developed in collaboration with higher education and industry. Using the Sydney Symphony Fellowship programme as a case study, the setting of their study can be said to be a combination of formal and workplace learning, in which the students also are tutoring schoolchildren. What is important for a learner is to shoulder multiple roles and identities:

We found that learning to become a professional orchestral musician is not about understanding a single role as a performing professional in an orchestra. In fact, the growing multiplicity of roles recognises the dynamic nature of the profession and the difficulty in ascribing a single notion of identity to practising professionals (Johnsson & Hager 2008; p. 530).

Although Johnsson & Hager (2008) do not define “developing an early appreciation for lifelong learning” (2008; p. 527), we can understand that this means understanding and accepting the whole chain from formal learning to workplace learning, including non-formal and informal. For instance, when the developing musicians teach other schoolchildren they become teachers as well as reflective learners outside their own curriculum. When the developing musicians perform they have time to critically reflect upon what they have learnt, which thus becomes a moment for informal learning too. Hence, the developing musicians are learners in social investigations with opportunities for solitary, critical reflections (Freire 2000).

Analysis methods and unit of analysis: Camacho et al. (2012) use students at the Department of Pedagogy at the Universitat Rovira i Virgili in Spain as the setting for their research about social networking-sites (SNS), referring SNS to a “space of a new youth identity” (Camacho et al. 2012; p. 3176). The results are presented qualitatively using excerpts and quantitatively showing participants’ answers to a pre-activity questionnaire using percentages. Overall, researchers tend to use surveys and statistical analyses, and present the results quantitatively (Hashim et al. 2011; Hus 2011; Myrie & Mujtaba 2011; Aburime & Uhomoihbi 2010; Can & Yuksel 2011). This may be an effect of it is less time-consuming to send a questionnaire than to interview the same amount of individuals. Researchers may also be more interested in understanding statistical variances in a certain population than understanding personal and individual views, which often requires an ethnographic strategy (Cohen et al. 2007).
Can & Yuksel (2011) examine music courses hosted at public education centres (PECs) in Kadıköy, Turkey using analysis of variance (ANOVA). In doing so, the authors wanted to reach a general decision about the population. The participants were asked about PECs vis-à-vis lifelong learning. The socio-economic status of the attendees was found related to significant differences in responses to two statements regarding the evaluation of the PEC courses in the scope of the lifelong learning programme (LLP):

- The attendants with a higher socio-economic status agreed that the education they receive provides effective professional development (X\text{Average and under}=2.16 \text{ and } X\text{High}=2.54).
- The attendants with a higher socio-economic status agreed that PECs have developed and renewed themselves sufficiently in the direction of the LLP (X\text{Average and under}=2.18 \text{ and } X\text{High}=2.62) (Can & Yuksel 2011; p. 701).

In their concluding discussion, Can & Yuksel (2011) open doors for better recognising skills gained in PECs for finding a job. However, “[a] s the level of education increases, it becomes increasingly important to evaluate the quality of the activities within PEC.” (Can & Yuksel 2011; p. 703). PECs have proven to be fruitful settings for combining lifelong learning with competence development and individualised learning, no matter what educational background the learner happens to have. Despite this, a critical issue seems be a person’s socio-economic status:

High school and university graduates mostly think that PEC has improved and renewed their skills and has provided effective professional development when compared to primary/secondary school graduates (Can & Yuksel 2011; p. 703).

Gimeno et al. (2010) discuss the benefits of combining Content and Language Integrated Learning (CLIL) and technology-enhanced learning by means of the InGenio authoring tool and content manager. The evaluation of the programme is in the article reported with qualitative and descriptive analysis. Similar to Siemens (2006), in their article they argue that general learning styles no longer fit reality and academic institutions must reconsider key aspects of the teaching and learning processes to stay competitive. One particular skill accounted for is knowledge of languages. CLIL is suggested to be fruitful in lifelong learning as it has the potential to cater for autonomous learning, which is essential (Gimeno et al. 2010).

A difference between Can & Yuksel (2011) and Gimeno et al. (2010) is that the former uses groups of specific individuals as units of analysis whilst the latter refers to learners in general. The same applies to Hashim et al. (2011) (heads of department), Fernández et al. (2013) (students of physical education and sport science), and de Grip & Smits (2012) (scientists and engineers) respectively. Hence, it seems that quantitative methods and analyses are also used to generate results at group and individual level while qualitative methods and analyses are also employed by researchers.

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4PECs are within the Management of Apprenticeship and Vocational Training in Turkey. PECs have two main duties: “carrying out education activity” and “providing/supporting the education activity”. They are put into service in cities and towns by the Ministry of National Education to create equal. PECs create opportunities for local people by providing ICT services. PECs are the education, teaching, production, counselling, information retrieval, learning, cultural, and artistic centres of their localities, and have the characteristics of multifunctional community centres found in western countries (Can & Yuksel 2011; p. 699). Thus the definition of PEC has much in common with the definition of CRC proposed in this research.
to initiate general discussions or draw initial general conclusions. This means that a qualitative research does not merely mean that the researcher comes closer to the participant or informant in terms of research outcome, but perhaps during the research process itself. The diverse analysis methods and units of analysis show that mixed-methods or several studies on the same phenomenon from different perspectives can achieve the best effect.

The need for lifelong learning: Overall, literature claims that lifelong learning skills are important to stay competitive either as an individual, be it a leader (Hashim et al. 2010), or at national level in relation to the global market or knowledge society (Rönnström 2012; Noor & Ahmad 2012). It also makes strong connections between higher education and life as a graduate or the role a university plays in giving lifelong education (Noor & Ahmad 2012; Marshall 2008).

A country’s immigration policy may lead to education being treated as a means of residing permanently in the country. This view of education may prevent immigrants from being lifelong learners (McGowan & Potter 2008). Instead they must focus on getting the “right” education and qualification.

ICT in lifelong learning: ICT can provide lifelong learning (Gokcearslan & Ozcan 2011; Baris & Tosun 2011; Camacho et al. 2012; Robles 2011; Rennie et al. 2011; Misra 2010; Hus 2011). Gokcearslan & Ozcan (2011) set up their literature study to reveal the potential for change being brought about by wiki applications. Their argument is that wiki is a social, interaction software tool that enables a user to either work alone or in collaboration with others, developing, editing, and sharing pages. This makes wikis suitable in a wide range of areas: business, academia, or in people’s everyday-lives. Baris & Tosun (2011) and Robles (2011) study cyber or e-portfolios. The former examines the development of the concepts of “e-portfolio” and “lifelong learning” and the later present a preparation on how to innovate a cyber portfolio that has its practical and breakthrough solution against expensive and inflexible vended software which often saddles many universities. A cyber or an e-portfolio is used to assess students’ learning, archiving, showcasing artefacts, and recording professional development (Robles 2011). It is also used as a “personal development folder”, to share information and expertise with more individuals, or simply to save time (Baris & Tosun 2011). These e-portfolios are used because schools are making their classrooms interconnected places via global networks (Robles 2011; p. 2).

Thanks to e-portfolio, people may find the opportunity to communicate; get advice from the other people with the same interests, and to learn new topics [sic] (Baris & Tosun 2011; p. 525).

Wane (2001) provides a comprehensive picture of the everyday-life experiences of rural women in Kenya (field survey in 1993), referred to by the author as the indigenous knowledge of Embu rural women. Wane’s findings show a male-dominated society. Wane advocates that if ICT is to assist lifelong learning it has to be designed taking into account how these women live their everyday-lives in order not to exclude any citizens. Furthermore Wane claims:

There is a need to create places in which indigenous knowledges can be taught, in order that indigenous communities might continue to survive. Indigenous techno-
logies, understood as a counterhegemonic discourse, would enable African women to reclaim their knowledge and identities (Wane 2001; p. 406).

Hawkey (2002; p. 5) argues that learning with ICT has much in common with learning in informal environments. Hawkey’s own experiences from Kenya show that language is one major issue in learning, not necessarily because of the use of different languages, but the usages of a same language, even if it is to employ key educational terms differently. Another issue was examinations, which concentrate solely on factual recall. These insights are fruitful in order to understand how CRCs would be useful in lifelong learning: for instance, what is important to learn and how knowledge would be put into practice.

The literature highlights some general challenges for the use of ICT in lifelong learning in CRCs. Islam & Hasan (2009) in their review of CRCs in Bangladesh noted a poor literacy rate, a language barrier (as regards the content representation on the Internet), gender (reading discrimination of women), a lack of ICT skills, lack of awareness about new technology, financial constraints (lack of sufficient funds for running the CRCs), the lack of a reliable communications infrastructure, an unreliable supply of electric power, and a lack of coordinated Government initiatives. As a recommendation, the authors propose the Government assist in bringing about seminars and workshops for spreading information of the roles of the CRCs. They also propose better telecommunication networks. On the issue of location the authors propose “places where people frequently gather and can easily get to” (Islam & Hasan 2009; p. 550). Other suggestions are content in vernacular languages, and a strengthened telecentre movement to set up CRCs in each village. Finally, the various names posited to describe a CRC make it difficult to coordinate activities (c.f. the discussion by Eriksén & Ekelin 2008 about what is in a name). Hence, their efforts and activities should be under one umbrella to make it easier to collaborate.

It has been suggested that ICT in distance learning models has much to offer in reaching the Millennium Development Goals and supporting lifelong learning in African countries, not only for the learner, but to support the teacher too (Unwin 2005). For this to work, an account of mainly four aspects is central, namely leadership and vision, lifelong learning, and the planning and management of change (Unwin 2005).

The teacher’s role in lifelong learning: Teachers must be aware of how to support the pupil or student in order for them to develop a desire for lifelong learning (Wanzare 2002). This was a challenge in the advent of ICT in education (Lindh 1997) and still is a challenge in Kenya where such factors as age, academic position, poor infrastructure, and lack of equipment, and skilled human resources may play a key role (Oyelaran-Oyeyinka & Adeya 2004; Kessy et al. 2006; Hennessy et al. 2010).

2.1.2 Concepts and terms used in lifelong learning

The retrieved articles did not present a thorough discussion of lifelong learning. It was difficult to evaluate the articles because of the lack of a definition of lifelong learning. To back up the reasoning, 10 e-books were retrieved in the same manner as the journals. In addition, books which describe general perspectives of learning were also retrieved. The idea was that these books, due to their length and assumed depth,
clearly define the term and the concept behind the term as well as providing illustrative examples of what lifelong learning is.

**Co-intentional and cooperative learning:** If “lifelong learning for all” is to become a reality, such opportunity must be catered for throughout the life cycle (OECD 1999; p. 78), “from cradle to grave” (Óhidy 2008; p. 48). The challenge is “how teachers can inculcate good lifelong learning habits in their students unless they, too, are lifelong learners” (OECD 2000; p. 23). This draws attention to various perspectives of learning (Table 2.1), for instance co-intentional learning (Freire 2000) and cooperative learning (Óhidy 2008). Cooperative learning, as contrary to the learner as lone investigator, can also be understood as imitating or taking off others (c.f. Vygotsky 1978). Moreover, it is concerned with finding an individual path for best result in one owns learning (c.f. Siemens 2006 and Dewey 1909/2008). For Dewey and Vygotsky, the language is one of our most pervasive psychological tools in order to learn and communicate. Vygotsky claims that, for best results the learner must feel some kind of relation to the concepts taught, or the learner must have been experienced them. Also Freire claims that the lack of experiences of what is being taught does not lead to a fruitful outcome for the learner. Freire speaks about a humanising pedagogy as an instrument and permanently dialogues between learners and teachers. These dialogues are seen as a co-intentional education between teachers and students who both have the role as teacher and learner.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Representative (year of birth)</th>
<th>Trait</th>
<th>View on the learner</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Plato (428/427 BCE)</td>
<td>Process of passively recalling something already seen by the soul</td>
<td>The learner as a lone investigator</td>
</tr>
<tr>
<td>Behaviourism</td>
<td>B.F. Skinner (1904)</td>
<td>How new behaviour is acquired</td>
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<td>Psychological Constructivism</td>
<td>Piaget (1896)</td>
<td>Stages of development</td>
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<td>Dewey (1859)</td>
<td>“Learning by doing”</td>
<td>The learner in social investigations</td>
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<tr>
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<td>Vygotsky (1896)</td>
<td>Learning by imitation</td>
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<tr>
<td>Co-intentional education</td>
<td>Freire (1997)</td>
<td>A true “dialogue” that involves critical thinking</td>
<td>The learner in social investigations with opportunity of solitary, critical reflections</td>
</tr>
</tbody>
</table>

Lifelong learning is suggested to be bound to the learner’s setting and specific world-view. In this respect, Freire suggests the education be engendered for the students and by that give them significance. It gives significance if it addresses various aspects of the learner’s life such as preoccupations, doubts, hopes, and fears. Hence,
a project as the Digital Villages must respect the particular world-view held by its intended users to expect positive results, making lifelong learning bound to a specific setting.

Freire’s perspective of learning, which is related to social aspects of learning, is based on own experiences in Latin America. Freire suggests permanently dialogues between learners and teachers, which demands people just not to critically reflect on their situation but also critically act upon it. In so doing people become aware of their capacities and powers. Researchers have referred to similar thought as “empowerment” (e.g. Foster 2011; Wamala 2012). Co-intentional education happens when both teachers and students have the role as teacher and learner. A learner must have a chance to perceive what is to be learnt (Freire 2000) (“what is in it for me?”). Svensson & Östlund (2007) suggests a similar view on learning using ICT: such a setting should encourage a learner to explore multiple roles and perspectives, not only provide one “correct” view. In addition, a learning environment should permit teachers and students learn interactively and “not just a didactic role telling students what they need to know” (Svensson & Östlund 2007; p. 40).

Positive results cannot be expected from an educational or political action programme which fails to respect the particular view of the world held by the people (Freire 2000). Cooperative learning is a philosophy that implies an attitude which emphasises collaboration based on mutual respect in life. It also emphasises the individual performance of every member of the community (Óhidy 2008; p. 90). Cooperative learning is critical for lifelong learning and can be referred to Freire’s (2000) co-intentional learning, but also to Allwood (1980) in that a communicative event should be taking place in an equal power relation between the persons involved. Hence, for lifelong learning in CRCs to become true, such settings must respect the particular world-view held by its intended users to expect positive results in lifelong learning.

**Everyday life:** “Everyday life” is part of “lifelong learning”. Learning must be understood as a way of living to capture how it affects knowing practices in work organisations (Antonacopoulou et al. 2005) and in other settings of life, such as personal life (OECD 1999; Öhidy 2008). Studies that focus on lifelong learning should therefore strive to study people’s everyday-life and perspectives of life. For instance, what is important to them or what affects their opportunities as they conduct themselves through life.

Learning is the daily ongoing process that is interwoven in and inseparably connected to the daily processes of work (Antonacopoulou et al. 2005; p. 3).

**Create opportunities:** Two things are needed for the accomplishment of lifelong learning: “motivation to learn and interest” and “different competences” that help in the realisation of learning (Óhidy 2008; p. 49). An important aspect missing is the “opportunity” to learn. This shortcoming seems fundamental in the literature. How to motivate the learner is emphasised but rarely how to create learning environments or opportunities for all.

According to Chapman et al. (2006), barriers that impede access to lifelong learning could be categorised as personal and societal; barriers confronted by providing agencies; and barriers confronted by the sector as a whole (Chapman et al. 2006; p. 155).
**Barriers to learning:** Personal barriers can be related to how a person lives or has lived their life. A person’s life story may affect how this person perceives all things around them. These barriers are not necessarily negative. A person may be satisfied with what they have achieved and what opportunities are available. In contrast, a person may not be aware of how to tackle the challenges facing their community. This view of barriers is closely related to the ontological notation of experiences suggested by Kaipayil (1995, 2002) (see chapter 3).

These barriers, however, are not one-dimensional...They often interact with one another to create complexly interlocked patterns [sic]. Rural isolation, for instance, cannot simply be reduced by providing better transport facilities. Redressing the situation may require changing people’s attitudes towards themselves and their fellow citizens and structuring opportunities for them to work together on matters of both community and rural significance Chapman et al. (2006; p. 156).

### 2.2 Social impact and stressors

#### 2.2.1 Social impact

Attempts to classify types of social impact have been made. Vanclay (2002) draws on several types of social impacts from a significant number of studies, among them the social impact variable lists of the *Interorganizational Committee on Guidelines and Principles for Social Impact Assessment* from which I have singled out the following:

- “Social” is broadly defined.
- Developing lists of specific social impacts or providing operational definitions of their variables is difficult.
- A reluctance to provide variable lists exists, which is rooted in a belief that everything is always dependent on a specific setting and unique.
- Impacts are categorised or grouped differently.
- Focus on negative impacts.
- Impacts are described in ethnocentric terms.
- Wide discrepancies about what constitutes social impacts.
- The Interorganizational Committee’s list emphasises empirical measures.
- Many of the listed indicators indicate the characteristics of a community and whether or not the community is likely to experience impacts.

Vanclay (2002) discovered that many critical social impacts are missing from the Interorganizational Committee list, for instance occupational health and safety issues. From the literature review on “social impact” I came to the same conclusion, i.e. the terms “social” and “impact” are not commonly or explicitly defined. The rest of this chapter will therefore discuss the social impact concept and its connection to the stressor term along stipulative definitions.

van den Berg & Jiggins (2007; p. 667) ask; who defines impact? Going through the items with “impact” in the title using ScienceDirect’s database, I become aware
of the shift in the use of the term that has occurred over the past two centuries. In the 1800s, *The Lancet* and the *Journal of the Franklin Institute* dominated, and worthy of mention is also the *Proceedings of the Geologist* with a few articles. This is by no means surprising in view of these three journals’ remarkable age. Whilst journals in medicine are most dominant, the spread was wider during the 1900s, including a journal outside medical sciences, *World Development* with more than 2000 articles. In the 2000s, it is in the journal *Value in Health* that the most active use of the term “impact” is found, with more than 11,000 articles. Reading the articles in *World Development*, I notice a considerable increase in the use of the term from three to seven items per year between 1992 and 2006 to 11 to 15 articles per year between 2007 and 2012. Articles from 2006 devote little or no space to defining and problematising the concept of impact. One reason could be that because the articles are published in the same journal, the authors (and reviewers) assume the readership has a common understanding of impact as a concept and phenomenon. Instead, the phenomenon that links or relates to the impact is explained or defined.

The use of the term “impact” can be tentatively divided into nouns, adjectives, and verbs, and the use of the term as an adjective increased significantly from 2006 to 2007. Examples are impact in terms of causal, differential, distributional, dramatic, ecological, experiential, immediate, local, long-term, potential, serious, socio-political, technological, and unintended, if only to mention a few. Humans (e.g. producers, workers, population), artefacts (products), and non-material things (e.g. law, use, processes, health, economy, state) can all be assessed in terms of impact. A slight difference between 2006 and 2007 may have occurred. In the later year, a more careful theoretical discussion on impact and how to measure impact took place. van den Berg & Jiggins (2007) devote a subsection to defining “impact”, claiming that there is no definition of impact set in stone. The definition depends on the context, for example a project’s objective. If so, what do we know about the project? What does it attempt to achieve? These and similar questions are important to answer in order to understand what type of impact is to be defined and what should be considered an impact.

Impacts have been divided into immediate (direct/short-term), mid-term, and developmental (indirect/long-term) (Vanclay 2002; Coudouel et al. 2006; van den Berg & Jiggins 2007; Middleton 2007; Pryor 2007; Beasley et al. 2009; Ollo-López & Aramendia-Muneta 2012), though, immediate - on which this research focuses - and developmental are most commonly measured. Developmental impacts may take a longer time to materialise. For this reason, assessing immediate impacts tends to be easier than assessing developmental ones (Coudouel et al. 2006). Another reason for my focus on immediate impacts is because of the short time period within which the studies were conducted (van den Berg & Jiggins 2007). The Digital Villages Project combines an approach to information systems management and learning/education, which also compounds “the difficulties in assessing and measuring impacts” (van den Berg & Jiggins 2007; p. 666).

It is difficult to estimate the future impact or potential impact of development interventions as an impact is affected by a multitude of elements of the community environment. Moreover, measurements of the immediate outputs of a development intervention permit consideration only of the direct effects on its users. The impact upon portions of the community not involved directly with the intervention must also be considered if its total effect is to be evaluated (Kruschwitz et al. 1969; p. 37). Social impacts are often bound to specific settings that are dependent on the social,
cultural, political, economic, or historic context of a community.

Ambiguity associated with impacts and an asocietal mentality has led to a focus on measurable impacts as those related to economic or political indicators such as population change and job creation, or use of services (Vanclay 2002).

Why do a significant number of researchers and contributors, including Vanclay, have such different opinions as to what constitutes social impacts? This is worth attention as it may hamper and affect a development intervention or programme significantly and, in extreme cases, make the addressees suffer as a consequence. One answer comes from the review of articles in the journal World Development. Generally, these articles do not define the term “impact” adequately or they simply do not define it at all. It is a commonplace for researchers to define terms and concepts in their own way, or simply use terms in ways they find currently appropriate. Reading Vanclay it is obvious that the Committee for Social Impact Assessment find themselves most eligible to set the agenda for what is social impact, which relates, again, to who defines impact. Changes within a population are not considered a social impact but a social process (Vanclay 2002; Webler & Lord 2010). Social impacts must be experienced or felt (Vanclay 2002).

2.2.2 Relation of stressors to social impacts

The use of the term “stressors” allows a researcher to describe what effects a certain social impact. Webler & Lord (2010) show this adequately in their study on the human dimensions of oil spills and spill response (Figure 2.2). Note, however, that Webler and Lord in their article use the term “human impact” while I use the term “social impact”. This is because this research emphasises the human in social settings. Webler and Lord in their study draw on social impact assessment to learn about the human dimension impacts of stressors associated with oil spill, which, in their case, lead to the action of closure. The impacts from this closure are in Webler and Lord divided into intermediary processes and human impacts.

![Figure 2.2: Stressor acts to produce human impacts (Webler & Lord 2010; p. 726)](symbol_legend.png)
Sometimes a specific action leads to a number of paths or decisions. In this case, due to the closure there is only one decision, i.e. stop fishing. As a chain reaction, the oil spill and its effects lead to a number of events or consequences, not only for the fishermen, the company, or any other immediate interested party, but for the whole community or society. As examples reduced health and standard of living or quality of life are suggested.

Physiologically, stressors are experienced individually. What is a stressor for one individual might not be a stressor for another. This makes it difficult to conclude whether or not certain stressors may do harm or good. One example is someone’s emotional state. While emotional state may help this someone in an effort, for instance, to complete a task, the observationally same state or stressor may prevent someone else from completing the same task. Physiologically, stressors include exercise, fasting, fright, temperature changes, infection, disease, and emotional disturbances/situations (Waugh & Grant 2006).

Webler and Lord distinguish intermediary processes from human impact (i.e. social impact). In physiology, the corresponding terms would be “immediate response” and “long-term response”. Immediate response can be exemplified by “fight or flight”. In Webler and Lord “fish in other areas or stop fishing” is used. Each choice leads to different immediate and long-term impacts. According to my reading, Webler’s and Lord’s “stop fishing” caused by oil spill is not a social impact, but a social change that may lead to an immediate and developmental impact. Change and impact in Webler and Lord, however, are not clearly separated but is related to intermediary processes. “No fishing” is a social change that can lead to “reduced income”, which is an immediate social impact. “Reduced perceived quality of life” is what I refer to as a development social impact. Nevertheless, the figure details fruitfully the practical consequences of each concept. For instance, fishing closure does not necessarily mean a total stop of fishing, “fishing in other areas” may be possible too, which to a certain degree makes their illustration iterative.

### 2.2.3 Understanding what drives or restrains a stressor

From the previous subsections we learnt that there might be a certain relation between a stressor, social change, and social impact. It would be fruitful, then, to discuss what internal or external forces may be involved in driving or restraining towards a maintenance or improvement of the condition of a social entity, or even aggravate it.

For this research, Lewin’s *force field analysis* was drawn from. Lewin during the 1930s and 1940s, drawing from a behavioural perspective, developed within his field a theoretical approach that he termed force field analysis (Lewin 1943). Lewin takes into account driving and restraining forces. Driving forces lead to change (locomotion) that can be restrained by various dimensions of communication (e.g. internal or external tools). Hence, by analogy with the stressor case, a Lewin force may aggravate or maintain the condition of a social entity or it may push it towards improvement. What is a driving or restraining force to someone can be the opposite to someone else. As this happens we may see a conflict of interest among individuals or within someone. Lewin refers to these conflicts as a “conflict situation”. A conflict situation is formed by biological, social, and physical principles and exists because people must conform to certain standards (e.g. situations, values, regulations) (Lewin 1943; Bleed 1997). Conflicts can happen in all directions and between all types of force. A common
conflict described by Lewin occurs between driving forces, which is often referred to as a choice. A person may have to choose between two apparently equally positive or negative choices. Three other terms in Lewin’s theory are:

- **Induced forces** (correspond to the wish of another person, commonly in a family relationship, for example, the child’s mother might want the child to do something)

- Forces corresponding to **own needs** (a person’s own wish or need)

- **Impersonal forces** (correspond neither to a person’s own wish nor the wish of another person).

Although Lewin’s force field analysis has been used in this research as a source of inspiration, criticism has been raised against it. Acknowledging two forces only – the driving and the restraining – has been seen as a simplified picture of the reality (Doherty et al. 2010).

### 2.3 Summary, definitions, and relevance of the thesis

Whilst there were limitations in the selection of literature, the literature review did not support an alternative African view or perspective of lifelong learning. One reason for this may be that most studies were conducted by researchers at Western universities. A majority also used the formal education as setting to study lifelong learning. The claim made here is that the initial definition of lifelong learning will serve throughout this research, namely: lifelong learning is all types, settings, and levels of learning, education, training, and self-development activities of individuals, whatever their previous level of educational attainment, which will equip them to cope with the challenges of economic, social, demographic, and technological change. In spite of this, the literature gave rise for understanding lifelong learning as an activity and an object: “a phenomenon becomes an object of activity as it meets a need of the subject” (Jonsson 2004; p. 34). The lifelong learner uses ICT only to mediate this activity. In other words, although ICT plays a crucial role in lifelong learning, we need to understand technology as part of the larger scope of human activities (Kaptelinin & Nardi 2009) to realise the nature of lifelong learning.

Lifelong learning is mainly studied in relation to a country’s formal educational system. All the three settings of formal, non-formal, and informal learning are, nevertheless, suggested to be integrated in lifelong learning. Co-intentional and cooperative learning are critical for lifelong learning.

The following lifelong learning settings are used in this research (Figure 2.3): CRCs (non-formal), private (e.g. home), and public settings (e.g. library), and everyday life.
Figure 2.3: Lifelong learning settings in this research

The literature review suggested that the border between “social impact” and “social change” is fuzzy. Reasons may be the lack of proper definitions of the terms or concepts behind them and that researchers tend to use the terms interchangeable. The concepts of social impact and stressors in this research were used as tools to conceptualise what affect the social impact of ICT in lifelong learning on disadvantaged women. Paper 1 was the primary paper used to identify stressors, but paper 2-6 were also used for the purpose. The most pervasive stressors and social impacts were identified, singled out, and then categorised in paper 5.

Drawing from Becker (2001) and Vanclay (2002), in this research, social impacts are all future consequences of a current or proposed action on humans, be it related to individuals, the household unit, social organisations, or social macro-systems. A social impact may be corporeally felt, perceptual, or emotional (Vanclay 2002).

Drawing from Webler & Lord (2010), in this research a stressor is a force that causes a positive or a negative consequence. Furthermore, a social entity (e.g. an individual or a group of people) is more or less likely to:

- encounter a stressor (exposure);
- be impacted from the encounter (sensitivity);
- resist or cope with the encounter so as to maintain or improve its condition (resilience).

Mainly two forces – driving and restraining – are involved in terms of whether or not a movement will occur.
3 Research approaches

The research settings, strategies, and data collection methods used to carry out the research are highlighted in this chapter. A major weight is laid on observations and interviewing techniques. Finally, a subsection about credibility is included.

Case study and participatory action research (PAR) were used in paper 1 to answer research question (RQ) 1 (Table 3.1). To answer RQ 2, case study was used in paper 2 and 4, behavioural archaeology as an analytic possibility in paper 3-4, and a combination of qualitative and quantitative data were used in paper 5. To answer RQ 3, a combination of various and different techniques such as interview guide, life story interview, and content analysis were used. This chapter further details the research approaches.

<table>
<thead>
<tr>
<th>Research question</th>
<th>Strategy/method</th>
<th>Analysis</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using a specific learning academy in rural setting as a case study, what everyday-life experiences do the women portray?</td>
<td>Case study, PAR, individual interviews, focus-group interviews, observations</td>
<td>Descriptive, quotes, content analysis</td>
<td>1</td>
</tr>
<tr>
<td>2. What behaviours that affect the social impact of ICT in lifelong learning on disadvantaged women in community resource centre establishments are exhibited in the chosen subsocieties?</td>
<td>Case study, interview guide, individual interviews, observations</td>
<td>Application for qualitative analysis, descriptive, quote</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Theoretical, empirical studies, interview guide</td>
<td>Behaviour archaeology, application for qualitative analysis, descriptive, quote</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Case study, interview guide</td>
<td>Behavioural archaeology, Comparative analysis, application for qualitative analysis, descriptive, quote</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Qualitative, quantitative data, literature studies</td>
<td>Descriptive, quotes, comparative analysis</td>
<td>5</td>
</tr>
<tr>
<td>3. How do immigrant women reason about the use of ICT in lifelong learning?</td>
<td>Interview guide, individual interviews, focus group interviews, life story, observations</td>
<td>Descriptive, quotes, application for qualitative analysis, content analysis</td>
<td>6</td>
</tr>
</tbody>
</table>

3.1 Research settings

This subsection presents the physical environment within which the research was conducted. This description should allow a reader to visualise the setting (Patton 2001), hence a few pictures are included. A specifically focus is put on Kenya in this research and is therefore presented in greater detail than the other complementary settings of Bolivia, Cameroon, Sri Lanka, and Sweden, including a brief historical description (Patton 2001).

3.1.1 Kenya

Kenya, in East Africa, extends to 580,367 square kilometres, with a total population of 43 million in 2012 (CIA 2012), of which around 78% of the population live
in rural environments (Brass & Jolly 1993; Sida 2010). Whilst Kenya’s major languages are Swahili and English, a large minority of the people in the country do not have more than a basic proficiency of Swahili and none of English (Ismail & Deane 2008). Swahili has been used as a national language since around the mid 70s and is extensively used in primary and secondary education. Students that pursue tertiary education are forced to switch to English in most academic disciplines. This might be because most bureaucrats are not native in Swahili and prefer English. This tendency is likely to grow. Despite the growth of tourism and promulgation of Swahili for nation-building, there is not much evidence of Swahili being an accepted language. Similar tendencies have been uncovered in various literature (e.g. Eastman 1995). Wright (1998) discusses the term “politicisation of culture”, i.e. showing up a group’s culture usually so marginalised for commercial interests only and cover it otherwise. The country has around 40 to 45 tribal languages (Hungi & Thuku 2010; Sida 2010; Embassy of Sweden 2010; Government of Kenya 2009) and more than a hundred languages and dialects are spoken (Ismail & Deane 2008). Five ethnic groups are dominant, namely Kikuyu, Luhya, Luo, Kalenjin, and Kamba, which make up more than 70 % of the Kenyan African population (Nelson & Kaplan 1983; p. xiv). The demography of the country makes considerations on land and sea accessibility important (Figure 3.1).

Figure 3.1: The Likoni Ferry, a symbol for Coastal Kenya, does not charge people and is important for businesses and social relations with the island city of Mombasa and other mainland towns (photo: David Hallberg, 2012).

Colonial period: In her book Colonial Inscriptions: Race, Sex, and Class in Kenya Shaw (1995) illustrates the position of women in Kenya in the 1930s, referring to the writing of, among others, Louis Leakey (1903-1972), British by origin, and Jomo Kenyatta (1889-1978), Kenya’s first president, two well-known and influential ethnographers in Kenya. In the outlines below the group or tribe called Kikuyu is used as an example.

The total amount of labour was, more or less, divided equally between women and men during this time period. What men or boys could not engage in, however, was the labour concerned with ”cooking, washing utensils, or fetching firewood and water without ’scandalising’ the women” (Shaw 1995; p. 34). Despite this, women could attract those men who would be useful in order for them to maintain and increase their own power, which was a win-win situation. For instance, apart from cooking labour
men would also be dependent on a woman’s and his own ability to produce offspring.

In general, women in colonial Kenya are described as metaphors, oppressed in terms of labour and sexuality, and as a weaker sex with no control over their own actions (Shaw 1995; Hynd 2012). Women’s sexuality was used as a canvas for men to define their own power (Carotenuto 2012). However, women did not generally seem to fight back against this kind of oppression (Shadle 2012).

**Post-colonial period:** The Colonial period in Kenya ended in 1963 after about 60 years. This period gave rise to what Kenya is today, including gender inequalities (Shaw 1995).

**Information and communications technology:** According to Bowman (2010), the first submarine telecommunications cables connected Kenya to the outside world in 1888. The first mainframe computer was installed in Kenya in 1961. In 1993, the Computer Society of Kenya created a draft for an “informatics” policy. The striving to introduce computers and information technology was not seen in positive terms by the Kenyan Government. One of the most popular measurement in the context of information technology security has been “trust” (Yngström 1996). Trust or, rather, lack thereof, can be said to be a main reason why the Kenyan Government’s position was that computers should not be used:

The official position was that computers might cause a loss of state secrets or a threat to national security. As a semi-authoritarian regime, the Moi government likely viewed computing technology as an alternative information source, and a potentially damaging tool in the hands of the increasingly powerful opposition. In addition, President Moi publicly stated that he believed that computers would take away jobs (Bowman 2010; p. 93).

This opposing of ICT policy in Kenyan history led to Kenya lagging behind its regional neighbours’ ICT policy development (Bowman 2010; Kenya ICT Board 2010b). Caused by late achievements in participation, the Kenyan Government did not succeed in reaching the citizens outside of Nairobi and it largely failed to provide rural environments with ICTs (Bowman 2010; Kenya ICT Board 2010b).

**Learning and education:** While 20% of the mothers have never been to school and 21% reach secondary school, indicators show that the higher the mother’s education the better the children’s literacy (Wamai 2009; Sida 2010; Uwezo 2010; Embassy of Sweden 2010). Educating girls and bringing women into the workplace are two of the most effective ways of fighting poverty, marginalisation, and underdevelopment. Education alone may not produce change, but other hindering barriers to development must diminish as well, for instance participating in the basic tenets of democracy in a meaningful way. Although such initiatives and policies exist, the infrastructure needs to be revised in terms of learning institutions, healthcare facilities, and transports.

Another factor that impedes development is the top-down approach in terms of development, which is inspired by the West. It takes advances in science and technology in a way that is not suitable for African or Kenyan settings. Instead, a bottom-up approach is desirable where all components of society are considered, enabling citizens to direct their own development (Mwanzia & Strathdee 2010). It is therefore vital to provide education that meets high standards of quality, whose contents are relevant to the needs of the economy and society. The EU stresses that it is particularly important to ensure that the entire population is included in such efforts, especially those
groups that are particularly vulnerable because of “educational disadvantages caused by personal, social, cultural or economic circumstances” (Fontelles & Enestam 2006). Similar conclusions have been drawn elsewhere (Wilson et al. In preparation,).

Apart from inequality in education, it is well recognised that ICT when applied is not gender neutral (Brady Aschauer 1999; Terry & Gómez 2010). Nevertheless, Tembo et al. (2008), proposing an econometric model of ICT use in agriculture, stress that telecentres in Uganda have made a great difference due to their commitment to gender and women.

Mbarika et al. (2007) conclude that women are highly optimistic, embracing ICT as a tool to enter the labour market. This means that ICT and information systems such as digital villages can make differences for women in terms of strengthening their situation and would therefore be worth using as a means in lifelong learning (?).

Wane (2001) provides a comprehensive picture of the everyday-life experiences of rural women in Kenya, referred to by the author as the indigenous knowledge of Embu rural women. Wane’s findings show a male-dominated society. Wane advocates that if ICT is to assist lifelong learning it has to be designed taking into account how these women live their everyday lives in order not to exclude any citizens. Furthermore Wane claims:

> There is a need to create places in which indigenous knowledges can be taught, in order that indigenous communities might continue to survive. Indigenous technologies, understood as a counterhegemonic discourse, would enable African women to reclaim their knowledge and identities (Wane 2001; p. 406).

### 3.1.2 Paper 1: Project Africa, Lunga-Lunga, Kenya

For this paper, Project Africa’s Adult Literacy programme for rural women was used as a case study (Figure 3.2). Project Africa is a non-profit organisation established in Kenya with the aim of strengthening the situation of women and girls in deprived environments, mainly in rural areas. It uses a blended learning mode to educate and inform, and for enterprise development. The project is mainly directed towards rural women in Kenya with synergies in other parts of Africa.

![Figure 3.2: The setting of the Women’s Academy, Project Africa, Lunga-Lunga, Kenya (Photo: David Hallberg, 2009; 2010)](image)

The decision to start in Kwale was taken early (Cohen et al. 2007; p. 100). Lunga-Lunga is strategically located in many senses: one of the main borders with Tanzania goes through Lunga-Lunga. This means it is influenced by both locals and people from...
across Kenya as well as from Tanzania. This also means there are workmen’s dwellings constructed for truck drivers. Partly because of its location and such political arrangements (c.f. Bleed 1997; Winner 1986) this environment has become a market for commercial sex work. Lunga-Lunga suffers significantly from sexually transmitted diseases (STDs), has a high rate of illiteracy, a high rate of uneducated women, and is highly male dominated. In addition, Lunga-Lunga has a poor infrastructure in terms of transport and ICT. This infamous part of Kenya has also been noted by other authors (Clarke 2007; Sittoni 2006). This gave us a rationale (Randolph 2008) to use Project Africa, Lunga-Lunga as a case study to learn more about what stressors affect the use of ICT in lifelong learning.

3.1.3 Paper 2-3: Kenyan Digital villages

For these studies four digital villages under the Kenya Digital villages Project were visited as described below.

**Kangundo Blossom, Eastern Province** is located in Kangundo town. It is a centre with 14 computers. It has three employees. Apart from providing the public with access to e-government services it provides training, scanning, printing, and Web-design classes, and services to the community. It trains and teaches students at the centre. The age bracket found at the centre, which had a majority of females, was approximately 18-25. The centre serves schools in the area, especially colleges with information with the use of e-books and other ICTs. Most university students across the area use the centre for research and assignment purposes. The centre also serves the community with information about agriculture. The centre plays the role of disseminating information to the community in that it prints out posters about social events, activities and other information, e.g. religious events. Its biggest drawback is a lack of power, especially when it rains. One of the entrepreneurs has bought a generator and is planning on buying modems as a backup plan to the Internet services provided.

**Malindi Ynet International, Coastal Province** is located near a tourist area. The centre is placed in the town centre for people to access the services conveniently. The centre offers ICT training and education. It is the only centre that is linked with the founders and still uses their services. The centre offers other services like scanning, photocopying, lamination, fax services and making of international calls. Employees are well acquainted with the local language for communicating with those who do not understand or speak Swahili/English and want to access the services. The centre enjoys a relatively steady supply of power and therefore power failures are rare. On such occurrences, a generator backs up the centre. The centre and community face issues regarding STDs and prostitution to a notable extent.

**Meru Centre, Central Province** is located in Meru town. The centre offers ICT services. The youth are conversant with the centre, which means an age bracket of 15-30. The ratio between females and males who utilise the centre would be around 50:50. The economic activity of the town is mainly farming and the Government’s ICT services have not been fully utilised. Just like all the other centres, the use of Pasha is limited to those who take a keen interest in it and have the logins to be able to
access it. The centre plays the role of disseminating information to the community as it has posters inside about community events and it does printing for the community. Training, such as basic ICT training, also takes place.

The Mukuru Promotion Centre, Nairobi Province is a strategically positioned centre with about 14 computers and several employees (Figure 3.3). The centre only provides Pasha (the Government’s web portal) services for the students.

![Figure 3.3: The Settings of Mukuru (the picture is representative of many deprived environs in Kenya) and Mukuru Promotion Centre (Photo: David Hallberg, 2011)](image)

The centre is located in an enclosed environment. There are no other users except the students who study within the centre and persons affiliated to the centre. The centre has a manager but is owned and mostly managed by nuns. The centre is located in a school for the less fortunate and therefore all the users come from the deprived environments around the centre. Apart from one male user, all of the users at the time of the study were females. The centre deals with youth mostly. Most of the students use the portal to study hairdressing. The age bracket of the female users is from 12 to 30.

3.1.4 Paper 5: Adding Bolivia and Sri Lanka

This paper is a comparative study, which includes three new settings of CRCs as described below.

ACSHA Telecentre, Achocalla, Bolivia belongs to a community that works with organic products. The telecentre was formed by the Association of Ecological Producers of Bolivia (AOPEB) and is located on the outskirts of La Paz in the municipality of Achocalla (Figure 3.4). The AOPEB is an agricultural organisation which encourages farmers in the cultivation of organic products. Part of their programme is to work with the implementation of telecentres and to provide integration tools within the programme.
Antofagasta Telecentre, Challapata, Bolivia  works with ICT as a tool for students’ educational training. The telecentre is supported by the non-governmental organisation Education, Information and Communications Technology (EDUCATIC). This telecentre is located in the premises of the School of Antofagasta and is located in the periurban village of Challapata.

Computer Training College, Kirindiwela, Sri Lanka:  The Government gave one of the owners, Mr. Sampath Karunanayake two computers and Internet connectivity to start this particular telecentre in 2007 (Figure 3.5). He together with his wife Mrs. Dilini Karunanayaka and run Computer Training College (CTC), which is an extension of two previously started centres. All three centres therefore build a network. The managers do not explicitly collaborate with other CRCs in the area, although they may know each other. In total, they have 6-8 persons working with them. CTC has two main activities. It provides education and educational aid for clients, who are adults and youths. It also has a straight business purpose, offering reparation and sale of computers. It is therefore possible for the managers to allow students to make use of in services without payable fees. Instead, they use the money generated from the business part to keep CTC sustainable.
3.1.5 **Paper 4: Adding Cameroon**

This paper includes the setting of YNet in Kenya and a telecentre under the Martin Luther King Jr. Memorial Foundation (LUKMEF) in Cameroon as described below.

The community telecentre project is situated in Menji, in the department of Liebalem in the South Western region, and has a population of about 43,000 (Figure 3.6). The area is isolated, with rugged, unpaved roads. This is a major concern for the manager of the telecentre, as the locals find it difficult to reach the centre. However, there are facilities such as a clinic and a prefecture school. Almost the entire population in this area lives off agriculture. The telecentre is referred to as a multipurpose community telecentre, financed by the Enhanced Heavily Indebted Poor Countries Initiative (EHIPCI). The project is also part of the project 100 Télécentres Communautaires Polyvalents (TCP) founded by the Cameroonian Ministry of Posts and Telecommunications.

![Figure 3.6: The settings of Menji and the LUKMEF telecentre (Photo: Carole Godem & Franck Ngahane, 2010)](image)

3.1.6 **Paper 6: Sweden**

This study was carried out in three districts of Sweden as a complementary perspective to the other studies (Figure 3.7). In contrast to the other settings of this research, Sweden is considered an OECD country (OECD & WTO 2009). Digital literacy is considered important in most situations, including social relations, work, learning, and everyday life (SCB 2013). The participants were interviewed and spoken with in public libraries, youth recreation centres (swe. “fritidsgård”), public schools including the adult education programme of Swedish tuition for immigrants (SFI), shopping centres, and churches. One of the schools, S:t Olofsskolan, has arranged a resource centre called The Meeting Place (Swe. “Mötesplatsen”). This resource centre is similar to the Mukuru Promotion Centre in Kenya: integrated with the regular school and it is solely for the students there. Most of the time there are staff available to help with the equipment, which includes computers, a television, copier, and projector. In this resource centre informal discussions and observations were conducted.
3.2 Research strategy

In what follows the four research strategies of participatory action research, case study, behavioural archaeology, and comparative education are described.

Participatory action research: PAR is a way of “entering” the world of participants (McIntyre 2000) to better understand what the researcher is to discover (Freire 2000; pp.110-3). The idea is that the participant’s sharing of their stories gives a researcher insight into their experiences and the issues facing them in their everyday lives (McIntyre 2000). With PAR also come challenges but also privileges. Facing diverse communities, gaining knowledge from groups not necessarily representing Western world-views, values, and interests of dominant groups, and privileging of local voices, local culture and local wisdom are some of the traits of the PAR approach (Smith et al. 2010a; p. 408). Kamali (2007) stresses:

[M]y aim was to carry out an inquiry that was participatory, gender-sensitive, and a learning process for all participants...[D]uring the course of conducting the pilots, I gradually realized that gender issues are not, and should not, be limited to women, and that men’s attitudinal change in relation to gender should be considered on a par with women’s issues (Kamali 2007; p. 108).

For McIntyre (2000), whose study reflects a group of young adolescents negotiating their daily lives, three main principles guide most PAR projects:

- The collective investigation of a problem
- The reliance on indigenous knowledge to better understand that problem
- The desire to take individual and/or collective action to deal with the stated problem

A significant difference between PAR and other research approaches is that the former is conducted with community members rather than on them. The interpersonal setting in which PAR takes place offers participants an opportunity to explore their own sociocultural locations. In reporting from a PAR project the author is largely left up to their own devices regarding how to guide a reader through (Smith et al. 2010a). PAR is suited to emphasising dialogue and participation and addressing issues about education and social change. Apart from being participatory, PAR is characterised
by criteria such as engaging community members and researchers in joint processes, being co-learning driven (c.f. Freire 2000), and processes that encourage individuals to strengthen their situation. PAR, using qualitative interviewing methods, can be a powerful means of uncovering a breadth of opinions, attitudes, and feelings on a controversial topic. It can also contribute well to individual and community capacity building and local or “indigenous” knowledge (Minkler et al. 2002; Genat 2009; p. 103).

PAR may be combined with a case study approach (Kamali 2007). Kamali describes how researchers were involved in a case study prior to a PAR to uncover factors affecting two-way communication. The findings from the case study and the enquiry process adopted formed a basis for the two pilot projects undertaken as PAR.

**Case study:** While there is no standard definition of what a case study is, this strategy has been explained as examining a phenomenon in its natural setting and employing multiple methods of data collection to gather information from one or a few entities (Benbasat et al. 1987; Merriam 2010; p. 370). The findings from the case studies may be generalised (Patton 2001; Eisenhardt 1989; p. 93) and serve as theory development to initiate further statistical studies:

A number between 4 and 10 cases usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing...With more than 10 cases, it quickly becomes difficult to cope with the complexity and volume of the data (Eisenhardt 1989; p. 545).

The multiple case study strategy enable the exploration of diversities within and between the cases. The goal is to compare findings across cases to understand variances and similarities (Baxter & Jack 2008; p. 548). Although the decision to use a case or multiple cases may not be clear-cut, the following issues can be singled out so as to understand why this strategy may be chosen (Benbasat et al. 1987; Baxter & Jack 2008):

- Case methodology is clearly useful when a natural setting or a focus on contemporary events is needed;
- When boundaries are not clear between the phenomenon and the setting;
- When subjects or events are not to be controlled or manipulated in the course of the research project;
- When the researcher and other contributors are primary instruments of data collection and analysis;
- When the focus is on understanding phenomena from the perspectives of those in the case.

**Comparative education:** Comparative education is a field where scholars from various disciplines cover educational matters in comparative settings using quantitative or qualitative research methods (Fairbrother 2007; Bray 2007a), be it in a developmental perspective (King 1967). 5. Academics undertake comparisons to enhance the understanding of processes in different settings, and of the impact of processes on social

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and other development (Bray 2007b). Indicators from comparative education provide countries to observe their performances in the light of other countries’ performances or observe them within a country over time (OECD 2004). Cross-national databases have facilitated an approach to comparative education (Ramirez & Meyer 1980). The number of units for comparison differs depending on the depth the research wants to achieve. While a low number of units may provide richer data a larger number of units, which may provide shallower data, may have advantages related to methods. For instance, the collection of data from multiple settings can increase the number of variables available for analysis and provide benchmarks for interested parties (Bray et al. 2007b).

One weakness revealed by Bray et al. (2007a) was the difficulty of ensuring comparable samples. Misuses of the word “comparative” have lead to confusion over whether a study actually can be called comparative. To clarify this, comparative education covers academic, analytical, and scientific aspects of the field, while international education, which has also been seen as comparative education by researchers, is related to cooperation, understanding, and exchange elements (Bray et al. 2007a).

Comparative education as a tool was used in papers 4-6. In paper 4 a comparative case study approach was used jointly with a behavioural archaeological approach to enable exploration of the behaviours among managers embedded in technology adoption and usage in two settings in Kenya and Cameroon. Comparative education was employed in paper 5 to scrutinise the relation between lifelong learning, ICT use, and women in four settings of CRCs. We defined women as being located in Kenya, Bolivia, Cameroon, and Sri Lanka and in particular regions and settings within these countries. In paper 6 comparative education was used to explore the reasoning and use of ICT by immigrant women with respect to integration and lifelong learning in Sweden compared with the country of origin. Using comparative education helped me to gain a deeper “knowledge” about the “known” (Kaipayil 1995).

Behavioural archaeology: As suggested previously, social informatics is related to behavioural information systems research (Kling et al. 2005). To develop the field, it was also suggested that researchers within social informatics should try theories not commonly used within the field (Sawyer & Tyworth 2006). In order to capture attitudes and behaviours vis-à-vis the use of ICTs, this research suggests a contemporary approach to behavioural archaeology be drawn from by using it as a strategy and an analytical possibility in social informatics. Combining this possibility with comparative education can be referred to as an “interdisciplinary study of the findings” (Freire 2000; p. 113), which is essential to become critically aware.

Behavioural archaeology has the potential to provide insight into the appropriate design of CRCs for effective ICT adoption and diffusion. Behavioural archaeologists define human behaviour (Hodder 2001) in relation to material culture, which often implies an interest in how, why, when, and where people use or made use of artefacts. Behavioural archaeology recognises what happens when actors with all their knowledge, skills, and resources – or lack thereof – embark on changing the world with artefacts. The concept of behaviour, which includes humans and artefacts, mediates ecological, social, and cognitive processes. Apart from an artefact as a concrete result of human activity, technology is a critical focus for behavioural archaeologists, and is therefore useful for researching technology changes and usages (Bleed 1997; Schiffer 2002; Bird & O’Connell 2006). This makes it reasonable to assume that behavioural archaeology has a say in the issue of ICT in a “contemporary past” (Reid et al. 1975;
Buchli & Lucas 2001) as well. The application of archaeological contributions to the most recent past, again, is motivated by the rapidly technological development of today.

The pertaining to a behavioural archaeology in this research was an analytical approach to exploring the establishment of CRCs giving a new angle to the field of development informatics. Behavioural archaeology is an approach not commonly employed in social or development informatics or information systems research. If such a connection is made, it often implies studying geographic information systems in relation to archaeology in one way or another (e.g. Harrower et al. 2002; Nigro et al. 2003; Conolly & Lake 2006). Yet there are exceptions.

A considerable amount of research has been produced on behaviour penetrating the use of information systems. Research questions may focus on user involvement in the success of information system implementation. It has been concluded that “the empirical evidence is mixed regarding the relationships between user involvement, system usage, and user information satisfaction” (Baroud et al. 1986; p. 233). Another study (Hartwick & Barki 1994) focuses on user participation in information systems development. The authors wanted to develop and empirically test a theoretical framework to explain the relationship between user participation and system use by using behavioural theory and theory of reasoned action. They conclude that a core issue was the distinction between participation and involvement. Participation involves behaviours, assignments, and activities that users or their representatives perform. Involvement has traditionally referred to participation in the system development process. In their study they found that although users may find the development of a certain system important and personally relevant, they do not engage more in activities related to its development. The authors explain this as: “Users participate because such participation is mandated by superiors or other members of the organization” (Hartwick & Barki 1994; p. 457). Other key conclusions follow:

• Meaningful participation has the greatest effect on involvement, attitude, and use.

• User participation and involvement seem to be important only for the voluntary users of a system.

• System use is strongly influenced by users’ intentions to use the system. Intentions are determined by both attitude and subjective norm concerning use.

• Early in the information system development process, subjective norm is the crucial determinant (Hartwick & Barki 1994; p. 462).

Involving the users in the system development process can be a moral decision. Thus, a behavioural approach to the development of digital villages and other CRCs can uncover aspects that otherwise are difficult to discover in the development process or usage. Behavioural archaeology was drawn from in paper 3 to discuss tentative ways initially in which to address and improve the Digital Villages Project. This analytical possibility was also used in paper 4 to explore question such as where is it envisaged that CRCs will lead in terms of benefit to communities? What behaviours are exhibited in the establishment of CRCs in deprived environments?
Pre-study 1: I was introduced to the NGO Project Africa in year 2009 in Sweden. The Project is directed towards rural women in Kenya with synergies in other parts of Africa. The overall aim of Project Africa is to strengthen women with literacy skills and vocational training.

The Project effects its work through the help of international mentors, many of whom come from Sweden and Norway and are recruited by Volontärbyrån, a Swedish organisation that works with NGOs to recruit mentors for non-profit missions. According to email communication with Volontärbyrån, approximately 80% of the money received goes directly to the organisations. When mentors are looking for a place they have a chance to give details of preferred location and working area. Assistant project leaders then match mentors with adequate tasks and prepare a programme from them to follow during their stay. Tasks performed by the mentors are usually within education or agriculture.

The focus of the research was on Project Africa’s educational programme in Lunga-Lunga, Kwale County, which is located close to the boarder with Tanzania. The Project in this region is organised as a CRC. To achieve a prior understanding of the Project I met with the founder in the autumn of 2009 in Sweden to initiate discussions during which I gained information on Kenya from her perspective (Freire 2000; pp. 110-3) and the work by Project Africa. In parallel with those discussions, I scrutinised the organisation’s website and social networking site in use.

According to the founder, a primary motivation for starting the Project was to integrate all the nation’s citizens into the Kenyan society. The founder of Project Africa describes this as empowerment. Another key motivation for was also a motivation for me to use Project Africa as a case study was that in late 2009, Project Africa was still facing technical dilemmas in accessing, adopting, and implementing digital resources in aid of its adult education programme for rural women. The education programme was using computers with Internet capacity to enable learning through interaction and socialisation by means of social networking sites. The challenge facing the project, however, as well as building up Internet capacity and overcoming the remaining digital and infrastructural barriers, was how to make language preferences blend with the literacy capacity of rural women in multilingual Kenya.

Pre-study 2: Before I decided to conduct field research I decided to gain more knowledge about Africa in general and Kenya in particular. This was done through the Network for the Coordination and Advancement of Sub-Saharan Africa-EU Science & Technology Cooperation (CAAST-Net). I was invited by the International Bureau of the German Federal Ministry of Education and Research in 2009 to attend the European Commission-supported conference entitled CAAST-Net Stakeholders’ Conference on Africa-Europe Science and Technology Cooperation: Status and Way Forward in Kenya. The conference was held to enhance bi-regional cooperation in science and technology (S&T) through an examination of the nature and role of cooperation processes. During the conference I wrote a short paper (Hallberg 2010b) that communicates research notes and documents from CAAST-Net.

6Since the studies were carried out, Project Africa has been reorganised significantly. Here I describe the organisation of Project Africa as being the time of the studies between 2009 and 2011.

7The websites can be found on: http://www.worldpulse.com/ and http://www.projectforafrica.org/, the latter of which has been modified since then.
Paper 1:  I conducted a PAR prior to the case study in an attempt to learn the culture first. The PAR approach served to form a basis for further research on the issue of experiences in everyday lives among women. For instance, in the PAR study the issue was mainly focused on language barriers because of the implementation of ICT in teaching and learning. In the follow-up study, the focus was rather on everyday-life experiences in general, employing the Women’s Academy as a case study.

Based on the information gained from the founder of Project Africa and the CAAST-Net conference, I planned a first empirical study, which was set out as PAR. Studying the women at Project Africa allowed me to build a ground for what I have termed “stressors”.

The first study at Project Africa was carried out in three steps (the first one being PAR). By dividing the study into three parts, I gained a better overall picture of the setting. In step one, data were collected through focus-group sessions, brief/sporadic and individual discussions, and observation during a walk/drive-around. Observations and questions put centred round the following issues:

- What barriers to communication do the women experience in their everyday lives?
- What do the women reveal in focus-group sessions as major topics with their overseas pen-pals?
- How do the women portray their everyday lives and community?
- What are women’s experiences of the usages and needs of ICT as a tool for education?

Papers 2-3:  These studies explore CRCs in Kenya in a way that calls for a multiple case study. The same strategical procedure was applied to all cases to compare and draw conclusions, but not yet to an extent that it would be possible to state a statistical generalisation (Gibbert & Ruigrok 2010; p. 714). We visited four of the CRCs in Kenya once, three of them twice, and one of them four times, the first time in year 2010, the second time in 2011 and 2012, and the last time in 2013. In selecting CRCs, a list provided by managers and governmental authorities was relied on. Special attention was given to accessibility in terms of location, i.e. being located in different kinds of environments and provinces. It was also important to establish whether or not the centres were operational. A further consideration was the number of centres manned by women.

Paper 4:  The first comparative study conducted in which behavioural archaeology as an analytical possibility was put to the test covered one CRC in Kenya (the Y Net digital village in Malindi) and one in Cameroon (the telecentre of LUKMEF, Menji). The paper in which these two settings were compared applied the frame of a behavioural perspective of technology to examine the artefacts pertaining to community resource centres and the results of their use. At this stage of evolution of the development interventions, the scope of the study was limited. Although it was possible to collect data on some aspects of content and initial results (Bleed 1997), it was not possible to collect data on the results of embedded usage of CRCs. A further limitation is that the study explored only the perspective of the managers of the telecentres, not
that of the users. It is noted that multiple longitudinal studies will be needed to collect the requisite volume of data and depth of insight to enable a full-scale analysis of the benefits to users using behavioural archaeology. In that way the effects of a certain technological behaviour will become clearer. Nevertheless, as in all archaeology, it is important to collect even small amounts of data on rudimentary aspects of evolution, as they offer the foundation for creating a deep knowledge of the subject under study, the nature of and reasons for change, and success and failure in the evolutionary path.

**Paper 5:** As pointed out earlier, ICT is still not as accessible to women as it is to men. Furthermore, ICT in learning and education is strongly related to the crossroads between evidence-based policymaking and the fast-changing world of technology (Johannessen 2009). These ideas suggest a structure around the key concepts of lifelong learning, ICT-use, and women’s situation using CRCs as case studies (Figure 3.8).

![Figure 3.8: Framework of comparative studies](image)

Using the strategy of comparative education we built a framework of comparative studies (Figure 3.8). In doing so, stressors and social impacts were identified and singled out in settings of Kenya, Bolivia, Cameroon, and Sri Lanka. We also wanted to understand what drives and restrains the stressors. The selection of countries originated from previous research carried out at DSV, some of which was in collaboration with SPIDER.³

For this comparative study, I charted data of national indexes and statistics on Kenya, Bolivia, Cameroon, and Sri Lanka by the UN (UNESCO, ITU, UNICEF, World Bank) and OECD. These data represent national, household, and gender levels and are mainly from the year 2010. The data were analysed and, once appropriated, cross-tabbed to better understand cross relations using the application SPSS. In addition, I have used own and others’ empirical material on the same countries to find variances on a regional level and be able to compare the statistics with data from field

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³SPIDER is a resource centre for ICT for Development (ICT4D) at Stockholm University, Department of Computer and Systems Sciences (DSV): http://www.spidercenter.org/
studies. Using combined data I wanted to decrease the risk of misrepresenting the “reality” (Kaipayil 1995) in my interpretations.

**Paper 6:** To place the results conducted in other settings, a study among immigrant women in Sweden was conducted (Figure 3.9). This study explored the reasoning and use of ICT by immigrant women with a secondary education at the most, regarding integration and lifelong learning in Sweden compared with the country of origin. In doing so, four thematic areas were identified (ICT in social relations, work, learning, and everyday-life), which were studied from two complementary perspectives (benefits and barriers).

![Figure 3.9: The relation to previous studies](image)

3.3 **Data collection, analysis, pre-reflective awareness**

Behavioural and social sciences usually count on qualitative and quantitative approaches to data collection and analysis (Wayne 2009). Several data collection techniques are often employed if a study involves multiple research questions (Terry et al. 1993; Cohen et al. 2007). A qualitative strategy emphasises an interpretive approach. It also emphasises categories and meanings developed from data through an iterative process. This process starts by developing an initial understanding of the perspectives of those being studied. Qualitative methods can give rich explanations of how and why processes and outcomes occur (Kaplan & Duchon 1988). A qualitative approach can be fruitful in assessing the conditions of vulnerable subgroups before, during, and after adjustment policies are implemented in a programme (Baker 2000). A drawback with qualitative techniques is that the validity and reliability of qualitative data are dependent on the evaluator. The evaluator must be sensitive to social and cultural norms and practices, and non-verbal messages so as not to misinterpret data (Baker 2000; Cohen et al. 2007; Patton 2001).

3.3.1 **Observations**

In the ideal, observation begins the moment the researcher enters the field setting, where he or she will strive to set aside all preconceptions and take nothing for granted (Angrosino 2007a; p. 38).

In order to observe fruitfully the researcher must leave behind the well-developed screening process that prevent them from recognising things which otherwise are deselected as being not worthy of notice. The researcher therefore has to work hard to see all the many details truly of a new situation (Angrosino 2007a). Time can aid
the researcher in this respect: the more frequently the researcher is in the setting, the more people are likely to take their existence for granted (Jorgensen 1989b). In contrast, a longer stay may make the researcher “become the phenomenon”, which is not necessarily the desired effect (Jorgensen 1989c; p. 62; 64).

It is challenging to complement observations with interviews in public settings and lack of archival backup for a shifting population (Angrosino 2007b). Another shortcoming is; the less the researcher is able to observe, the less they can participate, and vice versa (Jorgensen 1989b). The social location of the researcher is critical: While “[p]eople are defined socially by where they are located in relationships to and in association with other people” (Jorgensen 1989b; p. 53), there is no such thing as a perfect or ideal location or perspective from which to observe (Jorgensen 1989c). It is advisable that the researcher observes using different forms of observation (Table 3.2). The more information obtained about something from multiple standpoints and sources, the less likely that something is misconstrued (Jorgensen 1989c).

Entering the research setting the first time in any research but particularly research conducted in another culture, by conducting unfocused observation the researcher can obtain a “feel” for the setting, perhaps without anyone noticing (Jorgensen 1989b). The researcher can then continue with focused and direct observations once a feel has been obtained (Jorgensen 1989b,c).

Focused observations may help the observer to focus attention on matters of specific interest once being familiar with the setting (Jorgensen 1989c). Such observations can also provide data or information on how someone interact with something in practice, including socio-cultural relationships or lifestyle interact, as opposed to pure theoretical knowledge (Dey et al. 2011).

Direct observation simply means recording behaviour on the sport (Bernard 2006). This form of observing is useful when the researcher has a need of confirming previous experiences and assumptions (Jorgensen 1989b).

Indirect observation, also referred to as “archival research”, includes sifting through people’s belonging or past belongings to understand how they live(d) (Angrosino 2007a). Indirect observation has much in common with “content analysis”. An advantage with this form of observation is that the researcher has a chance to understand human behaviour without the people observed being able to change that behaviour for the sake of being observed. Hence, it is non-reactive (Bernard 2006). Challenges are related to errors in the work of setting down the data, and similar sources of bias (Bernard 2006).

Participant observation means combining the role of the researcher with the technique of observing (Jorgensen 1989b; Angrosino 2007a). According to Bernard (2006), participant observation mean observing from either inside or outside, recording aspects of life around the phenomena. Participant observation leaves little room or even no room for errors and the researcher must be prepared for the unexpected (James 2007). Participant observation is tightly related to ethnographic methods or perspectives. According to Atkinson & Hammersley (1994; p. 249), however, all social research is a form of participant observation as we cannot studying the social world without being part of it. Such a statement is almost correct. A researcher can probably not study their contemporary, social world without being part of it, but the same researcher may conduct indirect observation about another, past social world of which he/she was never part.
<table>
<thead>
<tr>
<th>Observation</th>
<th>Characteristics</th>
<th>Advice</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfocused</td>
<td>Obtains a “feel” for the setting (without anyone noticing) (Jorgensen 1989b)</td>
<td>Direct participations once a “feel” has been obtained (Jorgensen 1989b)</td>
<td>Requires involvement, e.g. may need to answer questions not to be rude (Jorgensen 1989b)</td>
</tr>
<tr>
<td>Focused</td>
<td>Attention on matters of specific interest once being familiar with the setting (Jorgensen 1989b)</td>
<td>Funnelling: begin with the widest possible range of phenomena (Jorgensen 1989b)</td>
<td>To understand where to start.</td>
</tr>
<tr>
<td>Direct</td>
<td>Records behaviour on the spot (Angrosino 2007a; Bernard 2006)</td>
<td>Be prepared for the unexpected (James 2007; Jorgensen 1989b)</td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>The archaeology of human behaviour (Bernard 2006; Angrosino 2007a)</td>
<td></td>
<td>Cannot fully prepare for what is to be observed. No room for errors (James 2007)</td>
</tr>
<tr>
<td>Participant</td>
<td>Combines the role of the researcher with the technique of observing (Jorgensen 1989b; Angrosino 2007a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete outsider</td>
<td>Overviews the setting, noting features, relationships, processes.</td>
<td>Lack of familiarity with what goes on within the setting (Jorgensen 1989c)</td>
<td></td>
</tr>
<tr>
<td>Complete insider</td>
<td>Selects from among the roles already available in the setting Jorgensen (1989c)</td>
<td>C.f. characteristics “complete outsider”</td>
<td></td>
</tr>
<tr>
<td>Complete observer</td>
<td>Records behaviour with little if any interaction (Bernard 2006)</td>
<td></td>
<td>The researcher cannot participate (Jorgensen 1989c)</td>
</tr>
<tr>
<td>Complete participant</td>
<td>Becomes a member of a group without revealing the intention is research (Bernard 2006)</td>
<td></td>
<td>Cannot observe, nor be objective (Jorgensen 1989c)</td>
</tr>
</tbody>
</table>

The researcher can observe spatial relationships (proxemic behaviour) or body language (kinesic behaviour) (Angrosino 2007a). People’s proxemic behaviour can be studied to obtain knowledge about how this behaviour influences their interaction with other humans or material objects in a given setting (Hall 1963; Melson 1977; Herrera et al. 2011). A person may feel in a particular way if someone is getting “too” close or when being in a setting not familiar with, for example. Observation of proxemic behaviour is fruitful when the researcher does not want to interfere or probe the conscious mind of the participant, which direct interviews do (Hall 1963). The observation of a human’s body language refers to as studying their kinesic behaviour. Such form of observation can provide the researcher with knowledge about how the participant’s gesture or postures transmit information and communicate socially (Birdwhistell 2011; Rozensky & Honor 1982).

The researcher can to a bigger or lesser degree observe as an insider or outsider, and, in the same manner, be a completely observer or participant, or in between (Bernard 2006; Jorgensen 1989a). The extent to which the researcher has either role depends on what they want to achieve, i.e. the aim of the research. Being an insider, the researcher may disregard details that an outsider would have seen. On the other hand, being an insider means the research can be more efficient, already knowing where to
3.3.2 Interviewing

Interviewing (Table 3.3) — be it cross-cultural (Ryen 2001), in-depth (Taylor & Bogdan 1998), ethnographic (Marvasti 2004; Angrosino 2007a), or any other specific type - one of the most elementary modes of communication and collecting data, mediates contemporary life (Marvasti 2004; Gubrium & Holstein 2001). In relying on interviewing, a researcher ought to take the opinion of the respondent to be valid. A sum of those opinions is believed to make the picture of social reality complete (Marvasti 2004). The challenge with that assumption, although democratic at a first glance, as noted by the previous author, is the categorising of individuals into certain groups, such as specialists, engineers, neighbours, etc. We may reasonably ask how valid that picture of social reality is and whether only one picture can be valid. The interviewer decides the topic on which to ask questions. The interviewer decides the pace and the relevance of what will be discussed (Marvasti 2004). Moreover, the interviewing increases surveillance of everyday-life (Gubrium & Holstein 2001). Although an undemocratic construct at second glance, an interview situation is a give-and-take situation too (Gubrium & Holstein 2001).

Interviewing in a setting that is not the primary setting of the researcher is regarded as cross-cultural (Ryen 2001; Patton 2001). Since a setting is usually understood as a culture across the national boarders of the researcher’s own country, one major concern with cross cultural interviews has been to understand the culture including the spoken language(s) (Ryen 2001). Despite this, cross cultural interviewing is also collection of interview within the researcher’s own societies, hence, the insider-outsider challenge (Ryen 2001).

In-depth interviews, which are unstructured, non-standardised, and open-ended, and hold a mutually interaction between the respondent and researcher, have the potential to capture elements not thought of on beforehand by the interviewer. In-depth interviews can aid the researcher in gathering data on translation processes of a particular initiative or programme involving both humans (i.e. actors) and artefacts (Andrade & Urquhart 2010; Bailey & Ngwenyama 2011).

The ethnographic interview is an in-depth, open-ended interview in the field (Marvasti 2004; Angrosino 2007a). A challenge is to explain to the country nationals the value of being interviewed. This means explaining the practical issues that motivate the research and the choice of setting (Crabtree et al. 2012). Another challenge is how to get the support of country nationals, which also makes the researcher less independent (Thapa 2011). These challenges are also referred to as securing access (Thapa 2011; p. 89).

Focus group interview uncovers meanings and norms at group level there respondents and the researcher jointly create the conversation (Marvasti 2004). Despite this interaction, the researcher is to rely upon the interaction within the group who discuss the issues at hand (Cohen et al. 2007). In addition, according to Cohen et al. (2007), which contradicts with the view of Marvasti (2004), the participants interact with each other rather than with the researcher. The essence of focus group interview is that the participants will have the opportunity to present their joint opinion within a
given frame. These opinions are formed during the focus group session with as little interaction as possible by the researcher.

The life story or story telling interview refers to the personalised story, which is bound to a specific setting, a person chooses to tell about their life (Gubrium & Holstein 2001; Angrosino 2007a). The life story interview can provide knowledge of how the participant relates to their experiences and identity over time (Titon 1980; Harding 1987; Pasupathi et al. 2007). The challenge is not to make a person narrate a story about their life. For, telling stories of one’s life is something basic to our nature (Atkinson 2001). The challenge of life story interviewing is that the participant may present a conjured story (Gubrium & Holstein 2001); and how can the researcher be sure the story is not? If the researcher think the story may be strategic, Gubrium & Holstein (2001) suggest that the researcher could seek indicators of internal consistency but also include interpretations about this as in, “what purpose this served for the storyteller” (Gubrium & Holstein 2001; p. 126).

The one-on-one interview uncovers meanings and norms at individual level (Marvasti 2004). In this interview form it is particularly important that the researcher establish and maintain a good rapport with the participant (Cohen et al. 2007). Sometimes the researcher should even consider whether or not designed group interviews sessions instead of one-on-one interview might be less intimidating for some groups (Cohen et al. 2007).

The open-ended interview is understood as a form with no pre-designed range of answers, but the respondent is allowed to elaborate on their statements and thoughts (Marvasti 2004; Wright 1998). This form may be adequate when breadth and depth in answers are needed (Taylor & Bogdan 1998).

The structured interview, on the other hand, pays attention to the order in which questions are asked (Marvasti 2004). Since the respondent cannot elaborate on their statements, it is suggested that the researcher establish trust by starting with neutral questions (Marvasti 2004) and by studying the culture of the respondent (Cohen et al. 2007).

Sometimes it is fruitful to design and use interview guide with specified topics and issues to be covered in advance. Using this tool has the advantage of revealing gaps in data, which can be anticipated and closed (Cohen et al. 2007). Since this form leave little room for spontaneous or alternative comments (Chaputula 2012) the data will be easier to use to, for instance, compare settings.
<table>
<thead>
<tr>
<th>Interview</th>
<th>Characteristics</th>
<th>Advice</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-cultural</td>
<td>Interviews in another culture (Ryen 2001)</td>
<td>Accompany interviews by ethnographic knowledge of material culture (Ryen 2001)</td>
<td>The interviewer is a completely outsider. (Ryen 2001)</td>
</tr>
<tr>
<td>In-depth</td>
<td>Unstructured. Mutually interaction between the respondent and researcher (Marvasti 2004; Taylor &amp; Bogdan 1998)</td>
<td>Can be more a social technique than realised by the researcher (Andrade &amp; Urquhart 2010)</td>
<td>Can capture more data/information than intended (Andrade &amp; Urquhart 2010)</td>
</tr>
<tr>
<td>Ethnographic</td>
<td>In depth interviews in the field (Marvasti 2004).</td>
<td>Probe for meaning, to explore nuances, to capture the gray areas (Angrosino 2007a)</td>
<td>Can need the support of country nationals, making the researcher less independent (Thapa 2011)</td>
</tr>
<tr>
<td>Focus group</td>
<td>Uncovers meanings and norms at group level. (Marvasti 2004)</td>
<td>A moderator keeps the discussion on topic (Marvasti 2004)</td>
<td>Encourage the group to interact freely (Marvasti 2004)</td>
</tr>
<tr>
<td>Life story/story telling</td>
<td>The story a person chooses to tell about their life. Contextualised and personalised (Gubrium &amp; Holstein 2001; Angrosino 2007a)</td>
<td>The teller may present a conjured story (Gubrium &amp; Holstein 2001)</td>
<td>How to realise it is a conjured.</td>
</tr>
<tr>
<td>One-on-one</td>
<td>Uncovers meanings and norms at individual level (Marvasti 2004)</td>
<td>Establish and maintain a good rapport with the participant (Cohen et al. 2007)</td>
<td>Participant may feel somewhat uncomfortable being alone with the researcher</td>
</tr>
<tr>
<td>Open-ended</td>
<td>No pre-designed range of answers. Respondent can elaborate on their statements (Marvasti 2004)</td>
<td>Use when breadth and depth in answers are needed (Taylor &amp; Bogdan 1998)</td>
<td>As respondent has big freedom too much inadequate information can be provided (Taylor &amp; Bogdan 1998)</td>
</tr>
<tr>
<td>Structured</td>
<td>Pays attention to the order in which questions are asked (Marvasti 2004)</td>
<td>Establish trust by starting with neutral questions (Marvasti 2004). Study the culture of the respondent (Cohen et al. 2007)</td>
<td>How to know what is neutral to the respondent</td>
</tr>
</tbody>
</table>

| Interview guide | Topics and issues to be covered are specified in advance (Cohen et al. 2007) | Look for gaps in data, which can be anticipated and closed (Cohen et al. 2007) | Leave little room for spontaneous or alternative comments (Chaputula 2012) |

| Women | Women did not used to be subject for interviewers attention (Reinharz & Chase 2001) | Women are not a homogeneous group but individuals (Reinharz & Chase 2001; Trauth 2006) | A man interviewing women may be given other responses than a female interviewer (Reinharz & Chase 2001) |
| Minorities | Minorities may feel excluded and therefore more difficult to build trust | Appreciate cultural values (Cohen et al. 2007). Talking about one’s own life puts respondents at ease (Marvasti 2004) | Encourage the respondents to speak out and break the tradition of polite silences (Marvasti 2004; p. 27) |
| Elites | “Elites generally have more knowledge, money, and status and assume a higher position than others in the population.” (Odendahl & Shaw 2001; p. 299) | Incorporate strategies that include a mixture of ingenuity, social skills, contacts, careful negotiation (Odendahl & Shaw 2001) | A world difficult to penetrate (Odendahl & Shaw 2001) |
No matter what interview form or tools the interviewer choose to use, the interviewer needs to remember that individuals have not always been viewed as worthy contributors in a researcher’s pursuit of knowledge (Gubrium & Holstein 2001). This means that the researcher needs to understand that interviewing women, minorities, or functionaries (the last group understood as “elites”), or any other group in society, needs different pre-understanding. Women are of course not a homogeneous group but individuals (Trauth 2006). Nonetheless, women are seen as a particular group as they did not used to be subjects for researcher’s attention (Reinharz & Chase 2001), which makes not only a female respondent vulnerable but a male interviewing a female too. Most major social science studies continued to be based primarily on men’s experiences. From mostly having neglected women in research, at least after the 70s research started to pay more attention to women, including women in their studies and addressing the impact of gender on the interview process itself (Reinharz & Chase 2001; p. 224).

For some women, particularly those who come from less privileged backgrounds, the interview can possibly have a radical impact on the woman herself, a liberating effect (Marvasti 2004; p. 24). Gubrium & Holstein (2001) refers to similar thoughts as “empowering respondents” (2001; p. 16). Previous studies reveal that in comparing interviews conducted in the same study - half of them by a male interviewer and the rest by a female interviewer - the women’s responses show that the salience of gender is not fixed. Rather, it depends on such things as the skill or attitude of the interviewer (Gubrium & Holstein 2001).

A minority, including a child (Wright & Powell 2006), may feel excluded in society in general and therefore more difficult to build trust. To overcome or at least mitigate these challenges, Cohen et al. (2007) suggest that the researcher appreciates other cultures and value them. Another suggestion is to talk about one’s own life, which puts respondents at ease (Marvasti 2004). Although the interviewer and the respondent are referred to jointly as participants (Gubrium & Holstein 2001), talking about one’s own life as researcher may lead to another challenge, namely reducing one’s own role to an minimum and be just a researcher (Oppenheim 2000).

3.3.3 Limitations of data collection

Participant observation means that you as a researcher are interacting on a daily basis with the people being studied. It is therefore critically important for you to begin with an understanding of yourself (Angrosino 2007c; p. 28).

Before carrying out research it is important to candidly assess oneself (Angrosino 2007c). In the end, the characteristics of the researcher, and even the gender, shapes the research process (Troman 2001). Drawing from Kaipayil’s pre-reflective awareness and Delbert & Neil (2002), my interest and background in information systems, anthropology, and special needs education affected how I designed this research. Also my origin affected what I considered as noteworthy and the ways in which I came to carry out this research and perceive all things around me. Kaipayil refers to those issues as “my philosophy”. According to Cohen et al. (2007), there are several strains in conducting research that can be referred to the researcher:

Emotions, attitudes, beliefs, values, characteristics enter the research; indeed, the more this happens the less will be the likelihood of gaining the participants’ perspectives and meanings (Cohen et al. 2007; p. 171).
Being male and conducting this research had its strains. Being Afro-American, raised in Europe, born in South America, and raised in Kenya as a result of women’s view of African men in particular, and somewhat limited view on people from the West and other countries in general. One of Project Africa’s teaching aids is the use of pen-pals to learn English. These pen-pals live mainly in the US, UK, Canada, and Australia. During a class the women may present letters written to international pen pals. Being male, growing up in the West, but not white, this could be a challenge in this setting.

A single researcher, even if she or he is able to perform multiple and varied participant roles, fundamentally is limited in terms of the perspectives on the insiders’ world that may be assumed (Jorgensen 1989c; p. 65).

Some of these limitations can be removed by practising. Others such as gender, ethnicity, and age, are more complex to alter or change (Jorgensen 1989c). This also includes the researcher’s personality. Those limitations mentioned also imply that two researchers can hardly observe the same phenomenon in the very same way. A solo researcher can only grasp a small portion of the setting. Teams of trained, participant observers therefore may be valuable and even necessary, and can provide access to multiple perspectives (Jorgensen 1989c).

My perspective is influenced by my background, which allowed me to perceive certain details that otherwise would not have been possible if growing up in the settings of study. Likewise, my background certainly prevented me from discovering other things. A number of colleagues have contributed to this research (see authors of papers and acknowledgements). These colleagues have participated in sustaining communication during the course of fieldwork, providing access to various stakeholders, and teaching me local manners, customs, and traditions. They have also assisted in doing observations and interpreting results. Such collaborations have also been a way to triangulate data (Cohen et al. 2007).

Critical voices on interviewing as a data collection technique cry about: 1) respondents’ failure to understand questions as intended; 2) a lack of interest on the part of respondents; 3) respondents’ unwillingness to admit to certain attitudes or behaviours; 4) the failure of respondents’ memory or comprehension processes in the stressed conditions of the interview; 5) interviewer failures, e.g. regarding linguistic communication or technical equipment for recording (Foddy 1993; p. 2). Pripp (1999) alleged another shortcoming, in the name of the Invisible Third Party9. This Party was almost telepathically following the researcher closely, putting questions to the respondent and sometimes even taking command. Eventually Pripp came to understand who this Party was, which would happen when the respondents answered questions that he had never put. The respondents had expectations based on who that person putting the questions was in their eyes. Those expectations affected the answers given to the interviewer. According to Pripp, we have an idea of identity, our society, and ourselves, calling it double hermeneutics. Pripp’s thinking parallels the social desirability effect in interviewing. This effect relates to how an interviewer can be sure whether the respondent distorts their “true” feelings by answering questions in a socially acceptable manner (Marvasti 2004).

9Swedish: “den tredje närvarande”
3.3.4 Pre-studies

Two pre-studies were conducted. In Hallberg (2010b) data were collected using un-focused observations to obtain a feel for the setting and, then, conducting participant observation during group sessions. These data were used to gain a pre-reflective awareness (Kaipayil 2008) of the role and issue of languages in Kenya and to define the scope of the research more easily (Terry et al. 1993).

The other pre-study is included in paper 1, step 2 (Hallberg 2011a). I went to the public university Jomo Kenyatta University of Agriculture and Technology and the National Environment Management Authority (NEMA). NEMA is the Government’s principal instrument for environmental issues. Here one-on-one interview with one director at each organisation were conducted. The purpose was to learn more about Vision 2030 and how the Government implements the vision. These two interview sessions draw attention to “interviewing elites”.

3.3.5 Paper 1

The collected and recorded data were transcribed verbatim by me and two other researchers from Kenya to detect any mismatches between our interpretations of data. The ontological notion of experience suggested by Kaipayil (2002) was interpreted to categorise women’s everyday-life experiences, some of which came to be categorised as stressors. For Kaipayil, experiences may be related to images a person creates and thoughts a person acquires throughout life. Kaipayil’s notion of experience is therefore a putative way to understand an informant’s inner minds as it reduces the minds of humans to concepts that are easier to depict in writing. Kaipayil’s reduction of the notion of experience is understood in Quine (1964) as ontological reduction. Interpreting Kaipayil the participant’s experiences in paper 1 were classified into four members or constituents parts: external object, internal feeling, a previously acquired thought [or memory], and mental image created. A limitation using categorises is related to the nature of human beings being too complex to strictly bind to either concepts or terms in a static way. Data from this study were then used to identify and single out stressors.

Interviewing women: This study was designed as PAR. Since this study was conducted cross culturally, the PAR strategy made getting support of country nationals easier, which probably helped to lower the tension during the focus group sessions. The data were retrieved to identify experiences of everyday lives, and recognise the knowledge of the women (also referred to as “indigenous knowledge”). Before the interviews and on-the-spot observations, one day was devoted to unfocused and direct observations, around Project Africa and the surroundings of Lunga-Lunga, Kwale district.

According to the founder, the Women’s Academy, Project Africa, in Lunga-Lunga consisted of four groups with a total number of approximately 100 women. Three women in each group plus the teacher of each group were randomly selected for two focus-group sessions. This makes a total number of 16 women on the first day and 12 women on the second day (because of dropouts). The focus group interviews were held in Swahili and English, and in one vernacular language. The women’s stories

10Reduction as reducing the constituent parts that makes a phenomenon something whole and complex.
were interpreted into Swahili and English, but sometimes just conveyed in a way that referrs to code switching\(^\text{11}\).

Two regular classes were observed using focused observations: one in literacy and the other in sewing. In addition, one class in basic IT skills was observed in the form of participant observation, which means I worked on the same tasks as the other women but also assisted them. By assisting them I was a complete participant, meaning I might have missed certain aspects that otherwise could have been observed. In addition, the social networking site World Pulse, used by the Academy, was tried with reference to indirect observation. In so doing I got an opportunity to record women’s past behaviour. The records could then be compared jointly with letters written by the women, and with what the women would actually tell me and show off during the focus-group and one-on-one interviews (Cohen et al. 2007).

The women presented letters written to international pen pals. Different letters were produced during the observed classes and the constructed focus-group sessions. In addition, letters not presented on either occasion were retrieved to be analysed. All sessions were recorded, which is a good way of ensuring that one notices mistakes made during interviews (Levy & Hollan 2000).

After the focus-group sessions, deeper, one-on-one interviews (to be understood rather as conversations) with five of the women from the focus group and with two mentors were carried out. Visits to three of the women’s homes were also made. Those visits to a certain degree enabled behaviour to be recorded on the spot (direct observations), the environment previously narrated by the women to be recognised (indirect observation), but also a “lighter” variant of their life story to be seen.

Observations and questions put centred round issues such as: What barriers to communication do the women experience in their everyday lives? What do the women reveal in focus-group sessions as major topics with their overseas pen pals? How do the women among the pen pals portray their everyday lives and community? What are women’s experiences of the usages and needs of ICT? Follow-up questions referred to information already provided by the participants (Brammer 2006). Examples of such follow-up questions were: What experiences come with learning through the use of ICT? What questions are discussed among pen pals; main subjects and themes? What language barriers are experienced by the rural women vis à vis international pen pals? What do these barriers mean to them (definition of the term)? Although observations are said to enhance research, the participants knew they were being observed, a factor that cannot be ignored.

When observing and interviewing the women, we were interested in 1) how women behaved when reading and interpreting the letters received (kinesic behaviour); 2) facts; learning and education tools; 3) the physical environment around the project and the community (proxemic behaviour); 4) programme setting; resources, pedagogical principles, organisation (kinesic and proxemic behaviour).

The founder of the project gave me the heads-up, fearing the women would not speak to me at all, turning me down flat. This was not the case although the initial steps were carefully taken. At first the women would apparently regard me as any other Kenyan male they later on claim to be the only males they know of. After a while, they started whispering in Swahili and vernacular languages, whereupon the

\(^{11}\) In short, code switching refers to the ways in which one or more languages are employed to arrive at an intended consequence or meaning. Myers-Scotton (1988) provides an overall explanation of code switching using an East African database.
founder told me in English; “I think the women are starting to like you.” These stories also call for why cultural validity is important to account for (Cohen et al. 2007).

**Follow-up:** The purpose of this step was to discover what had happened since the main study was carried out. This step was not designed as PAR but included participant observations, which meant involvement in the daily activities, including attendance at staff meetings and at further classes in sewing and computer classes. I also performed one-on-one interviews (read conversations) with four women, including the director and two mentors, and focused observations throughout the Kwale county and the parts of Tanzania next to the border with Kenya. These undertakings gave me a richer view on women’s situation not only in Lunga-Lunga but also in other deprived environments. This approach to the aim of this research also gave me greater space to expand on the challenges suggested in chapter one.

Another motive for visiting a location at least twice (the two-times role) is because there is always something new to see and, as per definition, the events and things that face the researcher at the second arrival are not the same as at the first. To the extreme, it is not even the same location. Thus, the same location can be understood as two different locations (Ronström 2002). In addition, following up earlier research gave me a chance to “observe certain moments under varying circumstances”, and observe the totality (Freire 2000; p. 112).

### 3.3.6 Papers 2-4

Data were used to analyse jointly the perspectives of the people as regards the use of ICT.

**Interviewing “elites”:** With assistance of a professor (see Acknowledgements) within Jomo Kenyatta University of Agriculture and Technology (JKUAT) that I had got to know previously, I established contact with directors and officials from the Institute of Computer Science and Information Technology, JKUAT, and NEMA to conduct one-on-one interviews. One visit each were made to these two-mentioned authorities. I was to interview a director who was not present at time of my arrival. So, I was referred to a deputy instead to discuss the setting up of digital villages by the Kenya Ministry of ICT’s. These interviews were then followed-up by two research fellows (see the second and third authors of paper 2).

I came into contact with the Kenya ICT Board with help by research colleagues (see authors, paper 2). In collaboration, we made two visits to the Kenya ICT Board. I did not personally attend the first visit as it was called off several times and finally when we could schedule an appointment I was no longer in Kenya. Our ambition was to have one interview, but as we, independently of each other, went through the transcripts to become familiar with the data (Brammer 2006), we realised we had not got complete answers to all our queries raised. The first two-on-one interview was performed with the two fellows. The second interview was rescheduled three times. We finally agreed to meet online using Skype instead of face-to-face. Two of the staff members could nevertheless not attend this online meeting, so I interviewed one of them.
Questions were all open-ended and unstructured and conducted in two steps. First interviews were performed to learn more about the setting and to design further questions. Secondly, interviews were performed as a follow-up to fill any gaps.

**Interviewing managers/owners, and users of digital villages:** At the digital villages in Kenya interviews were performed with five local managers and owners (=3 male) and nine users (=3 male). In Cameroon two-on-one interviews with four mangers and owners were done. In addition, I had email conversations with one manager. Questions put during the interviews were semi-structured and open-ended with an interview guide (Appendix A.1).

Interviews were recorded, hence there was an opportunity to identify mistakes we might have made. Questions were designed to bring out participants’ knowledge, experiences, and personal feelings on digital villages. The questions were also designed to gain the current status, strategies, and planning horizons of digital villages. Questions were grounded in findings from the literature review, pre-studies and previous studies at and with Project Africa, and previous research carried out by others (e.g. Gaiani et al. 2009).

**Analysis:** The analysis started by reading and rereading the transcripts to become familiar with data (Brammer 2006). Dey (1993; pp. 68;71) advises us to find a focus. Dey proposes consideration of what kind of data is to be analysed, how data can be characterised, why data should be selected, and what personal experience may contribute. In paper 2 the software application MAXQDA 10 was employed for qualitative data analysis. Out of 1067 unique words in the interviews, 73 keywords were identified based on their frequency and relevance to the purpose of the study. These words were then grouped under nine items (demography, knowledge, empowerment, work, social [culture], personal, ownership, language, economy). The items gave some clues about what participants focused on.

**3.3.7 Paper 5**

Quantitative data analysis combined with qualitative data retrieved between 2009 and 2012 in Kenya, Bolivia, Cameroon, and Sri Lanka (Table 3.4) were used in this study. Data of national indexes and statistics by the UN and OECD were charted. These data represent national, household, and gender level and are mainly from the year 2010. The data were used to:

- single out stressors that can be critical to the use of ICT to strengthen women’s situation.
- to understand the relation between a certain stressor and a social impact.
- to exemplify what drives and restrains the stressors.

**Observations and interviews:** Focused observations as complete outsider were conducted in all subsocieties (Hallberg et al. 2014). In addition, unfocused observations were conducted in Kenya as described earlier, and observations partly as participant were conducted in Kenya and Sri Lanka. Participant observations were not possible to
conducted in Bolivia and Cameroon during our visits. An interview guide (Appendix A.1) was developed and used in the subsocieties of Kenya, Bolivia, Cameroon, and Sri Lanka with an account of cultural translation and interpretation (Cohen et al. 2007). A drawback however, was that the interview guide could not be translated to either Aymara or Quechua (Bolivia), or to Bangwa (Cameroon) in advanced. Instead, questions were put to participants in Spanish and French, respectively. As it turned out that those participants interviewed happened to understand Spanish and French, we could not tell the point to which this may have affected their answerers. Apart from using interview guide, unstructured, open-ended interviews were conducted in Kenya.

### Table 3.4: Regions for the comparative study

<table>
<thead>
<tr>
<th>District</th>
<th>Studies conducted</th>
<th>Major languages</th>
<th>Interviews</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwale; Malindi; Nairobi; Central, Kenya</td>
<td>2009-2012</td>
<td>Swahili/local languages/English</td>
<td>Interview guide, one-on-one, unstructured, focus group, women, elite</td>
<td>unfocused, focused, participant, nonverbal, observer/participant</td>
</tr>
<tr>
<td>Challapata, Bolivia</td>
<td>2011</td>
<td>Aymara(different dialects)/Spanish</td>
<td>Interview guide, one-on-one, focus group, women</td>
<td>focused, complete observer</td>
</tr>
<tr>
<td>Lebialem, Cameroon</td>
<td>2010</td>
<td>English/French/Bamgwa</td>
<td>Interview guide, one-on-one, focus group, women</td>
<td>focused, nonverbal, complete observer</td>
</tr>
<tr>
<td>Gampha, Sri Lanka</td>
<td>2011</td>
<td>Sinhala</td>
<td>Interview guide, one-on-one, focus group, women</td>
<td>focused, observer/participant</td>
</tr>
</tbody>
</table>

**Analysis:** The data were analysed and, once appropriated, cross-tabbed with the application SPSS in order to understand cross relations. In addition, our own and others’ empirical material on the same countries were used to find variances at a regional level and be able to compare the statistics with data from field studies. By using combined data like this, the risk of misrepresenting a reality in our interpretations was reduced.

### 3.3.8 Paper 6

This research was set out to explore the reasoning and use of ICT. Expert sampling and snowballing (Patton 2001) were used to locate participants and location, and to consider ethical issues. All immigrant women studied had been living in Sweden for between 6 months and 19 years, and in their country of origin between 18 and 60 years. The education level of participants ranged from no education to secondary education. In order to ensure the same basic lines of questions were put to each person interviewed, to interview these persons systematically, and allow individual perspectives and experiences to emerge among the interviewed, an interview guide (A.2) with topics formulated beforehand based on previous research was developed (Patton 2001).
Even though the topics were pre-chosen, those topics were further explored to mitigate the drawback of inadvertently omitting important or salient topics or issues not anticipated beforehand (Patton 2001).

**Observations and interviews:** Interviews were performed in Swedish, English, Portuguese, and Spanish. A limitation, therefore, is that not all participants were able to communicate using their vernacular language. The participants were free to suggest the interview location, which happened to be a library, youth recreation centre (Swe. “fritidsgård”), public schools, malls, and churches. Some of the questions to participants had to be put twice. For this reason it cannot be certain that participants understood fully the meaning of some questions. Interviews were either recorded using a recorder or written down with pen and paper or on a computer device on the spot, which also applied for observations. To locate participants, I first turned to the national job-seeking agency (Swe. Arbetsförmedlingen) to locate women. Premised on the assertion that many newly arrived immigrants are registered with Arbetsförmedlingen I thought of this as a start point. I contacted six local offices of which none wanted to get involved in any collaboration or discussions on the study. I then turned to the church. Many churches interpret the service into various languages and design evening programmes for non-native citizens. Through the church I came into contact with women to interview. The majority of the women I came across in collaboration with the Swedish Tuition for Immigrants (Sfi) of S:t Olofsskolan, Norrköping and Lernia, Jönköping.

1. Focus group: primary school teacher (n=1) + teaching assistant (n=1), semi-structured, public primary school. Through this group, we got a picture of our phenomena studied as perceived by school personnel, making us aware of various aspects to take account of during interviews with the immigrant women.

2. One-on-one interview: African (n=1), Asian (n=1), interview guide, school and home environment. During the first interview participants were repeatedly asking whether their responses had been correct or not. This was not the case during the second interview. While we cannot give a clear reason for why this happened Pripp (1999) suggests the way in which the respondent look upon the interviewer may make her respond in a certain way based on what she thinks the interviewer wants to hear.

3. Language café (complete observer & participant): African (n=2), Latin American (n=1), Asian (n=1) + “lay worker” (n=1), semi-structured + interview guide, library. Before the Language café session we contacted with responsible officials at the library. We then contacted the lay worker before the session to ask if we could attend. The lay worker then presented us to the participant. Usually, the participants are free to choose topics of discussion but the lay worker also suggests topics. During this session, the history and geography of Sweden and their home country were discussed. Participants were also asked about how they travel, communicate with others, learn Swedish and societal conventions, local services, etc.

4. Follow-up to Language café session (focus-group), African (n=2), interview guide, library. Here we picked up from the Language café session but in a smaller group.
5. Language café/Homework help sessions (focus-group, participant observation, & complete participant): African (n=2). Follow-up to first Language café session. Did not structure the questions but combined questions with homework help. In doing so, we understood even better how they learn with and without computers and the benefits versus the barriers they experience.

6. One-on-one interview: African (n=1), interview guide + unstructured, library+mall.

7. One-on-one interview: SFI teacher/principal/coordinator semi-structured (n=5), SFI.

8. Focus-group: African (n=2), Latin American (n=2), semi-structured.

9. One-on-one interview: pastor (n=2), semi-structured, church.

10. Focus-group: African (n=2), Latin American (n=1), interview guide.

11. Homework help session (participant observation): African (n=1), Latin American (n=1).

12. Classroom interview (participant observation):, African (n=1), Asian (n=1), unstructured

13. Computer observation (participant observation): African (n=2), Latin American (n=1), demonstrating how they work with schoolwork on a computer.

14. Online interview (one-on-one):, African (n=1), to clarify matters that were unclear in a previous interview.

The number of participants was not set out beforehand. The interviews were followed up to pick up on themes not carefully discussed but of interest to develop further. The women also had other commitments and therefore we felt it better to split up the interview sessions.

Using the life-story interview, also referred to as story-telling, there is a risk that the teller may present a conjured story. Gubrium & Holstein (2001) suggest that does not need to be a disadvantage but rather an opportunity for the interviewer who could include interpretation about what purpose a conjured story served for the storyteller. Opportunity or not, a major concern is how the interviewer will know or understand whether or to what extent the story is conjured. Using the life story interview, I tried to be prepared for “unexpected” telling (as per definition all answers or stories are unexpected), or the impact the respondent’s story might have on the interviewer (Gubrium & Holstein 2001). Using the life story interview as a method, 1) I tried not to judge, but seek to find the personal relevance of the story; 2) I regarded the life story as a text like any other document; 3) I kept in mind Freire’s idea of co-intentional learning, or we are all each other’s teachers; like a novel or a poem, we often learn from the stories we hear or read (Gubrium & Holstein 2001). As a form of life story interviewing, for four weeks I followed one woman from Africa in her daily life and communicated using email and Skype.
Analysis: To describe and summarise (Cohen et al. 2007) the data in text we used illustrative quotes and a few images. Two of the one-on-one interviews were recorded and selectively transcribed using NVivo for qualitative data analysis. In doing so I came to the same conclusion as Welsh (2002); a combination of electronic and manual methods is fruitful for the process of the analysis. This may be a result of not having large recorded data (Welsh 2002). Data were written down almost immediately whilst fresh in the memory.

3.4 Credibility

3.4.1 Research ethics

Research ethics is about building up, stimulating, and keeping alive awareness and debate about how one should act (Vetenskapsrådet 2012). I as a researcher have the ultimate responsibility to make sure the research is of good quality and is morally acceptable (Codex 2011). Good quality is narrowly interpreted as research that provides new, more reliable knowledge than was known in the past. Broadly defined, good quality entails an overall judgement from which it is not possible to single out individual criteria (Gustafsson et al. 2005; p. 24). Research in the social sciences is often concerned with collecting data from people, which also applies to this research. I have therefore reflected on the way in which I should treat people who provide data (Oliver 2003; p. 3). Many challenges in research ethics can be described as achieving a balance between the society and citizens, i.e., criterion of protection of the individual and the research criterion (Gustafsson et al. 2005; p. 18).

Research ethics is about making the research useful (Gustafsson et al. 2005; p. 35). “Useful” is not strictly defined here. The research can directly or indirectly impact on individuals or a group of people. The results can lead to economic changes for individuals, job opportunities, or other factors that may raise a person’s standard of living. The research may lead to environmental modification, or new social or political arrangements (Bleed 1997; p. 99). The research can also lead to new types of material culture or other outcomes that were not intended. Hence there are many aspects to consider and take into account when defining “useful to whom?” Hay (2006) gives one view on ethical behaviour that can apply to “useful to whom?”, which I have sought to follow: “Protecting others, minimizing harm and increasing the sum of good” (2006; p. 3). “Others” not only involves humans but also property and the environment.

Ethical issues are considered at different levels, be it by considering my own role, for instance how my presence affects the people (c.f. Pripp 1999) or the environment (c.f. Bleed 1997); how I report the results (e.g. honest data analysis, avoiding plagiarism, choice of journals or conferences); and by careful recognition of related work (e.g. not intentionally overseeing previous, relevant studies carried out).

3.4.2 Cultural validity and pre-understanding

In terms of the Digital Villages Project, the setting up of the Project may increase the traffic to the neighbourhood, increasing the risk of accidents. People involved in the Project may also expose people to risk of diseases because of changed ecological conditions. This is what Vanclay (2002) refers to as a violation of human rights, which is a social impact.
Pragmatic social constructivist emphasises cultural and mutual understanding between different parties (Garrison 1998). This means a researcher must account for and understand various cultures in which the studies take place; and how individuals living in those cultures conduct themselves throughout life. A pragmatic social constructivist approach therefore helped me be open towards participants and other people’s attitudes and perceptions about their world in which they live and in which I am an “outsider” (Fine & Kleinman 1979; p. 12). This calls for cultural validity (Cohen et al. 2007; p. 139). Cohen et al. in their book suggest cultural validity means taking cultural values into account and appreciating them. I have done this by:

1. using an approach referred to as PAR
2. conducting a significant part of the research jointly with people from respective countries.
3. reflecting and re-reflecting (Freire 2000) on myself as an outsider whilst carrying out the research.

**Pre-study:** The content in Hallberg (2010b) was approved by the Research Africa journal editors jointly with the CAAST-Net coordinator, Dr. Andrew Cherry from the Association of Commonwealth Universities. CAAST-Net accepts occasional papers from external contributors, which is also stressed in the article. In addition it stresses that the content represents the view of the author.

**Paper 1:** Before I decided to use Project Africa and the women as a case study, I contacted the founder Lindy Wafula to discuss the aims and objectives. She thought it sounded like a good idea and contacted the regional manager in Lunga-Lunga. Lindy and the regional manager then contacted the women in the Kwale district too. They told the women that three of them plus each local manager would be randomly selected to participate in a two-day session. The women were also informed they could change their mind at any time and withdraw their agreement to participate. In addition, the first study was set up as participatory action research, which was a way to approach the women on their own terms jointly with people they already knew and trusted. In doing so, I believed the women would have more confidence in me as an outsider. Ethical issues were also considered in that the women were asked about their ages. Only women above the age of 18 years participated (the youngest woman was 19 years old). They were also guaranteed confidentiality. A drawback with only involving participants aged 18 and above was that women’s stories in general involved their children. As a consequence it would have been a benefit having one-on-one interviews with their children too.

**Papers 2-4:** Before we selected digital villages we talked to governmental representatives at NEMA and the Kenya ICT Board. The Kenya ICT Board contacted the managers of each digital village and sent us their contact details. We then sent an email to the managers to inform them about the research. The users at the centres were also informed about the objectives of the research and were told they could withdraw at any moment and that we would not reveal any personal information about
them. Managers and users were also asked about their preferred language to use during the interviews. The ethical considerations can be referred to as informed consent, protection of human subjects, and reactivity (in terms of being aware of someone is observing) (Patton 2001; p. 254). In Cameroon, Bolivia, and Sri Lanka respectively the manager and owner of the CRCs authorised our study.

**Paper 5:** The qualitative data of this paper builds on paper 2-4. Regarding the quantitative data: We have charted data of national indexes and statistics by UN (UNESCO, ITU, UNICEF, World Bank) and OECD. These data represent national, household, and gender level and are mainly from year 2010. Freed-Taylor (1994), nonetheless, asserts that in comparative research, the participants must be sure that the data they provided is handled with care also by other researchers that employ them in their own studies. The data used provided by the UN did not allow a researcher to identify any participant. In addition, to consider ethical issues and respecting and recognising the participants and their beliefs, we used neutral language (Cohen et al. 2007), but also by only using trustworthy methods (in this case, SPSS) of presenting and analysing the data (UNESCO 2012b).

**Paper 6:** We informed all participants that we would get back to them before publishing any results in order for them to double-check their contribution. Before interviewing women individually or in groups we informed not only the women but also the library representatives, principals or teachers, and representatives from churches, respectively, of our study. We did this to make sure the immigrant women had understood our intentions as we were not sure about their language proficiencies. We would therefore not only ask the woman themselves.

### 3.5 Summary and relevance of thesis

This research commenced with pre-studies (Hallberg 2010a,b) and a PAR study (Hallberg 2010b, 2011a) to achieve pre-reflective awareness of what was to be studied. Issues revealed, among others, were that an organisation may 1) use a language unfamiliar to the overwhelming majority of the population, disregarding access to adequate interpretation services; 2) recognise only its own language or that of the capital city; 3) adopt a policy of assimilation, attempting to establish a homogeneous culture and uniform language (adopted from Chen 1998). These three issues express core issues the women faced during the pre-studies and the PAR study. This further means that, whilst the Internet may decrease the feeling of distance, ICT can also be a reminder of the distance and separation from the rest of the world.

To fulfil the aim of this research, research strategies mainly conformed to case study, using interviews and observations as primary techniques. Given these strategies and techniques, attention was paid upon the various forms of observations and interviews. One example is the life story interview, which was more or less pictured as “scientific art”. Another core issue was also that of a researcher being not only an interviewer but a participant as well during the interviewing, which then can be compared with “co-intentional learning” (Freire 2000). In order to use theories outside the social informatics-box, as suggested by the literature, behavioural archaeology as an analytical possibility was drawn from in paper 3 and 4.
4 Summary of findings

This chapter provides a summary of the papers included with respect to the research questions. The pre-studies do not relate directly to the research questions but they affected the main studies and are valuable to the overall aim of the research. Hence, they are summarised too. Since each study formed valuable input to another study, an abstraction is made based on all studies after summing each paper.

4.1 List of Papers and author’s contribution

Paper 1: Hallberg, D. (2011). Recognising local experiences to the success of Vision 2030 in Kenya: Using pen-pals in education as a case. *Journal of Education and Vocational Research, 2*(3), 95-115. Author’s contribution: Preliminary results from this study has been uncovered in a conference paper (Hallberg 2010b). In that conference paper, designed as PAR, I designed and organised 50% of the study (PAR-design), wrote 80% of the paper and collected 50% of the data. As for this full article: I designed and organised 100% of the study, wrote 100% of the paper, collected 100% of the data.


Paper 3: Hallberg, D. (2011). The Kenyan ‘Digital Villages Project’ from a behavioural perspective. International Conference on Advances in ICT for Emerging Regions (ICTer), Colombo, Sri Lanka. Author’s contribution: I designed and organised 100% of the study, wrote 100%, collected 100% of the data (by means of an address list provided by the 2:nd and 3:rd authors of paper 2).


Paper 5: Hallberg, D., Hansson, H., and Nilsson, A.G. (2014). Constraints of ICT in lifelong learning on disadvantaged women. *Electronic Journal of Information Systems in Developing Countries, 61*(8), 1-14. Author’s contribution: The three authors designed and organised jointly the study. I wrote 100% of the paper, collected 100% of the data (of which some had been collected previously).

Paper 6: Hallberg, D., Hansson, H., and Nilsson, A.G. (submitted). Integration and lifelong learning: Immigrant women’s reasoning and use of information and communications technology. Author’s contribution: The three authors designed and organised jointly the study. I wrote 100% of the paper and collected 100% of the data.
4.2 Pre-study

These research notes were written during a conference under the European Commission to communicate the issue of languages in a multilingual country such as Kenya in the context of debates on science and education. This pre-study suggests that the issue of language needs to be revisited, which was considered in this research putting a notable focus upon the use of languages in the use of ICT in lifelong learning.

The issue of languages  Two critical factors for relationship-building efforts to succeed are an educated population who can use knowledge effectively and a dynamic information and communication infrastructure to facilitate the processing of information and enhance productivity. Both of these issues rely on language. Not sharing the same language is an important consideration. A related challenge is interdisciplinary communication when various participants may use the same language but not share the same vocabulary. Who in such a case takes priority? To bridge communication cleavages and other divides, to have a dialogue, important factors are suggested including respect, trust and responsibility, curiosity, fun, and time.

Being invited to attend the conference was a fruitful opportunity to follow and take part in ongoing debates on ICT and education between Europe and Africa, and in Kenya, and to understand the role of languages in Kenya. This knowledge and the knowledge gained through the founder of Project Africa helped me to focus on the field studies I was to carry out. From the knowledge gained after conducting literature reviews, this pre-study, and during the course of the research, I discovered what I thought of as being reality, i.e. the known (Kaipayil 1995).

4.3 Paper 1

This paper was designed to exhibit experiences of everyday life that affect women at group and individual level in lifelong learning.

What experiences come with learning through the use of ICT?  Project Africa had faced technical dilemmas in accessing, adopting, and implementing digital resources in aid of its adult educational programmes for rural women. The challenge faced the project at the time of the study, as well as building up Internet capacity and overcoming the remaining digital and infrastructural barriers, was how to make language preferences blend with the literacy capacity of rural women in a multilingual country as Kenya. A primary motivation for starting a project or an education platform such as the Women’s Academy is to integrate all the nation’s citizens into Kenyan society no matter where they happen to be located. The founder of Project Africa describes this as “empowerment”, in that learning the official language is one way of getting strengthened.

Project Africa’s educational programmes has something it refers to as the Rafiki Club (http://www.worldpulse.com/pulsewire/groups/6627), which is a social networking site (Figure 4.1). It has merged the use of the traditional epistolary mode of communication with the use of the Internet to ensure that information and education can reach even the remotest parts of Africa, such as a village like Lunga-Lunga. It is said by the founder that while the social networking site used for the educational programmes offers women an opportunity to learn by socialising and telling their own
stories, it is limited by its lack of a structured curriculum to follow which would also ensure assessment of progress in acquiring language skills by the participating students.

The Rafiki Club recruits women from other countries into a letter-writing exchange programme that allows pen-pals to communicate with women from the Women’s Academy. The Rafiki Club is employed to a) recruit pen pals; b) discuss issues regarding the situation of women in general. However, the Rafiki Club does not primarily use digital tools for writing letters among pen pals, as these letters are primarily handwritten.

**How do the women portray their everyday lives and community?** This analysis reveals the major topics discussed among the women and pen-pals. It also reveals how the women experience learning with pen-pals and ICT. All letters between women and pen-pals are written in English (Figure 4.2). It was revealed by the founder and by women during focus-group sessions that the Women’s Academy strives to make women maintain their tribal language jointly with Swahili, while learning English. The tribal language is important; it displays culture and tells something about the person’s heritage, the founder stresses. Nevertheless, Swahili is important not only to bring all women from various language groups together, but also to maintain communication with people across the country. English is important for succeeding in business, as well as for sharing news, media, and societal information.

**Feeling of helplessness:** One major internal feeling the women express is...
not being able to communicate effectively due to high illiteracy amongst rural women compared to experts and other business people in the community.

This feeling is explained in different ways. For example, one woman adduces, with several other women agreeing:

A sense of helplessness when not being able to find out the cost of a product.

The internal feeling of helplessness is very intense among the women. This helplessness is formulated in different ways:

Not being able to buy things in stores or withdraw money from the bank.
Sense of clumsiness when using finger- or thumbprint instead of written signature.

Not only helplessness is expressed in this last quote, but also a sense of exclusion.

**Feeling of exclusion:** The women feel it is difficult to be informed of what is going on in the world outside Lunga-Lunga agreeing that the Rafiki tool was a kind of “information and enlightenment tool” as they called it, one which also had the potential to break down prejudices and biases. Through communicating with pen-pals from the United States, women’s previously acquired thoughts or mental images created were broken down. More than half of the women explicitly gave evidence for that: “I didn’t think a white person should ever talk to me.”

These thoughts, which are kinds of created mental images, tell a great deal about the nature of Lunga-Lunga’s appeal, which could be interpreted in at least two ways: that there are no people with Western roots in this area; or there are no people with Western roots that would talk to these women. Being an African woman and living in a village was something that the women came back to several times in the discussions.

**Family and relationships:** The concept and term of “family” was discussed extensively. The women discussed why many women from industrialised countries do not have children or have only one child; they also discussed why many women in the West do not stay longer at home to take care of their family and household. Another expression of helplessness in relationships is an effect of not being able to read and write:

Not being aware if one’s husband is cheating on you.

Overall, the issue of men with more than one spouse or mistress is a major concern and a topic for lively discussions among the women. In this respect, two women started an intensive debate about the importance of being able to read to understand text messages or SMS sent by the mistress or the husband as three women stated:

He cannot hide it that easily anymore.

In general, the topic of men unwilling to work much and of cheating husbands was frequently discussed among the women and their pen-pals. However, an individual discussion with one of the staff revealed that she would prefer to live in a polygamous relationship rather than live alone, or until she finds the right man:

It’s better to have family, so it’s okay if my husband has many wives.

**Labour:** One woman, in response to heavy jobs says, she has come from far with her baby on her back, and when she goes out to the garden to perform duties, she still has her baby on her back. If she has to go for water, she usually has her baby...
...and through a whole day, it becomes heavier from one task to another. Meanwhile, the man is sleeping and does not want to do heavy jobs. Another woman agrees and begins to talk about her husband who has no job. She therefore suggests that he should take casual work and come back with at least 100 shillings (0.94 euro, 2010-12-29) after a whole day’s work (12 hours).

Reproductive health: The women mention two reasons, which are culturally rooted, why women have many children: the family is not complete without children; and a couple would not need reasons to protect themselves after marriage. This is because the women are aware of the problem with multiple partners and prostitution:

- your husband might have other wives.
- your husband might not accept protection, and protection is something many people don’t use anyway.

Another issue discussed is that of truck drivers picking up young girls. One of the major crossing points between Kenya and Tanzania goes via Lunga-Lunga. This crossing, as another woman comments, is used by male truck drivers and other men, who stop along the road to take a rest, and, while resting, pick up young girls. This vulnerability and dependency on male partners is also confirmed by the staff of Project Africa. According to Project Africa more than 90% of the women in Lunga-Lunga are illiterate and dependent on male partners. Project Africa reports that many girls from age (15 years) are forced to older partners by their parents. This dependency upon male partners and teenage marriages contributes largely to sexual favours.

Differences based on race and social status: Differences based on race and social status in terms of lack of response to letters is another topic for discussion. One suggestion as to why this happens would be that they are black and poor, according to the women. As motivation for such a statement, two women stress that during their whole life they have never seen more than the area in which they live and work, which is about 10 km² in either direction, making it difficult to communicate with other people. One woman comments that there are no tourists coming to see the village, and...

...foreigners do not settle down so far from the cities or beaches.

Nevertheless, one woman reports that she has seen some of the volunteers working in Lunga-Lunga, mostly women but also men, and just discovered that...

...there are good men too.

Different ways of conceptualising: Internal feelings arise because of different ways of understanding concepts behind different terms. For instance, several women find it difficult to conceptualise certain terms that the overseas pen-pals discuss. Almost all of the women have in common very little understanding of what the world outside their own community looks like. During classes women are learning terms and concepts that are important for their settings (Figure 4.3), such as “farmer”, “cabbage”, or “cashew-nuts”, but also words that are important in wider, global settings, like “economic” or “health clinic.”
Infrastructure: External objects such as the lack of means of transportation are not discussed to a large extent. However, the women agree that the Government should “invest more in rural communities like this” and take a walk around the community to see what it is like. Since women need to do the labour around the house and there is no kindergarten, it is difficult to study because a learning centre can be an hour’s walk away.

Educational tool: The Rafiki Club on the SNS World Pulse is experienced as a language barrier itself among the women – both positively and negatively. In a positive sense, Rafiki is a tool that makes communication in an intercultural setting possible, and thus, as one woman comments, “improves English language learning”. It also helps to improve digital literacy. The capabilities of being a tool for “sharing ideas and becoming socialised” are something positive with Rafiki as far as the women are concerned. From not being able to read and write, to having gained literacy skills, the women suggest that the Rafiki could also be used as a way of promoting and developing new products to raise the income for women and the organisation Project Africa. Other advantages with the teaching tool Rafiki according to the women are that it can be employed for...

information and enlightenment, breaking prejudice/bias, globally networking, friendship – locally and globally – and sharing ideas and advice.

On a negative side, the World Pulse site comes in English only, which makes it difficult for women to use properly. Another drawback is the slow or totally missing response to letters.

4.4 Paper 2
The aim of this paper was to learn whether digital villages are accessible and appropriate to women in deprived environments in lifelong learning. Examples of subquestions raised were: who are the users of digital villages? What do users and managers do
to encourage female users? How and for what purposes are digital villages used? In what way do digital villages factor in local needs?

**The set-up of digital villages:** We learnt, from the interview at the Jomo Kenyatta University of Agriculture and Technology, that at that time the Ministry of Information and Communication were trying to identify certain spots at which they would set up the digital villages. It was still in what they referred to as its “infancy”. According to the deputy, the Kenya ICT Board in collaboration with Cisco is trying to set up an ICT park within which they create “some sort of a digital village”. In doing so they hope to come up with a place where people in the remotest areas can gain from ICT services, including aspects of ICT training within the villages. The deputy understood the connectivity as one of the major challenges, though; “the project is ongoing”, he stressed.

**Who is to go “down there”?**: NEMA is supervising, coordinating, and implementing all environmental matters across Kenya on behalf of the Government. This includes promoting environment education and technology-enhanced learning. Discussing rural environments as regards visions and policies, according to NEMA environmental integration is higher in urban centres than in the rural ones why it has been more of a challenge to try dealing with the issues of urbanisation in the various regions Kenya has, including education for a sustainable development programme. A challenge in designing and setting up the digital villages is to understand local needs and how to learn what they need. Key cases in point according to the NEMA official would be issues like “how is indigenous knowledge recognised?”:

> When we are dealing with policymakers there are certain challenges and issues to address if you deal with streets...there are waste recyclers...all manner of people...we customise issues based on what interests are.

> Initially we used to write down individual people and we found that approach was not sustainable but we found...some people down there have better connections and better reach down there to the community than we have so if I left here and went to Kakamega and started talking to people. They don’t know me and they don’t have that much influence...local community elders...are easier to access so that’s the approach we are using. So that we identify the entry point and if it’s a church and community development group whatever it is so we partner with them...In that way you also minimise conflict because they have a role to play in the day-to-day interface with people and therefore they don’t want to see someone is jumping from here directly to the people. And therefore that reason we have this thing in the Transmara and Narok about 2 months back. And you find that the entry point into the community there is very difficult unless you get the right platform people because there are those people they trust so if they get the info from the source to them. It’s creditable information.

Another core factor is the issue of languages:

> But you see, also the kind of information we have packaged is in various forms. The information on top is in pictures. Some of it has been translated to all the local languages some are in Maasai, others in Luhya whatever but even when you translate it people might not be able to read it so we sometimes air radio documentaries but in a local language at a specific time.
Managers’ perspectives on digital villages: A tool in use to empower with literacy skills is the Pasha portal to get the technology on literacy to the community. One of the managers emphasises women in this respect.

[W]omen don’t specifically come here to work on the computers but when they get here they get curious: “What are all these machines?”; they think they are TVs. “Are you selling them?” we tell them, “no.” and they are for this, this and this. Others see the webcams and get curious: “what are they?”; because they have a light and when it is dark, it lights up. So, we tell them and in the process of explaining to them what that does and under what circumstances they use them for, they get informed about a person, you don’t need them to send you pictures, so you can talk as you see them online. That’s how we explain it to them.

The managers talk about nuns who manage one centre; apart from this a major emphasis is put on students in general rather than on women in particular. One of the goals of the digital villages is to bridge the gap between urban and rural environments, the latter of which is often deprived:

The basic thing that has mainly driven people out of the world communication is that they are cut out of communication; this is because of access gap.

Local needs are considered in different ways, be them conducting research to highlight the need of the users, assisting the users in binding, printing, and laminating their documents, and providing Internet using the specific Governmental Internet portal named Pasha. However, this portal is not so frequently used, a manager comments, which we could also see from our own observations. When asking what the managers do in making the centres fun, motivating, and rewarding for all parties, one manager says:

[It’s] a sense of personal satisfaction when you see a girl or a boy walk in here hopeless and by the time they leave here they are smiling.

Overall, little attention is paid to languages and literacy. The managers emphasise that they rarely use tribal languages because users come from different language groups. Swahili is the language in use in all four centres to communicate with clients, with only a few users preferring to use their tribal language. Despite this fact, to some users it seems to be important to have the opportunity to communicate, especially informally, in a tribal language, instead of using Swahili or English, which is considered by one manager in Malindi:

First of all, I know the local language and I have to talk to them in their local language to understand what they are studying. Malindi is a Giriama town and I can speak Giriama fluently, even the jokes, so most of them think I am a Giriama. When they come here they speak to me in Giriama and I have to respond to them because they know I am a Giriama but I am not, I am a Luo.

Overall, those who are already literate and have certain literacy skills use the centres. Nonetheless, female managers work more actively than male do to inform and reach those people who are illiterate, and lack digital literacy and general knowledge of what the centres have to offer:

I help the community in teaching them about computers and Internet services. Most of them do not know anything about computers and the Internet; this is about 75% of them… I have to teach them how to use the computers.
Like the Maasai who are security guards at the hotels, they come here but they don’t know anything: how to read, and how to speak English. I have taken time with my girls [attendants] to teach them how to use the computers so that they cannot depend on us all the time. Maybe they have private things to do but they do not know what to do. I have to teach them this one is A B C. Maasais tell me openly that they have never been to grade one. I don’t discourage them, I give them hope that they can do it. I tell them anyone can learn using the computers even if they went to school or not but only if they have an interest. I found out that they do have interest but they don’t know how to use it.

Although managers agree it is important to incorporate all people, they suggest that one reason for not considering largely illiterate people or people who need to go back to class is that these people do not come here to use the centres.

To be honest, we have never had anyone like that. I don’t know how to handle that given.

Of late, we have not had a case of somebody who cannot read the content of Pasha as such, because mostly, I am using Pasha for the students and most of them are literate in a way.

Although, the managers take account of students in general, one female manager emphasises students with special needs, making them become an integral part of the community, thus acknowledging their existence.

Every student that comes here is a special student...we have students with very special needs. Some of them, like now we have illiterate, completely illiterate students, we have visually impaired students. I would say we have a lot of vulnerable cases in terms of health, disabilities in terms of education and even in terms of background.

Users perspectives on digital villages: The users find the services good, though male users have concerns about females and ICT. Three male users made the following comment about females as owners or managers of digital villages:

[Women are] scared of machinery.
Women don’t do such [i.e. being managers].
Women don’t know anything about computers, they fear them. For example, if you switch off the monitor and tell her that she has spoiled it she would believe it as they just don’t know.

The female users are not that specific in their answers on female owners, cannot tell whether female owners should be different compared to males.

I have never seen one run by a female but I would like to be the first one if you guys promote me, ’cos I am sure this research is for something.

Men, am telling you, my dear. Men, when it comes to IT, men think that women can’t handle the technical stuff. Just like when I went for my attachment, most of the people there prefer male technicians. To me, am far much better because they used to come and ask me about stuff that they were called to go solve, you know, in computers for the big boss. Well, shame, but that is what I think.
When it comes to advantages with digital villages for female users, all females say they can speak to their friends who are close or far away, and they can access services such as printers. By observing, it is noticeable that social networking sites are of major interest among users. Two female users state that they use the centre to browse, especially on social networking sites, to send emails to friends, and meet people. Most users know Swahili. The Pasha portal has not put the language aspect in place but is working on it. The reason found for this is that users without any proper command of English or Swahili do not usually come to the centres. Therefore, any kind of language policy has not been a factor for users. Although the majority of the users knew about ICT before, one user says Nevertheless, she thinks ICT is good but “just not readily embraced by but the centre has assisted and she has learnt “a lot in this place”. Female users believe the centres have the potential to “empower women”. In general, the users find no barriers in regard to the usage. In general, female users also think women who come to the centres are literate and women and computers are a good combination. The following are quotations from four female users:

<table>
<thead>
<tr>
<th>Quotation</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital villages give women a voice to talk 'cos I would like to do political science and on the Net you can say what you feel without any fear given the fact of what happened in 2007 [referring to the election aftermath].</td>
<td>A woman</td>
</tr>
<tr>
<td>Women’s knowledge is power and they help us look for jobs from the comfort of our home area and besides they provide just the same benefits a man gets there are no special advantages as such.</td>
<td>A woman</td>
</tr>
<tr>
<td>I think [the centre] helps women a lot because they come here to search for jobs.</td>
<td>A woman</td>
</tr>
<tr>
<td>I think IT is awesome with it I can do so many things as you will know that books can be an issue but Internet helps a lot.</td>
<td>A woman</td>
</tr>
<tr>
<td>IT is the only way forward for us [women and girls]. I think the only way forward is to look at e-learning; it is just what we need.</td>
<td>A woman</td>
</tr>
</tbody>
</table>

4.5 Paper 3

Drawing from behavioural archaeology, this paper enhances the understanding of what affects the impact of ICT on disadvantaged women in lifelong learning. Some of the findings uncovered in this paper have already been revealed in paper 2. However, this paper is approached from another perspective, which allows an abstraction and interpretation of the same results.

**Challenging the Capability Maturity Model:** This paper sheds light on the digital villages from a behavioural perspective, drawing from behavioural archaeology, which is hypothesised to perhaps better reflect the characteristics, effectiveness, and usages of the digital villages. In doing so, it challenges the Capability Maturity Model (CMM), which has been used as a source of inspiration by the stockholders of the Digital Villages Project. The digital villages have three “maturity models” or levels, inspired by the CMM:

1. The basic model offers, e.g., basic office services, Internet surfing, and e-mailing.
2. The standard model (all of the basic model) offers IT basic skills courses, IT face-to-face support, and access to Government services.
3. The advanced model (all of the standard model) offers remote technical support, wireless access to satellite “places”, an educational and vocational course training room, and a health advice room.

The sharpest criticism raised against the CMM is the lack of a theoretical basis, but this is based on experiences from knowledgeable people, only vague empirical support, and reveres processes but ignores people (Bach 1994). Relying on CMM may thus have a certain social impact on and affect the usages of the digital villages. For instance, not allowing levels to be skipped over does not represent the way the private contractors would run the digital villages. Further, “not recognising people” does not make sense in the usage of a digital village considering its purposes in society. Another concern is the term “maturity”. The term stresses that something may be immature, still in a developmental process because it is not good enough or sufficiently developed. If so, this means all the digital villages will provide the same features and will be set-up equally. This is nonetheless unrealistic.

The digital villages are set up in diverse deprived environments and thus forcing the same set-up would be directly counterproductive to its intended usages leaning to a negative social impact on the majority of the users. These constraints should be taken care of by designing the digital villages with local needs as relevant foci, whilst considering the environment and the nature of its appeal. Otherwise, first the environment itself must change before a digital village Moreover, using the term ‘maturity’ might cause a sensation of not having succeeded completely that, further, may cause a sensation of not being enough as a provider/contractor nor as a user. In the long run this could lead to a question of class, in that certain people chose to use a certain digital village as a way of showing how they are and not what they need. This may increase instead of decrease the disparities.

**Digital villages from a behavioural perspective:** A model that can be useful for development interventions that relies on the concept of CRC, such as the DVP, needs steps or levels to detail and justify the following:

1. Explain the steps taken to create a digital village.
2. The process of creating a digital village, referred to by Bleed (1997) as *doing* technology.
3. The results of those steps and processes undertaken.

The process of doing something may lead to a new artefact being created, but also to new and alternative arrangements or environmental modifications. Bleed suggests that variability exists within technology that can be conceived of in terms of knowledge, applications, and standards (Figure 4.4). The other side – Results – is linked with the Content side. The reason most studies of technology separate them, according to Bleed, is because they require different technical expertise. This is also a reason it is fruitful representing a project as the DVP by drawing from this model. For, it shows the complexity in initiating, managing, and maintaining a digital village. It also shows why it is important to collaborate in cross- and intercultural settings among people with different knowledge and expertise to carry through the DVP.
Bleed’s model shows what the outcome from the pre-process and process of setting up a digital village may be like. It shows the concrete result as Material Culture, namely a digital village and its constituent parts. Also – and this is not equally obvious – it shows Social Arrangements. These social arrangements form because people who otherwise not might have met come together using digital villages. This may be a positive social impact. On the downside some groups may be excluded. This causes alternative social arrangements because they are not members of a group they should be part of according to Vision 2030. What is important to understand is that Bleed just puts examples of possible results from doing technology. Bleed also mentions Political Arrangements, which has not been exemplified in the model.

**Political Arrangements from doing technology:** Drawing from Winner (1986), a digital village would be referred to as not only a technical system that is deeply interwoven in the conditions of modern politics, but a system that in itself bear political properties. In analysing such a system, Winner suggests paying attention to its characteristics, the meaning of those characteristics, and the arrangement of a system. In this paper attention was paid to the last issue.

Winner discusses the low bridges over the parkways on Long Island, New York. These allowed the “right” people – those travelling by car and not by bus – to pass by and discover other environments to learn more about their society. The constructors or those who initiated the constructions hence achieved a social effect. In principle, the digital villages are open to all citizens living in the environment. Users are generally content as they can go online now more often because they do not need to travel to the city. Most users employ the digital villages for social networking, emailing, copying, non-formal distance programmes, tasks related to their formal education, and e-governance/societal information. The digital villages have users of all age brackets; although, in general the users are between 16 and 25 years old (also partly described in paper 2). This applies particularly to one of the digital villages that is only accessible to students:

Basically our Pasha is not open for everybody outside there, it’s strictly for the students here and that’s because of security reasons, and that’s something that has
been discussed at length by the management and the people in charge of Pasha. The other thing is we use Pasha for the materials like any other Pasha centre only that it’s not that commercial because this is an NGO-sponsored centre and we don’t work for profit. Only the students who come here benefit from Pasha.

All things considered, these new arrangements help the locals to discover new environments a short distance from their homes. By means of the Internet they can travel around the globe digitally. However, this only applies to the students. Those who are students in Kenya normally have a slightly better income than non-students. Earlier it was pointed out that women in Kenya rarely finish school. Hence, the risk is obvious that those people are left behind. This kind of arrangement leaves out those who can afford to go online for a couple of minutes looking for a job or marketing a product and thereby increase their opportunities to enhance their quality, because they are too poor to undergo a formal education. This means that those citizens still need to travel to an institution in the city to become a student. This may not be possible for this group because of a lack of sufficient economic means or the need to do the labour around the house. Further, the labour around the house in rural environments by tradition is a woman’s job. Thus, this policy set by the managers of the digital village, again, achieves a particular social effect.

In a similar fashion, a digital village that just allows students to enter may give rise to alternative social arrangements. A large proportion of the citizens living in rural environments in Kenya speak neither English nor Swahili. With a poor command of those languages it would be difficult to finish school and earn enough points to be eligible for continuous studies. A digital village – because of its location – would be a system through which many of those citizens who never reached school would have a new opportunity to do so. It is therefore worth noting that those citizens cannot get this second chance to study – because of the chosen arrangement – just because they did not study earlier. This does not mean that a digital village arranged in this way creates gaps or barriers; after all, they existed there before. Instead they may highlight those gaps and barriers and make citizens remember that they dropped out of school or never entered because of their economic situation. Further, the managers, apart from one, felt they did not have the adequate knowledge to handle illiterate people or those who may be in need of special or extra support. One manager stressed:

Of late we have not had a case of somebody who cannot read the content of Pasha as such because mostly I am using Pasha for the students and most of them are literate in a way [i.e. to a degree].

This lack of understanding of people with special needs leads to the exclusion of those who did not attend school although the digital village would be accessible to everyone and can serve formal, non-formal, and informal education and learning. This characteristic of some of the digital villages may be culturally and politically rooted. One of the managers with a critical attitude towards the political system expressed:

We have a community that has a depending syndrome even what they can afford they don’t want to afford. They don’t want to get, they want to be given. The other thing is the Government doesn’t recognise as they don’t give us any input because I feel like sometimes they ought to give us like teachers maybe books, equipment or things like that. The advantages [with working transnationally] are such that we are able to get ideas from other people and we are able to grow, we
are able to get aid from outside, and I think in a certain way we are able to meet the needs of most of our clients if not all.

A digital village can bear political qualities, which may be perceived as a stressor by certain users leading to a negative social impact in lifelong learning. There have been criticisms against the Digital Villages Project. This paper has discussed some tentative explanations to these criticisms and also suggests strategies to overcome these criticisms mainly drawing from behavioural archaeology. In so doing, it points specifically at political arrangements as a result of setting-up digital villages in certain ways. Some of these political arrangements could be minimised by better understanding the various social and cultural structures that characterise a society. For, in each society, there are systems of activities, characteristic of the culture associated with the particular society developed. Within those systems humans organise themselves using a well-developed communication among one another. It is therefore necessary to have a pre-knowledge about the social and cultural structure that form the systems in order to understand the activities in those systems and hence be able to serve a whole population and not just a few.

4.6 Paper 4

This paper takes paper 3 a step further by positing a behavioural archaeology view of the formation and creation of CRCs drawing on Bleed (1997). This paper also targets research question 2. Exploring two projects in deprived environments in Kenya and Cameroon, the aim of this paper was to understand factors pertaining to successful CRCs in lifelong learning. It did so by raising questions such as: Where is it envisaged that community resource centres will lead in terms of benefit to communities? What behaviours are exhibited in establishing CRCs in deprived environments?

The results (Table 4.1) offer analysis of data as early steps in the archaeological exploration illustrating the formation of the two CRCs compared. The YNet Malindi project is part of the Kenyan digital villages. The other CRC project examined in this paper was initiated by the NGO Martin Luther King Memorial Foundation (LUKMEF) in Cameroon. It was established as a medium to resolve social conflicts, bring peace, and increase knowledge about Cameroonian and global society.

The rationale for investing in the CRC projects is similar in both cases. One difference is that LUKMEF directed its focus towards social arrangements (bringing peace among societal groups), while YNet International placed its focus on both social arrangements (equality) and material culture (connecting villages to each other). Both centres believe that language is a barrier to equality and thus language is an important medium for building mutual understanding and learning.

In both projects, large organisations are important collaborators. These collaborations generate both intellectual and economic contributions, though these contributions are based on ideas external to the deprived environment. As a counterbalance, YNet’s work and decisions are largely based on the manager’s local knowledge. LUKMEF organises general meetings to enable managers to make common decisions and learn from each other.
Table 4.1: A behavioural archaeology view of CRC formation, drawing on Bleed (1997)

<table>
<thead>
<tr>
<th>Content</th>
<th>YNet International, Kenya</th>
<th>LUKMEF Cameroon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Local knowledge of language, international knowledge of technology introduction, local knowledge of technology usage</td>
<td>Local knowledge of language, international knowledge of technology deployment and usage for a defined purpose, local knowledge of local needs in an HIPC*</td>
</tr>
<tr>
<td>Applications</td>
<td>Access to societal information, e-government applications such as tax transactions</td>
<td>Mobile banking for the rural poor; inter-tribal dispute resolution and conflict prevention; rural food security through weather forecasting; improving primary school performance</td>
</tr>
<tr>
<td>Standards</td>
<td>Objectives of greater rural-urban and female-male equality expressed in Vision 2030</td>
<td>Human rights and mutual respect</td>
</tr>
</tbody>
</table>

**Technology**

<table>
<thead>
<tr>
<th>Use of all types of ICT to achieve a desired result</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Desired results</th>
<th>YNet International, Kenya</th>
<th>LUKMEF Cameroon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material culture</td>
<td>Disconnected villages in deprived environments become digital villages connected nationally and globally</td>
<td>Telecentres connect villages to each other and to global communications</td>
</tr>
<tr>
<td>Environmental modifications</td>
<td>Improved electronic communications infrastructure and electrification/power</td>
<td>Improved electronic communications infrastructure and electrification/power</td>
</tr>
<tr>
<td>Social arrangements</td>
<td>Socialisation includes ICT in education, small business, e-government and other social and economic sectors</td>
<td>Information exchange, socialisation and networking increases mutual respect and reduces conflict amongst different groups in society</td>
</tr>
<tr>
<td>Adaptive success</td>
<td>Would be seen to be achieved when women from different language groups can use the services on equal terms with men</td>
<td>Would be seen to be achieved when people from different societal groups use the services in ways that build mutual benefit and reduce conflict</td>
</tr>
</tbody>
</table>

*HIPC - heavily indebted poor countries

The cases of the YNet and LUKMEF digital village and telecentre respectively provide a basis for considering how Bleed’s (1997) Content and Results may be used to analyse the adaptive development of CRCs. A model that considers those matters and at the same time recognises the different set-ups of digital villages is hypothesised to better serve its purpose. The application of Bleed’s perspective (Bleed 1997) enables the researcher to explore the behaviours embedded in technology adoption and usage, as well as where technology diffusion leads in terms of culture, changes to the environment, social arrangements and success or failure. These perspectives were
what we sought to explore with respect to community resource centres in deprived environments.

The conceptualisation of Bleed’s behavioural definition of technology informs the archaeological approach to this study, as the elements of the definition are explored and the artefacts and their usage are analysed with respect to the YNet digital village project in Kenya and the LUKMEF telecentre project in Cameroon. The behavioural archaeology approach appears to have merit in illuminating the path for decision-makers if they strive to explore the relationship between content, technology, and results. The projects in Kenya and Cameroon may have either a low or high impact on the society in general and on communities in particular. It is not clear whether the digital villages will bridge the digital divide between rural and urban communities, reduce inequalities between the sexes, or bring peace and understanding among language groups.

4.7 Paper 5

This paper contributes to ICT in lifelong learning in settings such as CRCs with emphasis on women. The study was set out to understand the constraints of ICT in lifelong learning on disadvantaged women. Using Kenya as a basis and Bolivia, Cameroon, and Sri Lanka as comparative settings, the paper summaries the main stressors and social impacts that have been identified and singled out in all studies. This paper also includes results that could not be included in other papers. Stressors and social impacts were grouped and categorised under Vanclay’s headings of culture, community, political systems, health and well-being, personal and property rights, and fears and aspirations (A.4, Table A4.1). This research affirmed the gender and class divide in the use of ICT in lifelong learning.

Using statistics the study shows that Kenya still lags behind its regional neighbour’s ICT development. Kenya, jointly with Cameroon, still lag behind in ICT enrolment. In terms of the International Telecommunication Union (ITU) ICT Development Index (IDI), there are similarities between Kenya and Cameroon on the one hand and between Bolivia and Sri Lanka on the other. In Bolivia it was found that men and women – more or less – can use the CRCs on equal terms. The CRCs also socially help the women, or as a manager and a user stressed:

There are women with no one to speak at home and coming [to the CRC] they would find someone with whom they can interact.

In Kenya prostitution was present among women either directly or indirectly via their daughters. Comparing all the visited CRCs and regions or subsocieties not only around Kenya, but also around Bolivia, Cameroon, and Sri Lanka, Malindi in Kenya faced most challenges regarding reproductive health and prostitution.

Summary of stressors: The most pervasive stressors at the local and regional level from the field studies are grouped under the qualitative dimensions of communication external objects (also physical tools) (Vygotsky 1978; Kaipayil 1995; Säljö 2000); internal feelings (also psychological tools) (Vygotsky 1978; Kaipayil 1995; Säljö 2000); mental image created (Kaipayil 1995); social relations (Table 4.2). As for “external object”, the definition includes also systems created by humans.
### Table 4.2: Stressors identified from field-studies

<table>
<thead>
<tr>
<th>Category</th>
<th>Kenya</th>
<th>Bolivia</th>
<th>Cameroon</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External objects</strong></td>
<td>Infrastructure</td>
<td>Political tensions</td>
<td>Malaria, infrastructure, lack of equipment in the centres, tribal disputes</td>
<td>Software support of Sinhala sign language</td>
</tr>
<tr>
<td><strong>Internal feelings</strong></td>
<td>Literacy, skills in maths</td>
<td>Meeting men alone</td>
<td>Computer literacy</td>
<td>-</td>
</tr>
<tr>
<td><strong>Psychological tools</strong></td>
<td>English (and Swahili)</td>
<td>Spanish</td>
<td>English</td>
<td>Speaking in English</td>
</tr>
<tr>
<td><strong>Mental image created</strong></td>
<td>Racial and biological issues</td>
<td>Racial issues</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Social relations</strong></td>
<td>Contraceptives, polygamy, prostitution, traditional manners &amp; customs</td>
<td>Lack of father figure</td>
<td>Traditional manners &amp; customs</td>
<td>-</td>
</tr>
</tbody>
</table>

**External objects**: Communications in terms of infrastructure to facilitate transportation, Internet, and telephone access as integral parts of lifelong learning was lacking in Kenya, but also in the other settings apart from Sri Lanka. In Bolivia, however, this issue was only observed but the participants did not emphasis it. Nevertheless, there was a particular emphasis on political tensions in Bolivia, which, on the other hand, may affect the infrastructure. In Cameroon, the infrastructure and level of education among the locals makes it difficult to maintain a high standard of equipment, which also touches upon the internal feelings of “computer literacy”, or as one manager said:

> We don’t have people who can make computer maintenance. If something happens with the computers we are forced to go to the town, which is difficult for us and expensive... We wish to have an engineer here to solve some problem, because it is a risk to go to town to maintain the computer because of the roads.

In Sri Lanka two major stressors were a general lack of support of Sinhala sign language on computers along with speaking in English. Even though there are tools for generating these symbols users and teachers sometimes find it easier to learn and go ahead with the Latin alphabet or mix the two types. The participants also claimed that the Latin alphabet is that important that everyone is forced to learn it anyway.

**Internal feelings**: The participants in Kenya discussed the importance of skills in literacy and maths more than in the other subsocieties. The participants agreed on that they need these skills when buying products in a store or to avoid being cheated by their husband. To some extent the internal feelings contradicted each other in Bolivia. On the one hand, the women recounted that even though there are women who are
afraid of being at the centres if there are only men there, on the other hand, they do not experience the same kind of “machismo”, as they call it, now as in the past.

Physiological tools: While managers and directors rarely shared the view of the users on the matter of languages, the use of languages has doubtless been one of the most pervasive issues in this research. One example is a feeling of exclusion due to language barriers, which may lead to a changed attitude in that a person learns another language (social change). On the other hand, if the person does not (status quo), the feeling of exclusion may remain. The pattern was similar in the CRCs. For instance, In Sri Lanka the users and the managers of CRC claimed that all people in the region speak the same language (Sinhala) and most people also do have a sufficient command of reading and understanding English so to gain from web pages in English. The same among most of the managers and users of the CRC in Kenya. In Bolivia the managers claimed the same while users did not. In Cameroon, the managers had a somewhat different view on languages. From the outset, language was seen as being a hindrance to the development of the CRC LUKMEF. Thus the management team consists of people originated from the area to resolve challenges related to language. To make the centre accessible to the majority of the local population, CRC staff translate and write documents in the local language. At the time of our visit there were plans to extend the translation and the creation of websites in local languages of the region, or as one manager revealed:

We help people who don’t speak English and/or French by translating into and out of the local languages...

Mental image created: In Kenya and Bolivia racial issues were perceived as a major stressor. In Kenya, women’s experiences can be divided into two groups: those who never or rarely have been exposed to people of a different race and as a consequence thought that white persons would never talk to them in real life. This group also show do be new or non-users of ICT. To the other group belong those who often are exposed to foreigners through the use of the Internet and by meeting them around the centres. This group in contrary showed to be regular users of ICT. In Bolivia racial issues covered a belief that people would have a look of dislike upon native people in general and women and those not speaking Spanish in particular. Users suggest such believes were sprung out of a discouragement of local languages and dialects.

Social relations: The stressor of "traditional manners and customs” relates to FGM, contraceptives, domestic violence, and polygamy. When it comes to contraceptives uses, a driving force towards a social change is the fact that marriage does not prevent the spread of STDs while a restraining force that opposes the same is a belief that marriage does prevent the risk of STDs (Wellings et al. 2006). A woman with an education, a professional/clerical job, or who has obtained her goals is likely to have her first sexual experience at a later age, is more likely to use a condom, and have few sexual partners (Adamczyk & Greif 2011), which is further likely to decrease the risk of obtaining an STD. One strategy is to increase opportunities of obtaining an education rather than look down upon or despise all old traditions and customs. On the issue of polygamy, traditionally a man can have more than one wife (opposes a social movement) but a woman can only have one husband (supports a force towards social change. Putting together these traditions and customs that deter women’s progress another stressor became clearer, namely “being a lesser being”, as one woman expressed. That refers to the perception by the same women towards themselves that
they are lesser beings who can only go thus far as giving birth and taking care of
domestic chores. A further explanation from one of the participants was:

  In most of the communities that practised FGM, for example, the girls would be
  married off even before they heal. Of course they had no voice whatsoever. As
  for contraceptives and polygamy the man chooses what happens and how it does.

This feeling is wide-spread among the women, in Kenya and Cameroon, particularly,
but also among a few of the older women in Bolivia. It seems that any gender change
has been as a result of a brave fight by the women themselves, “the perception of
empowered women being a threat; men still dominate in our society”, as a woman
reported. The same participants termed this “women’s legendary status quo”.

We learnt from the field studies that the stressor of prostitution is ambivalent but
may fall under Lewin’s (1943) induced force in that we noted mothers turning a blind
eye to what their daughters are up to. Or, with reference to one user and one manager
of a CRC in Kenya on the issue of sexual favours among younger girls: if a mother
cannot give her children food one evening and her daughter returns from the neighbour
with a package of flair…of course, the mother knows and the daughter knows that her
mother knows. As a consequence, as one manager of a CRCs stressed; this leads
not only to the girl will hate herself, but she may also hold her mother in detestation,
ending up being even more vulnerable and as a result a bigger target for men.

It was notable that the stressors and social impacts at national level are often
a result of national policies and regulations – or lack thereof – while stressors at
local/regional level involve everyday-life occurrences that are present in women’s
immediate surroundings. In the same way, this means the former level is likely to
indirectly affect the use of CRC in lifelong learning and the latter directly. Hence
an understanding of both levels is critical to provide a more solid picture about con-
straints of ICT in lifelong learning and, thereby, the understanding of what affects the
social impact on disadvantaged women.

Most literature agrees on the stressors found. What literature explicitly does not
mention, however, is women’s perception of themselves. Literature tends to cover the
neglect against women regarding ICT cultures that are described as male resources.
Nonetheless, there is also a need for an agenda that envisions educating women as to
make them better aware of what they, themselves, can do to break their “legendary
status quo”. Such an effort would doubtless mitigate many of the stressors and negat-
ive social impacts found, whereby, the usefulness of digital villages and other CRCs is
increased for women regarding lifelong learning, for instance by accepting themselves
as human beings and not as “metaphors” that occasionally accept violence directed to-
wards them.

Out of eight types of social impact (Vanclay 2002) we classified the stressors iden-
tified and singled out and their related impacts using six of them, namely culture,
community, political systems, health and well-being, personal and property rights, and
fears and aspirations We can also see that Vanclay’s proposed types are problematic:
some types of social impact can be classified under more than one header.

What is notable statistically and from our own empirical findings is the different
view on women and the family in Kenya and Bolivia. In Kenya all our female inform-
ants claimed the society is highly male dominated, which was also noticeable from
our observations in rural areas: for example, the men they know about prefer neither
to work nor to look after their children or do the labour around the house, according
to the women. In Bolivia the women recount that even though there are women who are afraid of being at the centres if there are only men there, they do not experience the same kind of “machismo”, as they call it, now as in the past. In particular, among youths nowadays: the fathers are generally afraid of working late because they feel they too need to spend time with their children. This picture is also confirmed by managers of the centres who say they feel for the fathers because many of them do not have an opportunity to use the centres as they need to work long hours and their spare time is dedicated to their children and family.

A CRC has the potential to become a platform with which a country can level out inequalities between rural and urban environments and between women and men. The findings confirm that Kenyan digital villages as CRCs have the potential to support women and their lifelong learning. However, the arrangement of digital villages generally does not favour vernacular languages, illiterate users, female owners and users, or non-students.

We found that discussions among the participants in the CRCs largely covered 1) domestic issues (e.g. reproduction, traditions and customs, domestic violence); and 2) self-esteem issues. Domestic violence is one issue that calls for particular focus. What is noteworthy is that not only do men think domestic violence may be justified, but some women think so too. This research is valuable for stakeholders delving into issues of development intervention using ICTs, not only in Kenya but in a broader, global perspective.

4.8 Paper 6

The study reported on in this paper proceeds on previous research in the foregoing papers. The study was also motivated by results from Kenya we found important to build upon to clarify potential patterns and provide a more solid picture. The study reported on in this paper explored the reasoning and use of ICT by immigrant women for integration and in lifelong learning in their “new” country vis-à-vis the country of origin.

**ICT in social relations:** Most participants interviewed who are using the Internet outside their school use it for social activities. Other common reasons were to retrieve news information, mainly from their country of origin, and to learn Swedish through sites suggested by SFI:

> In fact, I don’t chat. I write at the most, on Facebook, for instance. When I arrive home, maybe I write I have met with someone and what we did and so on. Sure, I usually read and comment to my friends… computers are useful in order to communicate, so, I use Facebook a lot.

Five women reasoning around their use of ICT stressed they do not like social networking sites for various reasons, such as:

Participant 1: I have a computer at home. But I don’t use Facebook. I only use the [website] Digital Track, practising Swedish.

P2: I don’t like Facebook because I ran into trouble with my friends back home. I opened an account but closed it. But now I write to my friends using SMS on my mobile instead.
Author: Why did you run into trouble?

P2: My friends, they just “bla bla bla”. Also I have little patience with Facebook: “Hi! bla bla bla…” [imitating her “friends” on Facebook]. Sometimes I forget to answer and my friends go: “Why don’t you answer me? Why, why?” I go: “I’m sorry, I’m sorry.” I have all the labour around the house like children, cleaning, my husband, etc., etc. I have a lot to do.

P3: Your husband works in Sweden?

P2: Yes, he lives in Sweden but he doesn’t work. He doesn’t do very much; soon he will retire. He used to work for many years. He hasn’t worked for two years.

According to women’s reasoning, they feel it is important to maintain their own culture including language, food, and social relations and the Internet can serve as media for this. Despite this the women with a shorter education who use the Internet do not largely socialise with native Swedish but rather with fellows in their country of origin. The same woman recounts:

It’s important to maintain relation with my country fellows, ‘cos in my home country social relations are important but in Sweden it seems to be less important. For example if someone’s getting sick it’s important with maintained good relations and you will not be alone. Here [in Sweden] they told me you send them to institutions instead. The internet can help in maintaining relations. If someone back home does not use Internet you communicate with someone who does and then this person transmits your message to this somebody who lacks access to the Internet, or you use a telephone. Maybe I cannot communicate with my mother; she doesn’t understand how to use the Internet but with my other relatives, like my father and brothers and sisters I do.

**ICT in working life:** Apart from using the Internet for social relations, most participants – whether they happen to have a job or not – use the Internet for job seeking or to communicate with the national job-seeking agency. According to the participants who are aware of computers and the Internet, they feel the use of email is a necessity in Sweden, while in their country of origin, to their knowledge people may create an email account without using it for sending and retrieving messages. Since the participants, according to themselves, were recommended to acquire an electronic address by the national job-seeking agency in order for them to communicate on job issues, we wanted to discuss how the women reason about this:

They send missions via the Internet, email, to which I am to respond, which I also do. So I check my mails on a regular basis, about three times a day. If not...you got to check at least one time a day before five [17h] o’clock. I use the Internet everywhere. If I’m not at home but on the move I carry my iPad. I don’t know much about computers so I mainly use it for job issues and Facebook.

The top job-seeking channel on the Internet among the participants is the national job-seeking agency’s own website. And that of the city council, but some of them are using Blocket (http://www.blocket.se/), which is a portal on which a user can buy and sell things, rent apartments, search for jobs, etc., and Facebook to find jobs. All women stressed that they find jobs on the Internet but they do not get them. Those who have got a job did so through acquaintances or the city council. About half of the women think getting a job or not is mainly an issue of clothes:
I don’t think of any particular job. It doesn’t need to be a medical doctor or a teacher. Maybe it’s easier to clean. I looked for many job opportunities among various companies last year but it didn’t feel good in my heart. They say “Welcome, nice” but when they see me they look at my clothes, smile, and say “I’m sorry.” That’s the reality for all Muslim women: skirt and [covering the] hair. That is not so good here in Sweden (woman from Africa, primary edu., living for 6 years in Sweden).

Another woman from Latin America, having been seven months in Sweden, with a secondary education, recounts a similar story but pays more attention on the issue of language:

I was very hopeful when I came to Sweden. I have turned to Arbetsförmedlingen and they were to assist me in finding a job and I have found many jobs and I have no problem with working anywhere. I am used to working a lot where I come from, in various companies with all kind of working tasks. In my heart, I feel I want to have a certain job, but I have no problem with whatever kind of work they are giving to me, be it cleaning or just a temporarily job but they won’t give me any. I think I need to learn more Swedish. Can you help me learn Swedish?

Not all women we interviewed claimed they seek any jobs. Some of them need a better command of Swedish and/or lack primary education from the country of origin, but we found other reasons too:

No, I haven’t searched for any jobs. I remain at home. I leave my children at the day-care centre. I cannot be on the computer ’cos, then I return home to do my homework, clean, cook. I have a lot of commitments (woman from Africa, no edu. from her country of origin, living for 6 years in Sweden).

**ICT in formal learning:** Thinking of computers to aid in lifelong learning, we found that the schools visited were well equipped and the teachers committed. Teachers download applications on the tablet computers, try them out, discuss with each other, and then they individualise the learning on the basis of a student’s capacity. Another example is the digital solution for visually impaired learners (Figure 4.5) at Lernia.
Using this computer, students with low vision or low sight can read more easily from books or work on the computer. A teacher confirmed, though, that students who do not need this computer also want to use it, the reason being that since not many students use it they can expect more help from the teacher if they sit there instead of using the regular computers or being in the classroom with the others.

S:t Olofsskolan has arranged a resource centre called The Meeting Place (Swe. “Mötesplatsen”). This resource centre is similar to another we visited in previous studies in Kenya; integrated with the regular school and is for the students there. During most hours, there are staffs available to help with the equipment, which for example includes computers, television, copier, and projector. There is space for individual use on a computer or to work together with others. There are places for homework and socialising. During our visits The Meeting Place was also used for remedial education for some students. In general, students like being at The Meeting Place, as it allows them not only to work on their own but at the same time receive help from the staff when needed. Below follows a quote from one user who also stresses some barriers to the use of The Meeting Place:

A: What is your general opinion about The Meeting Place?

P: The Meeting Place is good since I can be on the computer reading and translating new words. Sometimes I speak with the other students. Sometimes it is not so good ’cos many students speak their own language making it hard to concentrate and understand, like Arabic, Somali, and English. The problem is, I do the same sometimes when I meet with someone from my own country.

**ICT in everyday life:** We asked how the participants feel and reason about security when using or accessing a computer and the Internet in a public location. During the visits to digital villages in Kenya some managers stressed that the centres are strictly for the students for security reasons and that is something they often discuss. All participants in Sweden agree that the security is much better in Sweden than in their country of origin:
P1: It doesn’t matter if I have a bad hair day and it’s 15 degrees below zero, for, I go out anyway. I am very strong. I feel safe and secure here. Everyone respects one another.

P2: Yes, Sweden is calm and peaceful.

Most women who had been in school for at least one semester, recounted that in their country of origin they used a computer or the Internet seldom or never, but in Sweden they use it often and regularly:

In Sweden I believe you cannot live without a computer
I use my computer every day, always. There [the country of origin] you don’t need it to manage your life, but here [in Sweden] you cannot live without it. Even when I don’t have time I use it.

Overall in their country of origin, women claim a vast majority access the Internet using an Internet café or cybercafé, a reasoning in line with what we experienced in our earlier studies on the use of ICT and with what other authors have suggested (Heeks 2006).

ICTs can act as an entrance and a barrier, either including or excluding certain groups of users from achieving lifelong learning possibilities. It thus emerged in the study that it is not entirely clear for each setting whether ICT is a benefit or is acting as a barrier (previously Table 1.2). For example, on the one hand email may be a supply for easier job seeking, and on the other hand it is perceived as a necessary evil by some participants. In addition, the (forced) use of email accounts and the like means another threshold must be stepped over in their pursuit of learning and integration into a society.

Any strong opposition from the participants as regards reasons for using ICT was not found, which is important to emphasise. The barriers uncovered are rather results of unfamiliarity with digital devices for everyday-life situations. If someone has lived “a whole life” without even knowing about the existence of a computer and is suddenly forced to use one, such an attack may cause even the most enthusiastic woman to lose her gained lease of life. Assuming the use of computers, including access to the Internet, is part and parcel of learning in everyday life, or as one woman suggested, “you cannot live without a computer” (Table 4.3), we must set our sights on mitigating the external barriers that an illiterate woman with no previous ICT culture or school attainment may feel. According to the participants’ reasoning about ICT, they do not use ICT only because they want to but because they feel that the society requires an individual to regularly use ICT. It would otherwise be difficult to get or maintain a job. This does not necessarily mean the participants have a negative attitude regarding the use of ICT in general.
Table 4.3: Illustrative quotes of benefits and barriers of ICT

<table>
<thead>
<tr>
<th>Thematic areas</th>
<th>Benefits</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>In social relations</td>
<td>SNS, telecommunication, email with friends; maintain contact with family members far away; not being alone</td>
<td>SNS causes trouble with friends</td>
</tr>
<tr>
<td>In working life</td>
<td>Job seeking; receive information from employer; execute duties on the move</td>
<td>Lack of knowledge about how to set up or use email account</td>
</tr>
<tr>
<td>ICT in formal learning</td>
<td>Tablet computers increase motivation to learn, in particular for illiterate learners; digital solutions for learners with special educational needs; informal learning</td>
<td>Difficult to work on desktop computers and text-based applications</td>
</tr>
<tr>
<td>In everyday life</td>
<td>Entertainment; &quot;you cannot live without a computer&quot;</td>
<td>Difficult for learners with lack of digital literacy to learn alone</td>
</tr>
</tbody>
</table>

SNS=social networking sites

Providing a summation of some of the benefits and barriers that emerged, our study has shown that it is important to distinguish the way in which someone reasons about ICT and the use of the same. One example is the use of email. The participants claim that having an email account does not mean using it or even understanding how to use it. Such reasoning is important for authorities to know, where it might otherwise be perceived that the person in question is digitally competent and knows exactly how to use a computer.

4.9 Further accounts of findings

This subsection further highlights what affects the use of ICT in lifelong learning. These accounts also emerged as a result of summarising all the findings in each paper.

4.9.1 Competences for lifelong learning

This research paid attention to four of the European Union’s competences for lifelong learning. Below is a summary of the results from the studies with respect to these competences.

Language skills (targets 1-2). For example, overall, little attention is paid to language and literacy in the visited Kenyan digital villages. The managers emphasise that they rarely use tribal languages because users come from different language groups. Swahili is the language used to communicate with clients in all four centres, with only a few users preferring to use their tribal language. Despite this fact, to some users the opportunity to communicate, especially informally, in a tribal language, instead of using Swahili or English, seems to be important.

Digital competence (target 4). Overall, those who are already literate and have certain literacy skills use the digital villages. Nonetheless, female managers work more
actively than males do to inform and reach those people who are illiterate, an lack
digital literacy, and general knowledge about what the centres have to offer.

**Learning to learn (target 5).** In this respect, the Kenyan digital villages in partic-
ular are not well designed to meet the needs of learners. One manager stressed: “To
be honest we have never had anyone like that. I don’t know how to handle that.”
Despite this, one female manager emphasised students with special needs, whom they
courage to become an integral part of the community.

4.9.2 Social impacts and social changes

Drawing from Vanclay (2002) the following was revealed from the studies:

- **Demographic processes:** *In-migration:* Migration is not an impact in its self. It
can nevertheless results in impact such as increased or decreased local services. In
respect to the digital villages managers and locals have assumed more people will de-
cide to remain in the area or even move to the area if they can have increased access
to ICT services and education, which enables them to study or make business (with
customers far a way). This leads to raised strain on broadband capacity and result
in raised consumption of electricity if managers decide to extend the digital village
as a consequence. *Out-migration:* Because of tribal disputes (particularly the studies
in Cameroon) or gender issues user of CRCs occasionally feel they cannot fully gain
from the CRCs. On the other hand people who are to settle down to live in a quite and
“non-prime” area can move out because the presence of a digital village results alter-
ative social arrangements such as prostitution (especially notable in coastal Kenya).

- **Presence of weekenders:** It is known that prostitution is likely to increases around
rest places at major crossings. This was most present around coastal Kenya and in
Cameroon. Digital villages set up close to such areas has lead to an increase of sexual
activities and an increase of STDs, increasing the risk of sexual transmitted diseases
and child abuse, which mostly affects women and girls. *Tourists and day-trippers:* A
digital village located in an attractive destination to which tourists would like to make
a visit may be a source of revenue for local populations. The social impact in Malindi
has been inflation or price escalation because of the presence of tourists and constric-
tion of upper class and tourists resorts. *Urban-to-rural migration:* The construction
digital villages in rural environments can make students who left the village for a
modern city want to return back. A manager in the digital village of Malindi recounted
that she, herself had been a rural-to-urban-to-rural migrator.

- **Emancipatory processes:** *Democratisation:* The use of digital villages may make
people more active and participate in political decision such as elections. Using the In-
ternet they can learn about different parties and their stands and compare with parties
and political systems in other countries. They can also download free online-content
to be reproduced on their own computer or mobile phone off-line. The Kenyan Gov-
ernment also wants to increase governmental and societal services online. *Margin-
alisation and exclusion:* On the other hand these efforts can result in exclusion of
those who for any reason cannot use a digital village. Furthermore, a digital village or
any other CRC may limit the users as such centres usually are equipped with desktop computers.

**Sociocultural processes:** *Social globalisation:* The use of digital villages in rural areas may incorporate the local into the global as people can retrieve information that otherwise is far away. This can result in *Social disintegration,* which happens when people or a group of people loses or abandon their social capital. *Segregation:* Some digital villages are for the students. Such arrangements help students at short distance from their homes. This kind of arrangement leaves out those who would afford going online for a couple of minutes to look for a job, marketing a product, or take vocational training. This means that those citizens still need to travel to an institution in the city to get a second chance. This may not be possible for this group because lack of enough economic means or the need of doing the labour around the house. Further, the labour around the house in rural environments by tradition is performed by a woman.

*Cultural differentiation* can increase as an effect of the examples previously mentioned. In Kenya the Kikuyu historically had a delicate position by comparison with other local groups. Hence a CRC may cause tribal disputes and conflicts of interests. This has been most notable in the studies in Cameroon. Prostitution is a social change, which can lead to social impacts, such as causes of STDs. As a positive social impact, on the other hand, it has result in more foreigners around the CRCs with money.

4.9.3 **Blended lifelong learning**

The learning taking place in the CRCs visited was mainly of three types (Figure 4.6): 1) CRCs integrated with the compulsory school, which provides opportunities for a connection between formal and non-formal learning; 2) CRC with no or a weak connection with the compulsory school and a weak connection with (informal) learning at home; and 3) CRCs with a strong relationship with the compulsory school in that the curriculum in the CRCs is built on or draws from the national curriculum. Students here were also encouraged to continue learning at home. This was most noticeable in Sri Lanka, but also in Bolivia. It was less noticeable or not noticeable at all in Kenya and Cameroon.

*Blended learning:* The CRCs visited are designed in a way that calls for blended learning. This research suggests, nonetheless, that the worlds are not fully blended; sometimes they are and sometimes they work more side by side. Community meetings are usually realised face-to-face solely, as in the settings in Bolivia, whilst hair dressing and other vocational training in agriculture, in Kenya for instance, rather integrate ICT as in blended learning.

![Figure 4.6](image-url)  
*Figure 4.6:* The figure illustrates the most common ways in which blended learning was implemented in the CRCs visited.  

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Compulsory school: The managers and users emphasised the connection between not only the higher education but also the compulsory schools. The CRC named Mukuru Promotion Centre (MPC) in Kenya was totally integrated with the compulsory school in a similar manner as the CRC named The Meeting Place at S.t Olofsskolan in Sweden. This is not without challenges, however. One director at the MPC, referring to the younger children and adolescents, pointed out that:

Challenges with teaching students are that they are very curious, but they also get bored very fast. So, they need something that makes them feel that their concerns are put into consideration...We have a programme for bigger youths who are brought together and they are taught how to use computer, make computer games, and do programs. The programme has been very effective, we have seen reduced cases of drug-abuse, promiscuous sexual behaviours, and crimes in the community.

Vocational training: Several CRCs provided classes in hair dressing (most notable in Kenya and Cameroon), agriculture (Kenya, Bolivia, and Cameroon), basic computer literacy, and business (in all countries). For instance, business classes may cover: how to use a computer for business? how to use the calendar on the computer? what part of the computer can be used for business purposes? how to develop a business plan? how to develop a good CV? Particularly in the CRC named MPC offered such vocational training. During the first visits (between 2009 and 2011) the MPC was not run as a commercial business. In order to be sustainable without any governmental support, the MPC was selling the products and services that students produce, like beadwork, table mats, clothes, hair services, or products from the agriculture, to supplement the funds they get from donors to finance other small projects.

ICT: Whilst ICT played a central role in lifelong learning in all the CRCs visited, it is by no means the only tool in lifelong learning as shown (Figure 4.6) ICT serves as an important complement to pure off-line classes, but also for e-government services, particularly in the Kenyan settings. These services include learning about politicians for which to vote, reading about how to apply for identity documents, or just societal information such as what is going on around the country.

Community meeting: Several CRCs had community meetings, particularly in Bolivia and Cameroon, but of different nature and for different purposes. The CRC in Cameroon organised general meetings to enable managers to make common decisions and learn from each other, and community meetings for the managers and community leaders in an attempt to resolve ethnic conflicts. In Bolivia it was more of “parental meetings” to engage parents in the activities around the CRC as well as enlightening meetings to learn what is going on around the country.

For the most users the digital villages and CRCs serve as 1) an extended arm to the formal school or for job-related activities and 2) for social relations such as visiting social networking sites.
5 Concluding discussion

This chapter provides a concluding discussion of the research, which includes a follow up on the aim and the subordinate research questions, a discussion as regards theory, method, and concepts used. Implications and suggestions for future research are also discussed.

5.1 Follow up the aim and research questions

The overall aim of this research was to enhance the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women. This research mainly used CRCs as non-formal settings in lifelong learning but did also look beyond such establishments to provide a more solid picture.

Whilst various themes and issues have emerged that need to be taking account of when using ICT in lifelong learning, this research provided an understanding of some of them. The answers to the three subordinate research questions, which guided the aim, illustrate this:

1. Using a specific learning academy in rural setting as a case study, what everyday-life experiences do the women portray? (paper 1) Women’s experiences of everyday life were categorised into nine groups (feeling of helplessness, feeling of exclusion, family and relationship, labour, reproductive health, differences based on race and social status, different ways of conceptualising, infrastructure, and the Web-based educational tool [both positively and negatively]), of which experiences regarding the family and reproduction were central and should be followed up by more careful studies. The women brought up these issues even though they do not usually talk to men about this – not even their husbands. This shows that the topic is indeed important to them.

2. What behaviours that affect the social impact of ICT in lifelong learning on disadvantaged women in community resource centre establishments are exhibited in the chosen subsocieties? (paper 2-5) No general statements for all CRCs can be made although we can understand that a CRC has the potential to become a platform with which a country can level out inequalities between rural and urban environments and between women and men. However, the arrangement of digital villages generally does not favour vernacular languages, illiterate users, female owners and users, or non-students. The discussions among the participants in the CRCs largely covered 1) domestic issues (e.g. reproduction, traditions and customs, domestic violence); and 2) self-esteem. What is noteworthy is that not only men do think domestic violence may be justified, but some women think so too.

The use of statistics (e.g. national data) and qualitative data (e.g. from field studies) was fruitful for singling out and understanding stressors and social impacts at national and local/regional level regarding girls and women. We note that the former level is often a result of national policies and regulations – or lack thereof – while local stressors involve everyday-life occurrences that are present in women’s immediate surroundings. In the same way, this means the former level is likely to indirectly affect the use of CRCs as setting for lifelong learning and the latter directly. Hence
an understanding of both levels is critical for providing a more solid picture of what affects the impact of ICT on women in lifelong learning. The fuzzy line between the terms “social impact” and “social change” made it difficult to categorise social impact in paper 5.

3. How do immigrant women reason about the use of ICT in lifelong learning? (paper 6) A majority of the participants did not clearly distinguish between the use of ICT in learning in school and the use of ICT in everyday-life or for social relations. According to the participants’ reasoning about ICT, they do not use ICT only because they want to but because they feel that the society requires an individual to regularly use ICT. In other words, the use of ICT is sometimes perceived as forced. It would otherwise be difficult to get or maintain a job. This does not necessarily mean the participants have a negative attitude regarding the use of ICT in general. This study has shown that it is important to distinguish the way in which someone reasons about ICT and uses the same. One example is the use of email. The participants claim that having an email account does not mean using it or even understanding how to use it. Such reasoning is important for authorities to know where it might otherwise be perceived that the person in question is digitally competent and knows how to use a computer.

5.1.1 Major paths affecting social impacts of ICT in lifelong learning

In the studies it was found that women experienced a “feeling of exclusion” (papers 1 & 5) (Figure 5.1). The challenge here is: whilst the managers have effectively come up with a solution, i.e. the Digital Villages Project, to eradicate the stressor and can lead to a higher social impact, a big group of people, particularly women, still lag behind, becoming even more excluded. The case is: because of the attitude among certain men, but also due to low self-esteem among certain women, using a digital village, which may lead to learning and education, may not be a choice for everyone.

![Symbol legend: oval=event; rectangle=action; diamond=path/decision](image)

Figure 5.1: Illustrative example of a stressor’s relation to a social impact
This is important to consider since, giving a woman opportunities for lifelong learning and education means more educated children (UNESCO 2010). It also means they will have a better chance to compete globally (EC 2007; Terry & Gómez 2010). In addition, another developmental social impact of using digital villages or other CRCs is a better chance of an enhanced standard of living (EC 2007; Terry & Gómez 2010). What settles the matter of how successful the Digital Villages Project is depends, therefore, on changed attitudes among men and women.

The whole research provided a somewhat more alternative picture of the use of ICT in lifelong learning than only the pre-studies and my pre-understandings (see chapter 2) of the settings did. A significant difference is that in my pre-understanding, I mainly focused on external barriers to ICT in lifelong learning, such as social norms in society, interaction with others, and technical dilemmas in accessing, adopting, and implementing digital resources in lifelong learning. The alternative picture of ICT in lifelong learning that emerged understands such internal experiences that are perceived as stressors and barriers as self-esteem and self-respect too. Even though learning in a formal setting has been acknowledged, this study has mainly illustrated two settings of ICT in lifelong learning, namely non-formal and informal. In addition it used the term “everyday-life” to point to what is done in everyday life, which not only has implications for lifelong learning but is also part of lifelong learning and understanding learning as a way of living to capture personal life (OECD 1999; Óhidy 2008). This research has concluded that there are six major paths affecting the social impacts of ICT on women in lifelong learning: non-formally, informally, or simply in everyday-life (Figure 5.2).

The issue of language, for instance, relates to literacy in that how to make language preferences blend with the literacy capacity or demography of the women was a major concern. Many people in deprived environments are illiterate to a critical degree – both in terms of being unable to read and write and a lack of computer skills – and lack knowledge of English and sometimes Swahili, which are the two national and official languages in Kenya. The studies revealed a major barrier to the use of digital villages in that people actually do not know or understand what to expect from them, which can be a stressor or impact in itself. If this is a commonplace, it is reasonable to suggest that reasons relate to difficulties in researching illiterate people or those who do not cope with the official languages.

This research has drawn attention to self-esteem and self-respect: self-esteem because it must be a reason why so many women think it is acceptable for someone else to hit them; self-respect because it is worth trying to understand what these women think can be done about it, i.e., to change this pattern and behaviour among the men as well as among themselves. One strategy is to work out an approach to telemedicine in the CRCs.
Also in Chevrot et al. (2006), it was notable that lack of basic security is a major obstacle and barrier to the use of ICT in CRCs or other public settings. We encountered security issues in terms of the location in which the CRC is located, but also in terms of prostitution and sexual abuse. Prostitution is not solely a concern of security, sexuality, morality, or economy, but also brings concerns related to health issues and family ties. Another aspect of security and health is the lack of basic and fundamental amenities such as clean and accessible water, electricity, equipped schools, and other basic facilities (Hallberg et al. 2012b).

Information about reproductive health may thus aid in mitigating other challenges brought by prostitution, such as drug consumption and suicidal behaviour (Vaszari et al. 2011). Information about sexual behaviour is essential in order to learn about preventive strategies. The creation of supportive environments in which safe sexual behaviour can take place is vital for lifelong learning as well as for the Millennium Development Goals (Wellings et al. 2006). In order to provide people in Kenya’s environments with health education and information on risks with regard to sexual behaviour, one challenge is to make parents and adults understand the needs of children. The significant level of the lack of digital literacy or any literacy also makes women dependent on male partners in a way that puts their own security at risk.

Traditionally, Internet connection fees are high because of Internet access policy issues (de Heer-Menlah 2002). Employing a tariff policy is a way of ensuring that not
too high costs and fees for ICT services are charged. An additional way is by licensing, which means, in this respect, allocating ICT licences to women-owned businesses or businesses with female managers (Hafkin 2003).

This research suggests that taking account of those issues and other, the positive social impacts of ICT on disadvantaged women in lifelong learning may increase. Drawing from Yngström (1996) and Wills & Yngström (2008), in the end a holistic perspective of security, or of the whole development process for that matter, is necessary in ICT. As Willis and Yngström noted, there are challenges related to culture, language, and the ways in which people perceive things around them. Accordingly, all this is context-oriented. Hence, to make ICT establishments such as CRCs adequate in lifelong learning there is a need for a systemic-holistic approach to ICT (Yngström 1996) in lifelong learning. This means that aspects such as languages/culture, the self, internal and external security, education background, fees, and other issues, bound to the specific setting must be taken into consideration. Yngström (1996) specifically focuses on academic programmes in information technology security. I argue that the holistic approach suggested can nonetheless be extended and broadened in order to be implemented in other ICT-based settings as well.

5.2 Theoretical implications: recontemplating ICT in lifelong learning

5.2.1 Forced use of ICT

Wamala (2010) elaborates on complexities between access to and use of, focusing on the moment of access and what factors come to matter at the access intersection. On the issue of use, Wamala stresses cultural and symbolic images, among other themes.

This research has demonstrated that the ways in which some women reason about the use of ICT relates to the woman adhering to various different rules (however not of “masculine and feminine expressions” Wamala 2010; p. 170). They have learnt that in their country of origin “you” do not necessarily create an email account to send or receive mails from. The account is of both practical use and a necessity in certain settings. The primary setting is social networking sites, which usually take email accounts in order for a user to login. This means that having access to an email account does not mean the intention is to use it for the original purpose\(^\text{12}\). Such claims illustrate the paradoxical effects of ICT take-up and use (Kling et al. 2005; Sawyer & Tyworth 2006).

From a social informatics point of view, Nilsson (2006b) critically highlights the access concept (Figure 5.3), identifying and analysing barriers that affect the individual user’s experience concerning access in Sweden. Since ICTs are configurable and individuals are unique, understanding that someone possesses a certain device does not provide any information about this person’s possibility to use the same; and even if such potential exists, it still does not say anything about the use. Hence, “we cannot say anything about the purpose of this specific equipment” (Nilsson 2006b; p. 446).

\(^{12}\) Similar extended usages or transformations have been referred to as “augmented value”, which may increase a company’s competitiveness (Malhotra & Agarwal 2002).
As ICT has come to take a central role in modern society (Davenport & Harris 2007; Gerster & Zimmermann 2005), knowledge about the distinction between having access to a specific kind of ICT and the use of the same is vital. Any organisation or party that assumes someone possesses the knowledge of how to use a certain ICT because of having shown access to it does not communicate on equal ground, thus a power relationship cannot be said to be established in this respect (Allwood 1980).

The issue of ICT in lifelong learning is complex, for in everyday life it is a commonplace to assume that “access to” also means “use of”. Such an assumption, furthermore, may be an effect of a Western, egocentric view of a so-called knowledge society and an ethnocentric view of the world order (Forstorp 2008). To make matters even more complex, this research has triggered an extension of the “use of” with a “forced use of”. What if someone has access to an ICT, does not use it, and experiences a forced use of it?

This forced use is a kind of simulation in a world in which artefacts are losing their meaning (c.f. Baudrillard 1983). Baudrillard might have been radical in his thinking but he still suggests a world where access to certain artefacts or abstractions of natural objects is indeed more important than the use or usefulness of the same. While some thinkers speak of moving along a path with reference to networking (Siemens 2006), Baudrillard suggests we are not sure about how, where, or even why we are moving. It is then we need to remain as critical and reflective learners (Freire 2000).

Or as one of the participants (paper 6) put it: “In Sweden I believe you cannot live without a computer.” We may need to contemplate over whether forced use of ICT in lifelong learning is a result of overuse of artefacts, or if a nation may adopt a specific ICT “as a political technology to symbolize national pride in science and technology” (Schiffer 2004; p. 584), or if we just need to keep up with reality; and if so, which reality?

### 5.2.2 Evolutionary processes and usage behaviour of ICT

Digital villages as CRCs were core settings for studying ICT in lifelong learning in this research. A CRC is often constructed to suite a broad target group (Jensen & Esterhuysen 2001). Often this “broad” group, nevertheless, means students. Often the CRCs were designed to fit digital literate learners. What is important to remember is that not all of the CRCs visited were designed to deliberately exclude certain groups (c.f Winner 1986; pp. 2; 5) of learners. Rather the socio-political system in which the specific qualities of the CRCs are embedded achieved this effect. Indeed, the managers or owners of the CRCs are parts of that particular effect, but not solely. Those potential users who are excluded, too, are parts of the very same system that excludes them. Given this, all actors to a lesser or greater degree are in a position
to change their social conditions. Again, to do so they need to remain and critically reflect upon themselves as critical learners (Freire 2000). Such assumptions call for self-respect and self-esteem.

Teachers in earlier institutions that used ICT in learning (Cristobal & Llurda 2006) had in fact already lost control over the artefacts they employed. What is at stake is that those ICTs in learning and teaching instead preceded the territory. For an ICT to serve in lifelong learning, this must not happen. And preventive measures start with the humans as possessors of the artefacts respecting themselves and each other, realising: I am a human being (Freire 2000). Hence, a lack of content in specific languages, or a lack of information about reproductive health per se, does not lead to the exclusion of certain groups or counteract lifelong learning. Or, the other way around, exclusion is not simply a result of disregarding users as individuals with specific capabilities.

Nevertheless, the peculiar combination, as a woman, of having been oppressed for long times combined with ICT in lifelong learning is still an important factor in order to understand exclusion. Understanding exclusion in this respect takes account of the evolution of our own behaviour (including culture and cultural choices), as well as the evolutionary processes of artefacts we employ in lifelong learning. In the literature it was suggested that (being a man) interviewing a woman may differ from interviewing a man (Reinharz & Chase 2001; Marvasti 2004; Gubrium & Holstein 2001; Troman 2001). Among various explanations, a woman seems to be at another stage of the evolutionary process not only because of being a woman (biologically) but also on the grounds of having experienced oppression. Still remembering we all are individuals, based on their background, the one who is oppressed or excluded from ICT cultures to various degrees is so on the basis of internal and external (environmental variations) experiences that evolved and are evolving. The experiences that act as forces alongside the evolution of the ICTs, or any artefacts, to a significant degree determine the extent to which a human (in this case I focus on women) is likely to cope with an ICT culture in lifelong learning. Similar notions in other contexts have been referred to as evolutionary processes (Boone & Smith 1998). These arguments provide at least one explanation to why an artefact cannot be designed to suit everyone. Schiffer (2004) puts this later statement in other words:

> Every technology has a unique mix of performance characteristics; usually no one technology can achieve every group’s preferences (Schiffer 2004; p. 581).

Social change happens when internal and external (pre)conditions that allow us to use ICTs are modified, the internal usually by behavioural changes among humans, the external usually by alternative modifications or arrangement of the environment caused by humans or by the nature itself. Given this, according to the literature within information systems research, the evolution of modern pieces of ICT occurs rapidly and constantly (Min et al. 1999; Ward 2012; p. 376-377), making it another critical stressor in the use of ICT in lifelong learning. A development intervention such as a CRC is intended to contribute to a positive social change for as many people as possible. A challenge seems to understand the social impact on the target group (c.f. Heeks 2002; Vanclay 2002; Clemens & Demombynes 2010). Considering my arguments above, one explanation for sometimes poor results (Naik 2011) is certainly due to failing to capture the whole evolutionary process that affects the social impact on the target group. Another reason is disagreement in concluding what the actual target group is (Kenya ICT Board 2011; Kuriyan et al.
Within information systems research, drawing from a behavioural framework, Baroud et al. (1986) and Hartwick & Barki (1994) suggest that user’s involvement in the system design is crucial for how that system will benefit the end-users. Also, Dittrich et al. (2003) are on a similar track, as well as Thatcher & Ndabeni (2011), suggesting that further attention in development informatics needs to be given to technology usage behaviour:

Technology usage is not a simple dichotomy (i.e. use or non-use) but should also incorporate aspects such as the quantity of the usage, the extent of the usage, and the quality of the usage (e.g. does it actually bring about the social upliftment effects (Thatcher & Ndabeni 2011; p. 143).

This research studied ICT in lifelong learning, for instance experiences of everyday life, among women in order to understand how ICT initiatives may affect their lifelong learning. However, this research did not focus on understanding user’s involvement in the design process of a specific CRC or any other ICT system. Such research may produce knowledge that can be used to better understand the behaviour and processes that affect the impact of ICT in lifelong learning. Hence, future research needs to delve further into how to develop ICT systems without compromising native relics.

5.3 Methodological implications

This research has some limitations as a consequence of methodological choices. It is my intention with this subsection to tentatively provide alternative ways of carrying out this research. These suggestions are of course not complete but serve as guidance on how at least parts of the research questions that followed the aim could have been answered with other methods and analytical frameworks.

5.3.1 Developing ICT systems without compromising native relics

Whilst this research was limited to Bleed’s (1997) behavioural understanding of technology, other useful contributions are also available for further research. Schiffer (2002) has developed a behavioural framework of technology transfer, which illuminates technological differentiation, perhaps within a *techno*community, as a “product of processes that come into play when technologies are transferred from community to community within and between societies” (Schiffer 2002; p. 1149), is another useful entry point. Schiffer’s framework shares several features with how the technology acceptance model has been used to understand behaviour with regard to ICT in rural settings (Zhang et al. 2009). It also shares features with the phases of adoption of technology (Rogers & Beal 1958), partly also known as diffusion of innovations. The framework of diffusion of innovations has further been used to investigate the impact of ICT on access and use in developing countries (Kamssu et al. 2004). Schiffer (2002) behaviourally contributes the connections between human and artefact in understanding that these two actors have concrete interactions.

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13 see www.gdnet.org.
14 “[A] *techno*community...is any group of people whose members take part in one or more activities that incorporate variants of a particular technology” (Schiffer 2002; p. 1149). Technology is “variability and change [created] in the human-made world of things” (Schiffer 2002; p. 1148). In this particular case, I limit “technology” to comprising digital villages and the creation of them.
At the beginning of this research the Government of Kenya was just launching their Digital Villages Project. In enhancing the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women, the research could, as an alternative to the employed design and method, have started from non-existing digital villages instead, as follows, using a stylised map of Schiffer (2002) (Table 5.1):

**Information Transfer:** Stakeholders present the idea of the DVP and how it fits in a larger context (i.e. with the Vision 2030) to the community, conveying information as to how, why, where, etc., it can be used in lifelong learning. This information is then further conveyed between the members of the community, from person to person. To reach the members directly, the stakeholders need locals or “people on the ground” who can act as bridges between officials and the locals. One idea is the use of participatory action research to have an entry point (McIntyre 2000); another is having someone being a complete observer (Bernard 2006), observing spatial relationships (Angrosino 2007b) within a community, which, in doing so, acts as a case (Benbasat et al. 1987; Merriam 2010; p. 370) from which to generate a generalised picture to be drawn from (Patton 2001; Eisenhardt 1989; p. 93).

<table>
<thead>
<tr>
<th>Phase</th>
<th>Phase description</th>
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<tbody>
<tr>
<td>Information Transfer</td>
<td>Description of the new technology is conveyed, directly or indirectly, from person to person.</td>
</tr>
<tr>
<td>Experimentation</td>
<td>A few people try out a technology in new activities or forecast in “thought experiments” how it might perform.</td>
</tr>
<tr>
<td>Redesign</td>
<td>Common outcome is that the technology’s mix, or weighting, of performance characteristics is inappropriate. In response, the technology is modified, or redesigned, to yield a different weighting.</td>
</tr>
<tr>
<td>Replication</td>
<td>The reproduction of a variant-its manufacture and distribution to users.</td>
</tr>
<tr>
<td>Adoption (Acquisition)</td>
<td>Examples of the technology are obtained by people who thereby become members of the recipient community.</td>
</tr>
<tr>
<td>Use</td>
<td>Comprised of the activity or activities in which the acquired technology interacts with community members, when its use-related performance characteristics come into play.</td>
</tr>
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</table>

**Experimentation:** In this phase knowledge from the first one is used, selecting people from the community to try out the concept of a digital village in various activities. All the members of the community can use the facilities provided they understand it is an evaluation period aimed at highlighting the usefulness of digital villages and deriving lessons and implications from the analysis (Glasman 2002; Karal et al. 2010). It is reasonable to assume that the users from the community that will try out the technology first already have some pre-knowledge of or a general curiosity to explore ICT and are younger males (Chau & Hui 1998), i.e. the “early adopters”15. Therefore expert sampling (Patton 2001) is also suggested to be used in order to reach those who for any reason do not benefit from the information provided about the evaluation period.

**Redesign:** The digital village is then redesigned on the grounds of how the performance characteristics generally responded to the pre-users. A significant number of development interventions do not achieve the desired effect (Naik 2011; Heeks 2002). The lack of redesign taking the pre-users’ (if any such users ever happened to exist) experiences into consideration most likely is one cause.

15See Sinek’s joyful and thoughtful TEDx talk on this: http://on.ted.com/bjT4#TED
**Replication:** Depending on the complexity, this phase can be considered twofold. A) If there are already digital literate users: In this phase lifelong learning comes heavily into play. Here a user, as an individual, considers the use of digital villages in terms of “what’s in it for me?” That is, how can this particular individual use a particular digital village so as to best fit their own needs? What to one user seems “ephemeral” (Schiffer 2002; p. 1151) may to another user make the difference in lifelong learning. This includes the individual being able to use the technology in a digital village in one way on their own, and in another way jointly with their fellows. A) Here the digital villages are replicated on the basis of the pre-users’ way of using the digital villages. They are replicated so as to easily be available for a user’s own individual usage and needs. Replication, a) and b), helps to understand how experienced users choose to employ the technology and how the technology can also be more accessible for those who are inexperienced. This also includes some users being able to use a digital village along with other technologies inside or outside it. These technologies and also artefacts may be of traditional or cultural importance and should neither be compromised nor overseen only because of using ICT in lifelong learning; i.e. developing ICT systems without compromising native relics.

**Adoption:** The digital villages are fully adopted to suit the needs of the members of the community. As earlier on, CRCs are commonly designed and set up to target a broad group of users (Jensen & Esterhuysen 2001). This also applies here. Undertaking the earlier phases, a digital village would be tailored so as to fit all the diverse users of the community within which it is located. Importantly, “different communities may overlap to any extent, from completely to not at all” (Schiffer 2002; p. 1152). Hence, to achieve greater use of the digital villages, managers from various communities would form a team along the line, in order to learn co-intentionally (Freire 2000). What makes up a community is not static. Communities evolve and communities may also exist within a community, which may also be referred to as subsocieties (Yinger 1960; Johnson & Sanday 1971; Hallberg et al. 2014). As a consequence, this phase will need to be reconsidered over and over again.

**Use:** The digital villages are fully used by the members of the community, therefore they have become members of this ICT culture too. Use is not adoption because the ready-to-use digital village can suite far more than the members of that community in which it was set up and tried out. This may be a result of the co-intentional strategy of the managers and other stakeholders. It may also be because various communities or communities that cross-cut many societies are not as different as they seem to be. Therefore, depending on how many “outsiders” use the digital villages, that outcome can be used as a measure in planning more digital villages or CRCs.

Schiffer (2002) adds that the community members are central, no matter how the framework is used, to establishing behavioural explanations of variability and change. This alternative methodological and analytical framework has the advantage of including the members of the communities better than the design and method I chose for this research. On the similarity I can point to the pre-studies and paper 1. On the other hand, for practical reasons (Patton 2001) I came to study already set-up digital villages. One reason was uncertain time frames for setting up digital villages, which made me choose to study those suggested ones.

In order to expand boundaries of information systems use and to deal with a specific challenge, design science is widely recognised in information systems research (Hevner et al. 2004; Peffers et al. 2007; Geerts 2011). In their contribution to design
science, Hevner et al. (2004) acknowledges that there must be a link between design science and behavioural science. In this research I have suggested that the link needs to be stronger. For instance, whilst Hevner and associates (Hevner et al. 2004) clearly distinguished the process and the end product, the analytical frameworks I have proposed herein suggest that the end product can be part of the process itself.

Barth (1967) suggests we need to focus on events of change to understand social change. This can be done in at least two ways: either we accept what we have already learnt about social systems, or we “recast our very description of social systems in order to accommodate these data about the events of change, which makes our task more difficult but also more interesting” (Barth 1967; p. 661). The last alternative can be interpreted as going beyond what our own tradition allows us to employ as theories and methods. Be they information system research or social informatics, these disciplines would be healthier by trying out and maybe even recasting some of the old traditions to more clearly see the user of the artefact; or see the user at all.

5.4 Social implications

The research presented here is also supposed to influence public attitudes and challenge established attitudes towards the increased use of ICT not only in lifelong learning (which on the other hand incorporates a great deal), but in a wider perspective too. Such reflections include equity issues surrounding the general use of ICT in society.

There are high expectations of what ICT can offer communities in deprived environments. It is expected that the access to information, knowledge sharing, social networking, and online public services made possible ICT can offer the opportunity to craft changes in the social arrangements and material culture of society, thereby addressing issues such as gender equity and ethnic conflict. It is envisaged that technological collaborations can be used to share ideas, so as to enhance the quality of life of rural communities by providing access to local or indigenous knowledge, as well as provide information on advances in a wide range of technologies that may be of interest. Knowledge and network connectivity through the use of ICT is becoming an integral part of the developmental processes of the society. On the other hand, this research has shown, for example, that it is not easy to see or measure the added value of the use of ICT in all settings.

This research has raised the voices of a group particularly important to recognise: women in deprived environment. In doing so, this research has also shown that change is not only about waiting for lawmakers and policy-makers to make decision, but resides largely from within a person him- or herself.

CRCs are becoming instrumental in providing network connectivity for people in otherwise isolated environments. This research has shown communities in deprived environments in the early stages of adoption and adaptation with respect to ICT. It mainly did so by using CRCs as settings.

This research is a step towards a “humanised” world by having picked up on issues with respect to the social impact of ICT in lifelong learning in a nuanced way. It was argued that women’s oppression is not only an effect of a male-dominated society, but also that the women in question have opportunities to change their situation by adopting a new vision of themselves. In Bolivia, a manager mentioned “parental meeting”. This may be a manageable way to reach solidarity and consensus. This can also create a greater reliance among the members of the community. The term “community re-
source centre” suggests a place where everyone can learn and which is characterised by unity and trust.

5.5 Practical implications

Further attention should be paid to adolescent development with a strong focus upon STDs and the socio-political arrangements of an environment. The environment can also affect the dangers of sexual behaviours as well as how the target groups can best be reached with information and education. The Kenyan Government wants to increase the use of ICT. It would therefore be fruitful to better learn in what way the Government can use ICT to teach its citizens about family- and health-related issues.

In order for the ICT in lifelong learning to eventually achieve success in transforming the indigenous way of life, a process directed towards adaptive success is required. The process must be able to enable communities to retain the cultural artefacts that they value, while also experiencing social progress. Measures towards adaptive success can be designed through the application of an analytical framework such as behavioural archaeology to understand deprived environments and to develop in ways that enable local people and communities to create their own ICT technology-enabled environments through CRCs or adaptations of CRCs.

The findings may give an answer to why many ICT projects fail in terms of being accessible to users from all walks of life. Attitude changes do not come with ICT but are more complex in nature. Hence a nation or international donors cannot solely rely upon ICT as modern pieces of artefacts or complex information systems to level out injustices and inequalities. Gender norms need to be dealt with as an issue separated from the ICT itself. We should therefore not limit our inquiry to ways in which gender affects the use of ICT. This is largely what Zajda (2008) suggests: going beyond human rights to understand highly undemocratic aspects too. These undemocratic aspects may be underlying norms that deprive women no matter whether laws or regulations are being implemented or not.

It is not at all clear whether the CRCs studied have either a low or high impact on the society in general and on communities in particular. It is not clear whether a CRC will bridge the digital divide between rural and urban communities, reduce inequalities between the sexes, or bring peace and understanding among language groups. I understand, though, that a CRC has the potential to become a platform with which a country can level out inequalities between rural and urban environments and between women and men. And yet, there is a long way to go, particularly in the Kenyan settings. In Kenya there seemed to be not much of an issue of infrastructure but rather of a deep-rooted view on gender.

5.6 Ethical implications and considerations

No one can or perhaps even should deny the technological development, which for some time has been and is inevitable. Interviews and observations have been mentioned among the techniques used. This research would probably have been even more transparent through a detailed presentation of the participants’ backgrounds and maybe even videos, combined with text, had described the experiences of the participants even better. A major challenge, however, is to balance between the demands of making the research transparent and the rights of others, i.e. the participants, and
values potentially threatened by the research (Cohen et al. 2007). Another ethical aspect raised by Cohen et al. (2007) is the degree to which the research actually aids in change the condition of life among the participants and their community.

Although such research could be argued unethical, the research could also help to place the issue on the agenda of decision-makers and contribute to change (Cohen et al. 2007), i.e. developmental impact, also referred to as indirect or long-term impact (Vanclay 2002; Coudouel et al. 2006; Middleton 2007; Ollo-López & Aramendía-Muneta 2012).

The research might still leave the participants untouched, underprivileged, living and working in squalid and underresourced conditions, under-supported, and with no material, educational or other improvements brought to the quality of their lives and work Cohen et al. (2007; p. 60).

5.7 Research limitations and future research

The research has contributed to alternative perspectives of and analytical possibilities to understand ICT in lifelong learning. One contribution is its drawing from behavioural archaeology in social informatics. Schiffer (2004) found that we may use a specific artefact not because it is of practical use to us or because it does the job better than any other intervention, but rather because we can use it or simply possess the power to access it [italics added]. I do not claim that this has been the case in this research but in the face of diverse backgrounds among users and potential users of ICT in lifelong learning – some of which are already part of an ICT culture while others are not – it is necessary to critically reflect upon ICTs as harbingers, in order for them to have a place for emancipatory processes in strengthening an individual (Vanclay 2002).

Analytical, contemporary approaches to behavioural archaeology are underutilised in the field of social informatics and information systems in general. Such links can otherwise make the researcher better grasp what affects the social impact of ICT in lifelong learning on disadvantaged women. Archaeology and its related disciplines have been useful for researching technology changes and usages (Bleed 1997; Schiffer 2002; Bird & O’Connell 2006), because the nature of technology usage and the value to society is revealed. In its use of behavioural archaeology, this research challenged common notions in information systems research on the issue of making ICT and electronic media available in deprived environments.

5.7.1 Validity

One way of taking account of validity (Cohen et al. 2007; Patton 2001) and ethical issues (Vetenskapsrådet 2012) is to let the participants and other stakeholders have a say after the study has been carried out, but before publishing the final results and conclusions. After the studies were carried out we made visits to other digital villages.
in Kenya. We also revisited some of the participants interviewed and spoken with earlier. In addition, we spoke with country nationals to learn about their reflections on the digital villages. This work was conducted between 2012 and 2013. The better part of this supplementary work was carried out by one of my friends and research fellows in Kenya, Judith Wanjira. At the time of this research, the Digital Villages Project was still in its infancy phase and stakeholders were talking about pilot programmes and there were digital villages not yet operational. This is also something the Kenya ICT Board alerted me about, suggesting I had not considered this properly. In April 2013, I was notified by the Kenya ICT Board and my research fellow, Judith Wanjira, that they have implemented 63 of the targeted 210 centres so far. They have also come out of the pilot programmes.

5.7.2 Concepts

There are many names for what I refer to as a “community resource centre”. This has made it difficult to go about the research, for people I have contact with use their own name, making it sometimes trying to understand each other. In one digital village, for instance, the manager was only aware of their own local name and not of either “Pasha Centre”, which is the Kenyan Government’s official name, or of “digital village”, which is considered by some of the governmental representatives to be more formal than the name “telecentre” but less formal than “Pasha Centre”. I have interchangeably used the term “telecentre” and “community resource centre”. Looking back, however, I think this latter term best describes the essence and characteristics.

In order to understand the actual developmental impact of the Digital Villages Project on the poor (Baker 2000) however, further studies must be conducted. The results also call for further studies on the distinction between access to and use of, as Wamala (2010) puts it, but also a third dimension, namely forced use of. The Government’s ICT efforts increase the access to digital villages into rural, semi-rural, and deprived environments. But if the costs are too high or the digital villages are only open to students, a large part of the community cannot use the digital villages anyway. Also, potential users must feel the surroundings are secure to allow them to visit the digital village. While conducting this research, I have also found that issue commands on an ordinary computer may limit users. A move to touch-screen devices may increase the usability, and would be interesting to investigate further.

5.7.3 The use of languages

This research has shown that the view of languages overall needs to be revised. Despite all the different languages employed by individuals from different ethnic groups, not much consideration is is given to what these diversities may do for ICT usage among the population that lacks command of English, especially among those in deprived environments (Whorf 1964). For Kenyans, the command of English is an important aspect for poverty reduction. It is even more important when using ICT (Peterson Bishop & Bishop 1995) given that the Internet is developed by and adapted for Western, English-speaking users (Chung et al. 2004; Eyono-Ebobo 2010). Different languages and language groups apart from Swahili and English make communication and relations strained on all levels. The issue of language has been complex throughout Kenyan history. The language and ethnic issues and the fragile political
situation have been delicate concerns in Kenya for a long time. This has been shown during election years, for example throughout the 1980s (Bowman 2010). Ismail & Deane (2008) set up their research to study the media’s role in the 2007 election aftermath. Tribal disputes, nepotism, such as “jobs for the boys”, and corruption, denied eligible citizens opportunities to serve their country at their best, therefore hampering development.

5.7.4 Reproductive health

Social relations and reproductive health were central concerns in all CRCs. Since the 1990s the private health sector in Kenya has grown significantly. This private sector collaborates with the Kenyan Government through its Vision 2030. However, STDs remain the main threat to Kenyans at large and have made sectors unstable. In fact, as regards the health sector, the leading cause of death is HIV/AIDS (Barnes et al. 2010). Access to family planning service delivery points and "exposure to modern ideas – household electricity and type of flooring, membership in a woman’s group, listening to the radio weekly, and density of roads within a district” are factors that determine contraceptive use (Brass & Jolly 1993; p. 3). Numbers show that the higher the education, the more comprehensive the HIV/AIDS knowledge (Ochako et al. 2011). There are many misconceptions about STD. Many parents and politicians tend to think marriage prevents the risk of STDs. Nonetheless, a study has revealed that married women in Uganda are the population group in whom HIV transmission is increasing most rapidly and that similar facts are reported from Kenya and Zambia (Wellings et al. 2006). A challenge is therefore to find strategies to inform about health issues, especially in deprived environments.

As a start-up for future research and to stimulate academic debates and knowledge we have (1) run a reproductive health mentorship programme and (2) developed an educational application grounded in the design and concept of virtual patient simulation system (VPS)\(^{16}\). Our intentions were that this type of application can be used not only to inform people about health-related issues, but also as a preventive measure to mitigate negative health experiences. We have tried the application in a CRC environment in Kenya. Whilst we found many challenges during the course of the programme, for instance as regards economic constraints among users, connectivity, and staff reluctance towards ICT systems, one of the major challenges was to make users or clients understand the advantage of having some pre-knowledge about health care in general and reproductive health in particular. Hence future research could further study how to make the community understand the added benefits of information and knowledge about reproductive health care; and how to combine an approach to ICT since lifelong learning is closely connected to such an approach. Thus, it is adequate to extend the development goals suggested in chapter one (Table 1.4) with “information about reproductive health”.

\(^{16}\)VPS is an e-learning allocation. The VPS approach to learning has been fruitful in developing cognitive feedback to help the learner understand why her/his view on a matter might differ from the one of an expert and very positive learning outcomes have been found (Le Beux 2007; Botezatu et al. 2010).
5.8 Concluding remarks

One difficulty in these studies has been the drastic changes of organisations and management of the CRCs consulted and studied. Some of the organisations have changed focus and goal during the course of the research. To my knowledge, Project Africa has undergone at least three major changes since I started in 2009 and the Mukuru Promotion Centre at least two. Drastic changes like these have made it difficult to get hold of key people and maintain a clear focus during the course of the research. It has also led to longer leads and set-up times.

Nonetheless, I want to conclude this thesis with three reflections or lessons learnt, these are: the forced use of ICT that emerged, the issues of self-esteem and self-respect, and the contribution of behavioural archaeology in social informatics.

The forced use of ICT is worth to consider. Having said that, it is inevitable to overlook the technological development that has been going on for some time in Kenya, Bolivia, Cameroon, Sri Lanka, Sweden, or any other country: “Everything changes, which is a blunt reality” (Calzadilla Valdés 1948; p. 19)17. It is therefore necessary to analyze how the forced use of ICT is variably experienced in order for ICT to become a true means in lifelong learning, or in any other setting for that matter.

One of my foremost research colleague in Kenya, Ms Judith Wanjira, uses the expression “a go getter - for that matter”. This does not imply that the end justifies the means, but rather a person that believes in him- or herself, sets goals, and goes ahead to implement them. One that does not ask, “what’s in it for me?”, but also, “what can I, myself do?” It does not take only a genuine democracy for individuals to flourish (Kaipayil 2008), but also individuals with self-esteem and self-respect, who not only think critically but also act upon their situation (Freire 2000). Respecting oneself and developing confidence is crucial in order to function socially and individually, and thereby develop as a human being. One of the major conflicts in this research was change of attitude and the position among women and men. With minimal if not zero self-esteem a change that would make the difference or break a woman’s “legendary status quo” in order for a woman to feel that she can reach her goal or ambitions in lifelong learning would be difficult.

There are various views on what archaeology is and is not and, hence, there are many views of what constitutes behavioural archaeology. As a consequence, researchers do not agree on its potential benefits or usefulness. I have drawn from behavioural archaeology, which is usually related to Professor Michael Brain Schiffer, as a strategy and analytical possibility in order to suggest and demonstrate how it may be employed, thinking outside the traditional information systems or social informatics boxes. In my humble opinion, such a possibility should more often be drawn from in various research that uses ICT as a point of regard. Archaeology does not only recognize material objects in the past but it is for strategy that can fruitfully be drawn from to study material objects and/or human behaviour in a “contemporary past” (Reid et al. 1975; Buchli & Lucas 2001).

The overall aim of this research was to enhance the understanding of what affects the social impact of ICT in lifelong learning on disadvantaged women. Both internal feelings and external objects do not only contribute but should even be regarded as reciprocal factors to enhance the positive social impacts, and mitigate the negative stressors of ICT in lifelong learning. In my humble opinion, lifelong learning is indeed

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17 In original: “todo cambia, es una contundente realidad”
a beautiful, but nonetheless not a simple idea. Put to the test it is not easy to reach its full potential, several and various factors are involved.
Appendices

This section provides four appendices, which highlight interview guides from paper 2, 4, 5, and 6 (Appendices A.1 and A.2). It also provides references from the literature review on lifelong learning (Appendix A.3, Table A3.1). Finally, it provides a table covering the suggested chain between stressor, forces, and social impact in settings of CRC (Appendix A.4, Table A4.1) from the studies and was particularly highlighted in paper 5.

A.1 Interview guide - paper 2, 4, and 5

The interview guide draws from Gaiani et al. (2009) factors pertaining to successful CRCs in Sri Lanka and India. The objectives of those CRCs studied were to provide information (e.g. public information) to people in rural areas. The authors concluded that women experienced barriers to access of information. It is difficult to reach the most vulnerable at the bottom of the pyramid with information and services, as this segment of the population does not perceive that the services are intended for them. The local community has to be involved in the design of the telecentre. Every telecentre must accommodate local languages. The following aspects with regard to the success or failure of a telecentre were singled out from their study: ownership, sustainability, languages, education, literacy and media literacy, inclusion, and vision and strategy. The interview guide below was based on the aspects. Interpretations were made with account of cultural/translation validity (Cohen et al. 2007; p. 139). The interview guide was translated by the following researchers:

- English: David Hallberg, Mildred Kulecho, and Ann Kulecho
- Swahili: Ann Kulecho and Loreen Okoth
- French: Carole Godem and David Hallberg
- Spanish: Algren Morgan Wilson and David Hallberg
- Sinhala: Niranjan Megammaana

Questions to put to:
director(s)
Digital village/dean/group leader, similar

Users

Questions for directors, and similar

OBS • ask for working title (director, Mr/Mr/s, Dr, etc) • Note gender • Note time devoted for the interview

In constructing, and after constructing, in running digital villages, in what ways do you consider/ take into consideration

1. Planning horizon What are your plans for the future (e.g. increasing the number of digital villages, alternative to digital villages, long and medium term planning, etc.)?
2. Transnational collaboration on digital villages/e-information, etc. What are the advantages/disadvantages with working transnationally. What is important to consider in terms of diversities?
3. **Language strategy** In what ways are Swahili and local languages considered?
4. **Authentic local needs** In what ways are local needs considered, including local involvement, e.g. in terms of design, so it will become an integral part of the community?
5. **Local ownership** Who is considered the owner or potential owner, who takes the overall responsibility for the digital village?
6. **Education/literacy**. How do you make sure that everyone can use the centre? E.g. regarding on non-literacy people. What are the education plans for empowering these people with literacy skills?
7. What kind of **societal information** can be provided for the public/users using digital villages?
8. **Competence network** How do you define and identify skills, competences so as the digital village can be maintained, further developed, etc?
9. **Documentation & measurable results** How do you document and measure the results, outcome, effects, etc?
10. **Resources and sustainability** How do you ensure that the resources at the digital villages are maintained and sustained?
11. **Fun and motivation** How do you make such a project rewarding and motivating for all parties, including using the digital village after constructing it?

**Questions for users/potential users**
1. What is your profession?
2. Your age
3. What are your experiences of ICT in general and digital villages in particular?
4. What advantages do digital villages in rural Kenya provide for the people?
5. What advantages do digital villages in rural Kenya provide in particular for women?
6. In what ways may digital villages managed by females be different in any way from the same managed by males?
7. What are your own feelings about using a digital villages?
8. What kind of external barriers are there?
9. What are/were your internal feelings about using ICT?
10. What barriers do affect women mostly?
11. What knowledge did you have on ICT before start using the digital village
A.2 Interview guide - paper 6

The interview guide was a categorised drawing from Patton’s (2001) background, experience, knowledge, and feeling. On formulating the questions previous research on ICT, learning, and migration was drawn from (see Hallberg et al. submitted for references that appear in the interview guide below). The questions were intended to capture the past (e.g. “How did you learn what you know with computers/Internet/i?”), the present (e.g. “For what purpose do you use computer”), and the future (e.g. “What do you think Swedish authorities could do to improve your possibilities to find a job?”). Versions in English and Swedish were developed jointly by David Hallberg, Henrik Hansson, and Anders G. Nilsson.

Topics (Swe vs. country of origin)

Background (Patton 2001)
- most recent educational qualification obtained in their home country/-since moving to Sweden: -year of arrival in Sweden; -country of origin; -occupation; -languages; -reasons for moving/leaving; -living with family/alone; -age bracket
-How often do you use computer? (Driessen et al. 2011); -How often do you use the internet? (Driessen et al. 2011)

Experience about… (Patton 2001)
1. What are your general experiences of using computer/accessing the Internet? [using c/i] (Elias & Lemish 2009); 2. What obstacles/shortcomings have you experienced (Driessen et al. 2011) when using c/i?

Learning to learn
3. What are your experiences of using c/i to find a job? (EC 2007)

Communication in languages
4. What are your experiences of communicating in your native language using c/i? (EC 2007)
5. What obstacles/shortcomings regarding use of languages do you experience when using c/i? (EC 2007)
6. How do you learn societal conventions on c/i? (EC 2007; Elias & Lemish 2009)
7. How do you use c/i to reinforce your original culture? (Elias & Lemish 2009)

Knowledge about… (Patton 2001)
8. For what purpose do you use computer?
9. For what purpose do you use internet? (Driessen et al. 2011)

Learning to learn
10. What opportunities do you know of that c/i can give you in your daily life? (EC 2007)
11. How did you learn what you know with c/i? (Driessen et al. 2011)
12. Which resources on c/i (Kwake & Adigun 2008) are you using to find work opportunities?
13. Which resources on c/i do you use (Kwake & Adigun 2008) to access societal information?
15. How do you dedicate time to learning? (EC 2007)
16. What problems have you encountered in the use of c/i in learning (Driessen et al. 2011; Caidi et al. 2007; Kwake & Adigun 2008)
17. What local services did you come to know of (Vanclay 2002) trough the internet?
18. In what concrete way has the use of c/i changed your life? (Vanclay 2002)

**Communication in languages**

19. How do you express yourself in your native language vis-à-vis Swedish on c/i? (EC 2007)

20. How do you use c/i to learn Swedish? (EC 2007)


22. What computer training/classes do you know of?

23. What computer classes have you taken? (Driessen et al. 2011)

24. What knowledge did you have of c/i before coming to Sweden?

**Security and confidence**

25. Where do you prefer using c/i?

26. Which are the 3 places where you most often use a computer/access the Internet? (Driessen et al. 2011)

**How do you feel about... (Patton 2001)**

**Security and confidence**

27. How do you feel when you are using c/i in general? (EC 2007)

28. How do you feel your perception on yourself has altered because of using c/i? (Saunders 2006)

**Communication in languages**

29. How do you feel when you are to interpret messages in Swedish on c/i? (EC 2007)

**Opinion/value (Patton 2001)**

**Learning to learn**

30. How do you value the c/i services in Swe/country of origin to find a job?

31. What do you think Swedish authorities could do to improve your possibilities to find a job? (Driessen et al. 2011)

32. What is your opinion on the use of c/i in your daily life?
A.3 Literature review of lifelong learning

The literature review on lifelong learning (Table A3.1) was rationalised by the claim that it would be an alternative African view of lifelong learning. It was also rationalised by the lack of clear definition of lifelong learning. As shown in the second column, “Affiliation”, researcher are within various universities in various countries. But yet, we may assume that their view of lifelong learning remains the same as they lack to explicitly define either the term or the concept, as suggested in the column “Definition”. Lifelong learning includes activities outside a formal learning or education setting, but the settings where these studies are conducted are are usual a formal institution, which is illustrated in the columns “Setting & topic” and “Aim”. Exceptions exist, whoever, such as lifelong learning among farmers, as in the research conducted by Misra (2010). The “Methods” and “Analysis” columns suggest various methods and perspectives but that many researcher tends to use surveys to go about the aim of the research.

Table A3.1: Literature review of lifelong learning

<table>
<thead>
<tr>
<th>Reference</th>
<th>Affiliation</th>
<th>Setting &amp; topic</th>
<th>Aim</th>
<th>Methods</th>
<th>Analysis</th>
<th>Conclusion</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Fernandez, J. G., Vega, F. P., &amp; Gavira, J. F. (2013). Preferencias profesionales de los estudiantes de licenciatura en Ciencias de la Actividad Fisica y del Deporte de la Universidad de Sevilla [Professional preferences of students in physical education and sport sciences]. Retos. Nuevas tendencias en Educacion Fisica, Deporte y Recreacion, 23, 39-42.</td>
<td>Seville University, Spain</td>
<td>Students at the Seville University, Spain.</td>
<td>Understand which are the job preferences of the students of Physical Education and Sport Science of Seville University by gender and age doing the second cycle of their college degree and determine if there are significant difference</td>
<td>Socio-demographic variables, questionnaire.</td>
<td>Descriptive</td>
<td>Findings announce changes in occupational trends in sports.</td>
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<tr>
<td>Reference</td>
<td>Affiliation</td>
<td>Setting &amp; topic</td>
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<tr>
<td>Gine, N., Martí, E., Mentado, T., &amp; Prats, M. (2009).</td>
<td>University of Barcelona, Spain</td>
<td>Compulsory, secondary education staff at the public institutes of Catalonia.</td>
<td>Analyse the training needs of secondary school teachers in the face of immigrant students’ educational services.</td>
<td>Mixed-methods (e.g. multiple case study, literature review, questionnaires, observations, interviews)</td>
<td>Descriptive.</td>
<td>-</td>
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<tr>
<td>Hashim, J., Mohamad, B., Jidi, K., Abidin, R., &amp; Junoh, H. (2010).</td>
<td>Faculty of Technical Education Universiti Tun Hussein Onn Malaysia</td>
<td>Leadership in technical and vocational education among Heads of Departments at the three Polytechnics in Malaysia</td>
<td>Investigate transformational of Heads of Departments at the Polytechnics with regards to the job satisfaction of the lecturers</td>
<td>Survey</td>
<td>Statistic</td>
<td>Heads of Departments at the Polytechnics are practicing transformational leadership in the life long learning characteristics in the administration of departments</td>
<td>-</td>
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<tr>
<td>Hus, V. (2011).</td>
<td>Fakulty of education, University of Maribor, Slovenia</td>
<td>The use of ICT among teachers and pupils in Slovenian primary schools</td>
<td>Present the results of empirical research on the use of ICT in the lessons of the environmental studies subject in the first triennium of primary schools in the Republic of Slovenia</td>
<td>Survey, protocol</td>
<td>Statistic</td>
<td>There are many possibilities of using computers in the learning process but the teacher must know when and how it can be included into the learning process.</td>
<td>-</td>
</tr>
<tr>
<td>Minou, T., &amp; Manuchehr, T. (2012).</td>
<td>Payame-Noor University, Tehran, Iran; University of Isfahan, Iran</td>
<td>Analysis of the recent international documents toward inclusive education of children with disabilities. Cypriot Journal of Educational Technology, 3(3), 190-198.</td>
<td>-</td>
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<tr>
<td>Misra, P. (2010).</td>
<td>Faculty of Education and Allied Sciences M.J.P. Rohilkhand University, India</td>
<td>Lifelong learning among farmers in emerging regions in general and India in particular.</td>
<td>Research about key strategies to promote lifelong learning among farmers in changing global scenario dominated by liberalisation, privatisation and globalisation.</td>
<td>Theoretical discussion</td>
<td>Mapping strategies</td>
<td>Fulfilling lifelong learning needs of farmers residing mainly in rural sector is must to make developing countries into developed nation.</td>
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<td>Reference</td>
<td>Affiliation</td>
<td>Setting &amp; topic</td>
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<td>Myrie, N., &amp; Mujtaba, B. (2011). Adult Learners’ Decision-Making Factors for Higher Education Enrollment: An Exploratory Study at the University of West Indies, Mona. Contemporary Marketing Review, 1(5), 5-20.</td>
<td>Nova Southeastern University, USA</td>
<td>Learning among university students at the UWI-Mona campus, Jamaica.</td>
<td>Explore enrolment decisions by adults who are actively engaging in higher education.</td>
<td>Survey</td>
<td>Spread sheet tools.</td>
<td>The university has been responsive to the changing academic needs of the students and the workplace.</td>
<td>-</td>
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<tr>
<td>Rennie, F., Jóhannesdóttir, S., &amp; Kristinsdóttir, S. (2011). Re-Thinking Sustainable Education Systems in Iceland: The Net-University Project. The International Review of Research in Open and Distance Learning, 12(4), 1-9.</td>
<td>Lewis Castle College UHI, UK; Icelandic Ministry of Education, Science and Culture, Iceland; The East Iceland Knowledge Network, Iceland</td>
<td>The merger of four public universities in Iceland and online and open delivery methods of higher education.</td>
<td>Practice and lessons from open educational resources (OER) use in course.</td>
<td>Abstraction of programme outcome</td>
<td>Mapping practice and lessons</td>
<td>Easy to find open access resources for educational reuse. Difficult to locate precise OER for specific purposes.</td>
<td>-</td>
</tr>
<tr>
<td>Robles, A. (2011). Graduate School Cyber Portfolio: The Innovative Menu For Sustainable Development. Advanced Computing: An International Journal, 2(6), 1-12.</td>
<td>College of Education, Mindanao State University, Philippines</td>
<td>Master’s degree students who were officially enrolled in Mindanao State University and Notre Dame of Marbel University, Philippines.</td>
<td>Present a preparation on how to innovate a cyber portfolio that has its practical and breakthrough solution against expensive and inflexible vended software which often saddle many universities.</td>
<td>Survey</td>
<td>Descriptive-correlation of attitudes and performance among the participants</td>
<td>These technologies enhance the learning process, and satisfy different types of learners. They take their teachers’ cyber portfolio as a means to enrich their learning experience.</td>
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<td>Reference</td>
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<td>Aburime, M., &amp; Uhomoibhi, J. (2010). Impact of technology and culture on home economics and nutrition science education in developing countries. Multicultural Education &amp; Technology Journal, 4(1), 4-16.</td>
<td>Department of Home Economics, Faculty of Science and Engineering, Delta State University, Abraka, Nigeria; Faculty of Engineering, University of Ulster, Newtownabbey, UK</td>
<td>ICT in at the Delta State University in Nigeria.</td>
<td>Examine and report on the impact of technology and culture on home economics and nutrition science education in developing countries with a focus on Nigeria</td>
<td>Interviews and questionnaires.</td>
<td>Statistic analysis. Results were plotted using spreadsheet tools.</td>
<td>Special requirements for applications are important for successful establishment and use of information systems in higher education.</td>
<td></td>
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<tr>
<td>Cmor, D. (2009). Campus priorities and information literacy in Hong Kong higher education. Library Management, 30(8/9), 627-642.</td>
<td>Hong Kong Baptist University Library, Kowloon, Hong Kong.</td>
<td>The current state of information literacy efforts in Hong Kong higher education.</td>
<td>Describe the strategic efforts of the Hong Kong Baptist University Library to build institutional support for information literacy in an environment of major curriculum reform.</td>
<td>Outline the current state of information literacy efforts in Hong Kong higher education.</td>
<td>Change agency approach.</td>
<td>The current higher education environment and mindset is conducive to recognizing information literacy as a vital component in teaching and learning.</td>
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<td>Gumus, G., Borkowski, N., Deckard, G., &amp; Martel, K. (2009). Gender differences in professional development of healthcare managers. Leadership in Health Services, 22(4), 329-339.</td>
<td>Department of Health Policy and Management, and Department of Economics, Florida International University, Miami, Florida, USA; Alere, Inc., Pembroke Pines, Florida, USA</td>
<td>Current and past members of three health management professional associations in the southern region of the state of Florida.</td>
<td>Present a pilot study which assesses the differences in male and female healthcare managers' participation in professional development activities and perceived organizational support.</td>
<td>Emailed survey.</td>
<td>Descriptive statistics and t-tests.</td>
<td>Women healthcare managers are less likely to pursue professional development activities than their male counterparts. Men are more likely than women to attend multiple continuing education programs when paying out of pocket.</td>
<td>-</td>
</tr>
<tr>
<td>Iredale, A. (2012). Down the rabbit-hole Routinised practices, Dewey and teacher training in the lifelong learning sector. Higher Education, Skills and Work-Based Learning, 2(1), 54-62.</td>
<td>School of Education and Professional Development, University of Huddersfield, Huddersfield, UK</td>
<td>Trainee teachers participating in a higher education (HE) through in-service initial teacher training (ITT) for the Lifelong Learning sector in the UK.</td>
<td>Explore the ideas of John Dewey on experience and experiential learning.</td>
<td>Practitioner research conducted with trainee teachers to explore and contextualise Deweyan ideas and practices around notions of experience and experiential learning.</td>
<td>Qualitative, interpretive, reflexive.</td>
<td>Initial teacher training should be broad based and situated, rather than focused on mastery or competency.</td>
<td>-</td>
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<tr>
<td>Johnsson, M.C. &amp; Hager, P. (2008). Navigating the wilderness of becoming professional. Journal of Workplace Learning, 20(7/8), 526-536.</td>
<td>Faculty of Education, University of Technology, Sydney, Australia</td>
<td>Developing musicians and professional musician mentors in a symphony orchestra-initiated development programme in Australia.</td>
<td>Examine the nature of learning discovered by recent graduates participating in a symphony orchestra-initiated development programme.</td>
<td>Case study: interviews, observations.</td>
<td>Qualitative.</td>
<td>Learning is better conceptualised as an social, embodied constructed experience.</td>
<td>-</td>
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<tr>
<td>Lockyer, J., &amp; George, S. (2012). What women want: barriers to female entrepreneurship in the West Midlands. International Journal of Gender and Entrepreneurship, 4(2), 179-195.</td>
<td>Institute of Applied Entrepreneurship, Coventry, UK; School of Physical and Geographical Sciences, Keele University, Newcastle-under-Lyme, UK</td>
<td>Female entrepreneurship in the West Midlands, UK.</td>
<td>Explore the barriers that inhibit the development of female entrepreneurship in the West Midlands.</td>
<td>Online questionnaire, in-depth interview.</td>
<td>Qualitative, quantitative.</td>
<td>Even vicarious exposure to the pressures of running a business was a positive deterrent to entrepreneurship.</td>
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<tr>
<td>Singh, G. (2010). Online mentoring to induct junior researchers into scientific literacy practices. Interactive Technology and Smart Education, 7(1), 19-29.</td>
<td>International AIDS Society, Geneva, Switzerland</td>
<td>AIDS 2004 and 2008 conferences</td>
<td>Report results from an evaluation of an online abstract mentoring programme to support early career and less experienced HIV.</td>
<td>Evaluation study, survey, questionnaires</td>
<td>Qualitative, quantitative.</td>
<td>Online mentoring increased the motivation and acceptance rate of early career and less experienced researchers, especially from low- and middle-income countries.</td>
<td>-</td>
</tr>
<tr>
<td>Baris, M., &amp; Tosun, N. (2011). E-portfolio in Lifelong Learning Applications. Procedia - Social and Behavioral Sciences, 28, 522-525.</td>
<td>Tekirdag Technical And Vocational School, Tekirdag, Turkey; Trakya University, Faculty of Education, Edirne, Turkey</td>
<td>Theoretical discussion</td>
<td>Examine the development of the concepts of &quot;e-portfolio&quot; and &quot;lifelong learning&quot;.</td>
<td>Theoretical discussion of &quot;e-portfolio&quot; and &quot;lifelong learning&quot;.</td>
<td>Descriptive.</td>
<td>E-portfolios function as bridge between education and working life. The definition of Alfred North Whitehead dated 1931, “the idea that people will use the things they learnt in their youth is not valid”, has formed the basis of the concept of lifelong learning.</td>
<td>Elaborators with various definition of lifelong learning.</td>
</tr>
<tr>
<td>Camacho, M., Minelli, J., &amp; Grosseck, G. (2012). Self and identity: raising undergraduate students’ awareness on their digital footprints. Procedia - Social and Behavioral Science, 46, 3176-3181.</td>
<td>Universitat Rovira i Virgili, Cra. De Valls, Tarragona, Spain; University of the West, 4 Bd. Vasile Parvan, imisoara, Romania</td>
<td>Students at the Department of Pedagogy at the Universitat Rovira i Virgili, Spain.</td>
<td>Highlight the need of social networking sites-related research at the time it tackles from an epistemological perspective issues such as identity construction, impression management, friendship, network structure and privacy awareness.</td>
<td>Online research using Facebook and “The Museum of me”, questionnaire.</td>
<td>Qualitative, quantitative.</td>
<td>The interaction in social networks requires people to make decisions that shape the way they present themselves to other users of digital environments.</td>
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<td>Can, A., &amp; Yuksel, U. (2011). Community colleges and music education in the direction of lifelong learning. Procedia - Social and Behavioral Sciences, 28, 698-704.</td>
<td>Marmara University, Istanbul, Turkey; Marmara University Institute of Educational Sciences Fine Arts Education Section, Istanbul, Turkey</td>
<td>Music courses hosted at public education centers in Kadıköy, Turkey.</td>
<td>Examine music courses hosted at public education centers in Kadıköy, Turkey.</td>
<td>Universal screening model, questionnaire.</td>
<td>ANOVA.</td>
<td>The attendees share the view that the institution provides opportunities for the goals and principles of the European Union’s process of lifelong learning.</td>
<td>Providing opportunities to student as locally as possible, in the place the student lives, in a proper enough way supported by ICTs.</td>
</tr>
<tr>
<td>Drobne, D. (2009). Toxicology has to use opportunities given by Bologna reform of higher education. Toxicology Letters, 190, 116-122.</td>
<td>Dept. Biology, Biotechnical Faculty, University of Ljubljana, Slovenia</td>
<td>Review and comparison of curricula in toxicology and environmental sciences at some European universities.</td>
<td>Provide an insight into the past, current and future state of education in toxicology.</td>
<td>Review and comparison of curricula in toxicology and environmental sciences.</td>
<td>Descriptive.</td>
<td>At present, the traditional educational system fails to cover all the education and training needs of professionals involved in toxicological issues.</td>
<td>Ongoing professional development.</td>
</tr>
<tr>
<td>Eriksson, H., &amp; Salzmann Erikson, M. (2013). Cyber nursing - Health ‘experts’ approaches in the post-modern era of virtual performances: A nethnography study. International Journal of Nursing Studies, 50, 335-344.</td>
<td>The Red Cross University College, Stockholm, Sweden; Mälardalen University, School of Health, Care and Social Welfare, Eskilstuna, Sweden; Oslo University Hospital, Ullevadl, Division of Mental Health and Addiction, Department of Acute Psychiatry, Oslo, Norway; Dalarna University School of Health and Society, Falun, Sweden; Örebro University, School of Health and Medical Sciences, Örebro, Sweden.</td>
<td>2640 pages of data from two health Internet forums.</td>
<td>Describe approaches to being an ‘expert’ in lifestyle health choice forums on the Internet. To elaborate on the communicative performances that take place in the forums.</td>
<td>Archival and cross-sectional observational forum study, online ethnography.</td>
<td>Descriptive.</td>
<td>(1) those that build their expertise by creating a presence in the forum based on lengthy and frequent postings, (2) those who build a presence through reciprocal exchanges with individual posters with questions or concerns, and (3) those who build expertise around a “life long learning” perspective based on logic and reason.</td>
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<tr>
<td>Gimeno, A., Seiz, R., de Siqueira, J., &amp; Martínez, A. (2010). Content and language integrated learning in higher technical education using the InGenio online multimedia authoring tool. Procedia Social and Behavioral Sciences, 2, 3170-3174.</td>
<td>Universidad Politécnica de Valencia, Spain</td>
<td>A project in higher education at the Universidad Politécnica de Valencia in Spain.</td>
<td>Discusses the benefits of combining CLIL (Content and Language Integrated Learning) and technology-enhanced learning by means of the InGenio authoring tool and content manager.</td>
<td>Evaluation</td>
<td>Qualitative, descriptive</td>
<td>Language learning will benefit greatly from the fact that students will be receiving twice the amount of contact hours, those in the subject matter class and those in the language class proper.</td>
<td>-</td>
</tr>
<tr>
<td>Gokcearslan, S., &amp; Ozcan, S. (2011). Place of Wikis in Learning and Teaching Process. Procedia - Social and Behavioral Sciences, 28, 481-485.</td>
<td>Gazi Universitesi, Enformatik Bölümü, Ankara, Turkey</td>
<td>Literature study. Focus on Turkey.</td>
<td>Reveal the potential for change being brought about by wiki applications.</td>
<td>Literature study</td>
<td>Qualitative, descriptive.</td>
<td>In addition to the possibility for the users to develop collective web content, a wiki is an interaction tool that provides the opportunity of restoration by recording the content amendments made by each user.</td>
<td>-</td>
</tr>
<tr>
<td>Marshall, G. (2008). Promoting independent learning by curriculum design and assessment in a taught postgraduate MRI programme. Radiography, 14, 238-245.</td>
<td>School of Medical Imaging Sciences, St. Martin’s College, Lancaster, UK</td>
<td>Postgraduate programme in magnetic resonance imaging St. Martin’s College, UK.</td>
<td>Consider the need for and importance of independent learning in an emergent profession, radiography.</td>
<td>Theory regarding independent learning and its application within the MRI programme.</td>
<td>Evaluates whether the moves to the new curriculum have promoted independent learning.</td>
<td>By curriculum and assessment design, learners can be encouraged to learn independently and become self-motivated, empowered, capable, lifelong learners, who will advance themselves, the knowledge base of their profession and change practice.</td>
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<td>Reference</td>
<td>Affiliation</td>
<td>Setting &amp; topic</td>
<td>Aim</td>
<td>Methods</td>
<td>Analysis</td>
<td>Conclusion</td>
<td>Definition</td>
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<td>McGowan, S., &amp; Potter, L. (2008). The implications of the Chinese learner for the internationalization of the curriculum: An Australian perspective. Critical Perspectives on Accounting, 19, 181-198.</td>
<td>University of South Australia, Adelaide, Australia</td>
<td>Chinese learners in Australian higher education settings in Australia.</td>
<td>Examine the impact of Chinese learners on the internationalisation of the curriculum in Australian higher education settings.</td>
<td>Literature study.</td>
<td>Qualitative, descriptive, normative.</td>
<td>The presence of Chinese learners fuels the impetus to internationalise the existing curriculum. This process could lower academic standards if the Corporate University’s economic priorities are allowed to unproblematically override educational ethics.</td>
<td>-</td>
</tr>
<tr>
<td>Noor, F., &amp; Ahmad, N. (2012). Continuing Education for Professional Development at UTMSPACE - Experience, Development and Trends. Procedia - Social and Behavioral Sciences, 56, 292-297.</td>
<td>Faculty of Civil Engineering, Universiti Teknologi Malaysia, Johor, Malaysia; UTM School of Professional and Continuing Education, Taman Universiti, Johor, Malaysia</td>
<td>Universiti Teknologi Malaysia in Malaysia.</td>
<td>Highlight the learning experience and challenges faced by Professional Development Unit in managing UTMSPACE’s professional development and training programmes</td>
<td>Evaluation.</td>
<td>Qualitative, quantitative.</td>
<td>Professional training and development is still relevant to current human capital requirements.</td>
<td>-</td>
</tr>
</tbody>
</table>
A.4 Stressors and social impact

The chain between stressor, forces, and social impact in the context of CRCs that emerged from the studies in (K)enya, (B)olivia, (C)ameroon, and (S)ri Lanka, (Table A4.1) is illustrated in this appendix. The illustration is not exclusive but provides an alternative view of how the same stressor can be viewed from different perspectives. Let us take tribal disputes in Cameroon and Kenya, which is categorised under the Vanclay (2002) heading of “Personal and property rights. On the one hand, the disputes, in the “Stressor” column, can help in maintaining a tribe’s cultural capital, which is a “Force restraining a movement”. On the other hand it creates “job for the boys”, which excludes other potential users, and is what why some forces may work towards a change and against a status quo, as illustrated in the fourth and fifth columns. However, only serving the own tribe may lead to increased trust among the users leading to better security. Nonetheless, a change may lead to increased trust among all the members of society, whereby, increased trust among people leading to better security is suggest to increase the social impact of a change or movement. This may sound harsh and maybe even controversial. Nonetheless, to understand ICT formation and what it takes for ICT to become a true means in lifelong learning we need to flip the coin sometimes.

Table A4.1: The chain between stressor, forces, and social impact in settings of CRCs

<table>
<thead>
<tr>
<th>Where most pervasive</th>
<th>Stressor</th>
<th>Forces restraining a movement</th>
<th>Result of status quo</th>
<th>Forces towards a movement</th>
<th>Social impact of a movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Lack of software support of sign language</td>
<td>More expensive, time consuming switching keyboard-layout, mixing different sign systems complicates matters</td>
<td>Easier to communicate interculturally</td>
<td>Preventing people from losing their culture and identity</td>
<td>People feeling they have a culture and identity feel comfortable, can easier trust other people. Higher fees for using the CRCs excluding those at the BOP</td>
</tr>
<tr>
<td>K,C</td>
<td>Traditions and customs that deter women’s progress (e.g. polygamy, FGM, contraceptive use, domestic violence)</td>
<td>Traditions and customs may make mothers give their daughters meaningful sex education whilst other propagate the culture of silence on sex education (Mbugua 2007)</td>
<td>Better sex education to girls in the CRCs</td>
<td>Making the home background unstable, reducing a woman’s quality of life. “Being a lesser being”</td>
<td>Increased school drop-out rate as girls are being married off early (Mbugua 2007)</td>
</tr>
<tr>
<td>Where most pervasive</td>
<td>Stressor</td>
<td>Forces restraining a movement</td>
<td>Result of status quo</td>
<td>Forces towards a movement</td>
<td>Social impact of a movement</td>
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<tr>
<td>Community</td>
<td>C.K</td>
<td>Infrastructure: CRC located to an environ that is difficult of access</td>
<td>Women in isolated environs can easier access without travelling far</td>
<td>Society information for all resulting in equal distribution of power, which increases a countries competitiveness</td>
<td>CRCs as empty &quot;pieces&quot;. CRCs should have a multipurpose attracting not only the nearest community. Uncomfortable reaching the CRC</td>
</tr>
<tr>
<td></td>
<td>C.B</td>
<td>Lack of equipment/resources in the centres</td>
<td>Adding more/better resources the fee of using CRCs would be too high excluding those at the BOP</td>
<td>Reduction in socio-economic and cultural benefits (UNESCO 2008). Higher morbidity rates, poorer health outcome (Cutler &amp; Lleras-Muney 2006)</td>
<td>Qualified teachers leave CRCs, poorer education (UNESCO 2008). To be a true alternative to formal education a non-formal education needs to meet certain standards (Rogers 2005)</td>
</tr>
<tr>
<td>Political systems</td>
<td>K.B</td>
<td>Political tensions</td>
<td>Maintaining ones position so as to gain economically, strengthening the socio-cultural capital (Bourdieu &amp; Passeron 1990)</td>
<td>“Jobs for the boys” is necessary to build trust among teachers of CRCs as they’ll know each other better, hence they’ll perform better resulting in better educated students</td>
<td>Causes dipartites and tension among people locally and regionally. Mistrust, mischief</td>
</tr>
<tr>
<td>Environment</td>
<td>K</td>
<td>Health hazards of urban agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and well-being</td>
<td>K.B</td>
<td>Lack of father figure</td>
<td>&quot;A father shouldn’t do a woman’s job&quot;</td>
<td>Children growing up to adapt the behaviour of their environ</td>
<td>There is no such thing as woman’s and man’s job</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>Lack of an income</td>
<td>Increases prostitution around CRCs attracting locals and foreigners with money</td>
<td>Sustainable CRCs due to income generation. Increase of STD due to prostitution</td>
<td>Having few resources and one’s basic needs not met reduces the ability to learn (UNESCO 2008)</td>
</tr>
<tr>
<td>Where most pervasive</td>
<td>Stressor</td>
<td>Forces restraining a movement</td>
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<tr>
<td>K,C</td>
<td>Justification of wife-beating/domestic violence</td>
<td>Women too feel domestic violence may be justified. We know too little about the effects of domestic violence (Edleson 1999)</td>
<td>“Increased risk of experiencing emotional, physical and sexual abuse, of developing emotional and behavioral problems” (Holt et al. 2008)</td>
<td>“Children may be significantly affected by the experience of domestic violence in their lives and impact can endure even after measures have been taken to secure their safety” (Holt et al. 2008)</td>
<td></td>
</tr>
<tr>
<td>C,K</td>
<td>Diseases (e.g. malaria)</td>
<td>Creates more jobs in private sector: health professionals and medical trained people</td>
<td>Health and education sector receive more tax money</td>
<td>Everyone should have an equal opportunity to good health. Delayed school performance, School drop-out</td>
<td>Better educational performance increases the number of students who reach the learning goals. Decreased drop-out rate. Better economic situation in the long run</td>
</tr>
<tr>
<td>K,B</td>
<td>Being a woman</td>
<td>Women and men are biologically different and should therefore perform different labour.</td>
<td>Still gender inequalities in technology.</td>
<td>A social exclusion on biological grounds. Women and men complement each other and should therefore work and learn together</td>
<td>A country’s competitiveness increases as more women and men get an education and work together. Education of girls improves fertility, health care of children, and the participation of women in the labour market (UNESCO 2008)</td>
</tr>
<tr>
<td>K,B</td>
<td>Racial issues</td>
<td>While education may reduce some sexual risk behaviours among women, black females, may have higher predicted probabilities of having an STD than white females with (Annang et al. 2010). Generalising, black women may be a higher risk than other women around the CRCs</td>
<td>Groups of a certain race or tribe better educated than others</td>
<td>Feeling of exclusion, isolation. Efforts aimed at reducing STD prevalence and/or risk among black females should be offered, regardless of educational status (Annang et al. 2010) in the CRCs.</td>
<td>Equally opportunity of both health and education</td>
</tr>
<tr>
<td>K,C</td>
<td>Prostitution</td>
<td>Attracts locals and foreigners with money to the CRCs.</td>
<td>Sustainable CRCs due to income generation</td>
<td>Not morally justified. Illegal buying sex. Making CRCs insecure.</td>
<td>Decreased causes of STD and drug abuse</td>
</tr>
<tr>
<td>C,K</td>
<td>Tribal disputes</td>
<td>Maintaining a tribe’s cultural capital</td>
<td>Users of CRCs of certain tribes. “Job for the boys”</td>
<td>Excluding people of certain tribes</td>
<td>Increased trust among people leading to better security</td>
</tr>
</tbody>
</table>

**Personal and property rights**
<table>
<thead>
<tr>
<th>Where most pervasive</th>
<th>Stressor</th>
<th>Forces restraining a movement</th>
<th>Result of status quo</th>
<th>Forces towards a movement</th>
<th>Social impact of a movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>B, K, C</td>
<td>The countries official language(s)</td>
<td>‘Where are other centres they can use if they don’t cope with the language’</td>
<td>Keeping down the costs of the CRCs</td>
<td>CRCs must provide for both official and national/local languages</td>
<td>Better educated citizens as people learn best from their L1.</td>
</tr>
<tr>
<td>K, B, C</td>
<td>(computer &amp; general) illiteracy</td>
<td>Maintaining control over someone: “A woman does not need to be literate to do domestic chores”. “Women shouldn’t use a computer coz they destroy them”</td>
<td>Division of labour is maintained</td>
<td>Being able to read is alpha and omega in a society. ICT has become a means through which people can make business, become socialised, be informed about their rights</td>
<td>People can provide for their human rights.</td>
</tr>
<tr>
<td>K, C</td>
<td>Payable fees at the CRCs</td>
<td>Payable fees increase the chance of a sustainable CRC, an issue of security: attracting university students with money means better security</td>
<td>Those at the BOP cannot gain from the CRC facilities</td>
<td>Increased diversities based on class</td>
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<tr>
<td>K</td>
<td>Lack of maths skills</td>
<td>Children perform less in schools since their performance largely depends on a mothers education rather than a father’s</td>
<td>Not getting cheated on when doing business (Kenya). Both a husband and a wife can make business</td>
<td>More daughters can obtain an education leading to gender equality and a better developed society.</td>
<td></td>
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<tr>
<td>K</td>
<td>Obstacles to freedom of movement</td>
<td>Men want to maintain their positions</td>
<td>Men’s positions are maintained</td>
<td>Making it difficult for women to raise their voices and hands</td>
<td>Equal opportunity for women makes a nation more competitive</td>
</tr>
<tr>
<td>S, (K)</td>
<td>Obligation to wear a veil in public</td>
<td>(Religious) traditions and customs</td>
<td>Reduces women’s quality of life, making them feeling less worthy</td>
<td>Equal opportunity for women makes a nation more competitive</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Denied access to, bank loan, land, and property other than land</td>
<td>Men want to maintain their positions; giving women less opportunities of running businesses</td>
<td>Making a woman more dependent on a male partner</td>
<td>Equal opportunity for women makes a nation more competitive</td>
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</table>

**Fears and aspirations**

| B, K | Meeting men alone | The women shouldn’t use the CRCs, they should do the labour around the house (Kenya) | Less causes of prostitution around the CRCs since women remain at home, decreeing causes of STDs | Less educated women, an insecure society | Trust among women and men creates a better social environ. |

BOP=Bottom of the pyramid
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URL http://www.satisfice.com/articles/cmm.shtml


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Rogers, A. (2005). *Non-formal education [Elektronisk resurs]: Flexible schooling or participatory education?*. Hong Kong: Comparative Education Research Centre, University of Hong Kong.


