Empowering Women through ICTs in Challenging Environments

A Minor Field Study in northern Peru

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KTH Computer Science and Communication

Master of Science Thesis
Stockholm, Sweden 2012
Empowering Women through ICTs in Challenging Environments

A Minor Field Study in northern Peru

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Master’s Thesis in Media Technology (30 ECTS credits) at the School of Media Technology
Royal Institute of Technology year 2012
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TRITA-CSC-E 2012:005
ISRN-KTH/CSC/E--12/005--SE
ISSN-1653-5715
Preface

This study has been carried out within the framework of the Minor Field Studies Scholarship Programme, MFS, which is funded by the Swedish International Development Cooperation Agency, Sida.

The MFS Scholarship Programme offers Swedish university students an opportunity to carry out two months’ fieldwork, usually the student’s final degree project, in a country in Africa, Asia or Latin America. The results of the work are presented in an MFS report, which is also the student’s Master of Science Thesis. Minor Field Studies are primarily conducted within subject areas of importance from a development perspective and in a country where Swedish international cooperation is on going.

The main purpose of the MFS Programme is to enhance Swedish university students’ knowledge and understanding of these countries and their problems and opportunities. MFS should provide the student with initial experience of conditions in such a country. The overall goals are to widen the Swedish human resources cadre for engagement in international development cooperation as well as to promote scientific exchange between universities, research institutes and similar authorities as well as NGOs in developing countries and in Sweden.

The International Relations Office at KTH the Royal Institute of Technology, Stockholm, Sweden, administers the MFS Programme within engineering and applied natural sciences.

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Empowering women through ICTs in challenging environments
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Abstract
The rapid progress in and development of Information and Communication Technologies (ICTs) has changed the way people worldwide interact and communicate with each other, and while the role of these ICTs is becoming increasingly influential in the political, economic and social life all over the world, it is also becoming clear that the benefits of these technologies are spread unevenly between and within countries. Aspects such as literacy, ethnic group, religion and age can all impede access to ICTs. Gender is a major factor as well, and the issues of women's access to and use of these technologies are becoming more and more important.

This study examines how women living in disadvantaged areas outside of the city Trujillo in northern Peru, with little to no computer literacy, access and research information and how they potentially could be empowered by the use of computers and the Internet. The work is based on a qualitative approach where a field study, with interviews and observational research, has been conducted on location in Peru. Aspects such as from where and how the women research information, what interest they have in learning to use the Internet to do so, and what needs they have in regards to computer training have been investigated. Other relevant factors, such as gender perspectives, health issues, cultural behaviours etc., were also identified in order to see what would influence the women in their interaction with and use of computers and the Internet.

The results show that the women, even though they are facing a variety of challenges, would in fact be empowered by having the ability to use a computer to research information online. They may not be able to reach a high level of digital literacy, but the ability to at least research information online would provide them with a sense of pride, better self-confidence, and therefore give them a stronger position in the community and within the family.

Keywords: Information and communication technology, digital divide, digital literacy, ICT, ICT4D, ICT for development, gender and ICT, women empowerment, minor field study, MFS, Peru
**Att stärka kvinnor genom IKT i utmanande miljöer**

*En Minor Field Study i norra Peru*

**Sammanfattning**

Den snabba utvecklingen av och den breda tillgången till Informations- och kommunikationsteknologi (IKT) har förändrat hur människor över hela världen interagerar och kommunikerar med varandra. Samtidigt som IKT:s roll har blivit alltmer inflytande i det politiska, ekonomiska och sociala livet över hela världen, är det också tydligt att fördelarna med dessa teknologier sprids ojämnt mellan och inom länder. Aspekter såsom läskunnighet, etnisk bakgrund, religion och ålder kan alla hindra tillgången till IKT. Kön är även det en betydande faktor, och frågan om kvinnors tillgång till och användande av dessa teknologier har blivit allt viktigare.

Denna studie undersöker hur kvinnor som lever i underprivilegerade områden utanför staden Trujillo i norra Peru, med små eller inga datorkunskaper, tillgår och söker efter information och hur de eventuellt skulle kunna bli stärkta genom användandet av datorer och Internet. Arbetet bygger på en kvalitativ metod där en fältstudie med intervjuer och observationer har genomförts på plats i Peru. Aspekter såsom varifrån och hur kvinnorna letar efter information, vilket intresse de har av att lära sig använda Internet för att göra det, och vilka behov de har i fråga om datorutbildning har undersökts. Andra relevanta faktorer, såsom genusperspektiv, hälsofrågor, kulturella beteenden etc. identifierades även för att se vad som påverkar kvinnorna i deras interaktion med och användning av datorer och Internet.

Resultaten visar att kvinnorna, trots att de står inför en rad utmaningar, faktiskt skulle stärkas av att ha möjligheten att använda datorer och Internet för att söka efter information. Förmodligen kan de inte uppnå en hög nivå av digital kompetens, men att åtminstone ha förmågan att söka efter information på Internet skulle ge dem en känsla av stolthet och bättre självförtroende. De skulle därmed få en starkare position i samhället och inom familjen.
Empoderar a mujeres a través de las TIC en ambientes difíciles
Un Minor Field Study en el norte de Perú

Resumen

El rápido progreso y desarrollo de las Tecnologías de la Información y la Comunicación (TIC) ha cambiado la forma de cómo todo el mundo interactúa y se comunica entre sí. Mientras que el papel de estas TICs es cada vez más influyente en la vida política, económica y social en todo el mundo, también es cada vez más evidente que los beneficios de estas tecnologías se distribuyen de forma desigual entre y dentro países. Aspectos tales como la alfabetización, la etnia, la religión y la edad todos pueden impedir el acceso a las TICs. El género es un factor importante también, y los problemas de acceso para la mujer y el uso de estas tecnologías se están convirtiendo cada vez más importante.

Este estudio examina cómo las mujeres que viven en zonas desfavorecidas fuera de la ciudad de Trujillo en el norte de Perú, con pocas o ninguna habilidades informáticas, acceden y buscan información y cómo podrían ser capacitadas por el uso de las computadoras y el Internet. El trabajo se basa en un enfoque cualitativo, y se ha realizado una investigación de campo en el Perú, con entrevistas e investigaciones observacionales. Se ha investigado aspectos tales como de dónde y cómo las mujeres encuentran la información, cuál es el interés que tienen en aprender a usar el Internet para buscarla, y qué necesidades que tienen con respecto a capacitación en computación. Otros factores relevantes, tales como las perspectivas de género, temas de salud, los comportamientos culturales, etc., fueron identificados también con el fin de ver qué iba a influir las mujeres en su interacción con y el uso de computadoras e Internet.

Los resultados muestran que las mujeres, a pesar de que se enfrentan a una variedad de desafíos, de hecho estarían facultadas al tener la capacidad de utilizar una computadora para investigar información en línea. Es posible que no sean capaces de llegar a un alto nivel de alfabetización digital, pero la capacidad de al menos investigar información en línea, les proporcionan un sentido de orgullo, más confianza en sí mismos, y por lo tanto les da una posición más fuerte en la comunidad y dentro de la familia.
Acknowledgments

I would like to take this opportunity to thank Liz Wilson at SKIP for giving me the opportunity to come work with the women in the computer class, and for all the support and invaluable advice that she has given me along the way.

I also would like to thank Sida and KTH International Relations Office for giving me the financial support to execute this study.

A special thanks goes to my supervisor at the Royal Institute of Technology, Maria Svedin, for all of her constructive feedback and guidance.

Finally, I would like to thank all of the participants for trusting me with their stories and for letting me take part in such an unforgettable experience. ¡Muchas gracias a todos Ustedes por ayudarme con sus respuestas, cuentos y energía – sin los cuales nada de esto hubiera sido posible!

Stockholm, March 2012

Viktoria Frid
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1 Introduction

This chapter presents the background to the thesis and the purpose, objective and aim of the work. The chapter also includes the problem definition, restrictions and target audience for the thesis.

1.1 Background to the thesis

The rapid development of new Information and Communication Technologies (ICTs) and the extensive accessibility to them has changed the way people all over the world communicate and interact with each other and how they gather information. These technologies are designed to access, process and transmit information and include, amongst others, radio, television, telephone, broadcast media and the Internet. ICTs can offer vast opportunities for economic and social development in terms of human rights, better health, improved governance and enhanced education.

The opportunity to research information online could help rural communities improve their way of life and their ability to make informed decisions. The different ICTs offer a wide variety of tools for spreading new knowledge and skills and they have the potential to lessen isolation, both spatial and social, of remote communities.

1.1.2 Description of the research field

Information and Communication Technology for Developing Countries (ICT4D) is a dynamic and relatively new area of research with the purpose to investigate how ICTs can make a difference in economic and social development. ICT4D focuses on developing, facilitating and enabling the use of modern communication in disadvantaged countries. The field is multidisciplinary and includes, amongst others, development theory, informatics, computer science, pedagogy and sociology.

There are a number of universities and international organizations (both governmental and non-governmental) that carry out research projects within ICT4D, such as SIDA, the UN, UNESCO, the ITU, and SPIDER.

1.2 Purpose and objective

The purpose of this study is to identify and reflect upon how women in rural areas in northern Peru, with little to no computer literacy, access and research information and how they relate to computers and the Internet. ICTs could potentially play an important role in reducing existing information barriers and help these women to better support their families by developing new skills and acquiring new knowledge. The objective for the thesis is to find out if, and in what way, the use of computers and the Internet could empower these women.

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1.3 Aim
The study aims to identify how and from where the women gather information and the different factors that influence the women in their access to and use of ICTs. It strives to establish whether or not the women have an interest in learning, and if they do, for what purpose. The work will also try to recognize how they, given their prerequisites, best could learn to use computers to research information online.

1.4 Problem

1.4.1 Definition
The issues of access to and the use of ICTs are becoming increasingly important, as the world economy becomes more and more information driven. Women tend to have fewer opportunities than men to access information and new technologies, and they can therefore be at a disadvantage in making informed decisions and their influence within the community can become limited. For women living in rural or disadvantaged areas, the ability to make use of ICTs could reduce the existing information barriers and help them to better support their families by developing new skills and acquiring new knowledge. Having the opportunity to take part in the digital information exchange is crucial for these women’s rights, their livelihoods and the democracy.

1.4.2 Research questions
The main research problem for this thesis is whether or not the use of computers and learning how to research information on the Internet could empower these women, given their prerequisites and local conditions.

To facilitate the study, the following research questions will be investigated:

- How and from where do the women gather information, and how do they go about acquiring new knowledge?
- What kind of experience do they have of different ICTs, especially computers and the Internet?
- What are the social, cultural and geographical factors that influence the women’s access to computers and the Internet?
- Do they have an interest in learning to use computers and the Internet, and if they do, for what?
- What are their needs regarding education in learning to use computers and the Internet?

1.5 Restrictions
The study was restricted to the area around the city of Trujillo in northern Peru (for map see figure 1, p. 16), and was executed in cooperation with a local Non-Governmental Organisation (NGO), Supporting Kids In Peru (SKIP)² and other contacts. The study was limited to one area due to time and resource constraints, and because of its qualitative approach (for more information about the chosen methodology, see Chapter 2).

The target group for the thesis was literate women within the area, ranging from ages 18-50 years, who have the possibility of accessing the Internet in some way (internet café, at home, through an NGO) but that for different reasons do not interact with the technology. The reasons could be for example that they do not know how to use the computer, access the Internet or research information, or due to other factors such as financial issues or time constraints.

² For more information about SKIP and their work, visit http://www.skipperu.org
The study was concentrated on the social and pedagogical aspects of these women’s interaction with ICTs, and was focused on how the women interact with and understand computers and the Internet. Other ICTs, such as cell phones, TV or radio, were of less importance.

1.6 Target audience

This thesis is presented as the final piece of course work for a Master of Science in Media Technology at the Royal Institute of Technology in Stockholm (KTH)³. The study is of interest to SKIP and the work that they do, and of relevance to individuals who have an interest in research regarding women’s empowerment, especially through technology, and who work within the field of ICT4D.

³ For more information about KTH, visit http://www.kth.se
2 Methodology and implementation

This chapter describes the chosen methodology and explains the research process. The chapter opens with a brief introduction to scientific concepts relevant to the thesis, followed by a description of the research approach and a critique of the chosen methods.

2.1 Methodology theory

2.1.1 Objectivity
There are several different factors that can lead to bias in a study that the researcher may or may not be aware of. Such issues could be for example that the literature chosen for the study corresponds too strongly with the researcher’s personal opinions, that the text is written in a way that influences the opinion of the reader, or that the researcher is letting certain prerequisites or personal opinions influence the interpretation of the results (Bell 2006:167). It is important to be aware of these issues during all parts of the process, and especially when interpreting the data. The researcher should try to view data and information as objectively as possible in order to be able to draw accurate conclusions.

2.1.2 Reliability and validity
During a research process, it is important to critically examine the collected data’s reliability and validity. Reliability can be said to determine the extent to which an instrument or approach give the same results at different times under similar conditions. An approach to or an instrument for gathering information can sometimes produce different results on different occasions even though the circumstances are the same, often due to random measurement errors. In an interview situation for example, the answers that are given may depend on a variety of factors, such as the respondent’s mood, previous experiences and events, the location of where the interview takes place or by the person performing the interview (Bell 2006:117). To achieve good reliability, the study should contain as little influence as possible from the person making the measurement and the surrounding factors.

Validity is more complex than reliability and is defined as a measure of how a specific question actually measures or describes what the researcher strives to measure or describe. When designing the interviews it is important to keep in mind what the purpose of the study is, and to make sure that the questions coincide with this for the credibility of the conclusions. To achieve a higher grade of validity, the questions should be formulated and revised several times before the first interview (Bell, 2006:117).

2.1.3 Quantitative and qualitative methods
There are basically two types of studies, quantitative and qualitative. The quantitative methods are designed to encode observations into numerical values that form a basis for drawing conclusions (Preece, Rogers & Sharp, 2007:356).

Qualitative research, on the other hand, aims to gather an in-depth understanding of human behaviour and the reasons that govern such behaviour. It investigates the why and the how in decision-making, not just what, where and when. Therefore smaller but more focused samples are more often needed than larger, random ones (Glenn, 2010:95).
2.1.4 Ethnographical methods
Ethnographical research is used to study or observe people in their natural habitat, and the data collection methods chosen for this type of study should be able to capture the social and cultural patterns of the people. This is a participatory type of research, where the researcher takes part in the life of the local population (Bell, 2006:26).

In ethnographical research, the researcher shares experiences and partakes in events with the people being observed in order to better understand why they are acting in a certain way. The ethnographical researcher aims to understand the way of life of a culture (Bell, 2006:27).

2.1.5 Interviews
Interviews can be more or less structured. The most structured interview is set up with a certain amount of multiple-choice questions with predefined answers that provide results that are easily compared and analysed, and that form a basis for quantitative research. The least structured interview has a base of a number of open-end questions, that are used to discuss a certain topic, and is of a qualitative nature. The person being interviewed in this type of interview is given a greater opportunity to express what he or she thinks about the subject (Bell 2006:160).

2.1.6 Observations
Observations can provide data that would be impossible to obtain through other methods, and can therefore be a good supplement to interviews that only provide what the respondent perceives is happening, and not necessarily what is actually happening. Observations can be useful for finding out whether or not people act according to what they say. The researcher must however be aware of the fact that his or her experiences or prejudice will affect the interpretation of the data. Observations can be structured or unstructured, participant and non-participant (Bell, 2006:187).

The unstructured observation is used when the researcher has an idea of what to investigate, but is not sure of the exact focus of the work. This type of observation is time consuming and not suitable for shorter projects. The structured observation, however, is a more systematic method of data collection, that has been set up with a pre-defined aim where a certain aspect or behaviour will be observed during the study (Bell, 2006:190).

In non-participant research, data are collected without interaction with the participants. In participant observation, on the other hand, the researcher takes part in a social context and tries to understand what is happening by interpreting his or her own impressions and by interacting with and asking questions to the group (Bell, 2006:188).

2.2 Approach
Since this thesis strives to understand the social and cultural context of how and why the women in these areas interact with computers and the Internet, an ethnographical approach combined with qualitative methods was implemented. Since the objective was not to calculate a mathematical or statistical correlation, but rather to understand the way of life of the Peruvian women and the opportunities and prerequisites that they have, this methodology was suitable.

2.2.1 Literature review
The study began with a literature review, which has mainly been focused on the areas of ICT and ICT4D and different research projects within these fields. Focus has also been placed on women and their place in the information society.

Most of the literature has been accessed through scientific reviews and online libraries. The literature forms the basis for the chapters regarding the theoretical framework and the sections describing life in Peru.
2.2.2 Field study

To be able to identify the issues the women are facing in their interaction with computers and the Internet, contact with the target group was necessary. Therefore a field study, including interviews and observations, was conducted in the two areas El Porvenir and Huanchaco outside of Trujillo, with the help of SKIP and other contacts.

2.2.2.1 El Porvenir and Huanchaco

Trujillo is situated on the coast in northern Peru and divided into 11 districts, and this study has been carried out in two of these called El Porvenir and Huanchaco. El Porvenir, which is the area in which SKIP operates, is larger in population and generally poorer than Huanchaco. It has larger issues with crime, health and sanitation problems and financial predicaments for the families living there. These issues exist in Huanchaco as well, but to a lesser extent (SKIP, 2012).

2.2.2.2 SKIP

SKIP is an NGO working to provide school fees, uniforms and materials to roughly 350 children each year in El Porvenir. In addition to educational support to the children, the organisation works to educate and empower parents for them to be able to take control of their lives and improve their own living circumstances by offering microfinance loans, group business training and educational workshops of different kinds. The organisation also provides psychological support to help parents to deal with difficult issues and to gain a better understanding of how to manage their children’s behaviour (SKIP, 2012).

During 2011, SKIP launched a computer teaching class for the mothers associated with the organisation, as they had expressed an interest in computer training, and this is where the observational research for this thesis took place. SKIP has, in addition to allowing access to the computation class, helped in providing resources for this study and in setting up interviews with women in the area.

2.2.2.3 Interviews

Semi-structured interviews, with open-end questions, were chosen as a qualitative method for this study. The purpose of the interviews was to investigate the women’s social and cultural circumstances and to get the women to describe their everyday lives. Therefore the interviews were set up with a number of open-end questions, where they had the option to describe their lives and the challenges that they are facing when interacting with ICTs. In total, 24 interviews were conducted with women part of the target group, 8 of them living in Huanchaco and the rest in El Porvenir. The interviews with the women in El Porvenir were performed in a private room at the SKIP office, where other people would not disturb the participants. The women in Huanchaco were interviewed in their homes.

Other relevant factors that influence the women were identified, such as gender perspectives, health issues, cultural behaviours etc. through the literary review and interviews with Liz Wilson, director of SKIP, and Elvis Luis, who teaches computing at a small education centre in Huanchaco. The interviews with Liz Wilson and Elvis Luis were also semi-structured with open-end questions.

2.2.2.4 Observations

Structured, participant observations were chosen as an ethnographical method for this study. The observational research was executed through participation in the computation class at SKIP during 10 weeks. The purpose of the observations was to investigate how the women were relating to the technology. The aim was to identify what they were struggling with when it came to learning to use computers and research information online, and examine the challenges that they were facing by observing their performance in class.
2.3 Critique of methodology

A disadvantage to ethnographic methods in general is that they can be time consuming. To achieve a good understanding and to describe the common patterns of behaviour in the area in a proper and fair way takes time. Another important aspect to consider is the language barrier, which can pose a problem when trying to identify hidden messages or culturally charged expressions or sayings.

There is never enough time or resources to read all the articles, reports, journals and books when carrying out a literature study. This paper was limited in time, geographical place and money. Much literature is not available online and must be read on location in libraries, and some databases with reports and records are closed to outsiders or cost money. Much effort, however, has been put in to finding literature from different types of sources and geographical locations in order to get as an objective point of view as possible.

The intimacy that occurs between the researcher and the investigated population during interviews and observations can pose a problem since it can create expectations. Study participants may behave in a manner or respond in a way that they think the researcher expects, instead of acting naturally or respond to questions truthfully. It is therefore important for the researcher to really try and make sure that the participants are comfortable and behaving like themselves.

To achieve good reliability for the study, the conducted interviews were mostly standardised and semi-structured. They have also been audio recorded in order to be able to revisit the information given. This was of particular importance since they were performed in a, for the researcher, foreign language, Spanish. They were also performed in private, quiet environments where the women would not be disturbed.

To achieve good validity the interview questions were revised and tested several times before the interviews were performed. They were translated by the author, and reviewed by a Spanish teacher from the area in order to make sure that the questions were formulated in the way intended.

The methods of focus groups and questionnaires were both of interest when collecting data for this study but had to be discarded. Questionnaires were not an option mainly due to literacy issues, even though this would have been an efficient way of collecting a good amount of data regarding the women’s use of ICTs. Therefore, interviews were set up instead. Focus groups or a group interview could also have been of interest, but due to a language barrier these were discarded. It would have been difficult to identify and understand all of the information and cultural implications as a foreigner.
3 Theoretical framework

This chapter includes the results of the literature study, and presents the background to ICT4D, the digital divide and accessibility. It also brings up the concept of digital literacy, and some previous research with focus on women and ICTs.

3.1 Information and Communication Technology

The digital revolution generated by new Information and Communication Technologies (ICTs) and the widespread accessibility to them has fundamentally changed the way people think, behave, communicate, work and earn their livelihoods. The International Telecommunication Union (ITU) states that ICTs have inspired new ways to create knowledge, educate people and disseminate information (ITU\textsubscript{a}, 2011). The World Bank Group defines ICTs to consist of hardware, software, and media for collection, storage, processing, transmission, and presentation of information in the form of voice, data, text, and images (The World Bank\textsubscript{a}, 2011:8). ICTs encompass the full range of devices, from traditional ones such as radios, telephones and television, to more sophisticated tools like computers and the Internet (Weigel & Waldburger, 2004:18). According to the ITU, the number of mobile-cellular telephone subscriptions in 2001 was 15.5 per 100 inhabitants, and had grown to 86.7 in 2011. The number of Internet users in 2001 was 8 per 100 inhabitants, and in 2011 had reached 34.7 (ITU\textsubscript{b}, 2011).

The use of ICTs has restructured the way the world carries out business practices, runs governments and engages politically. Having access to information and knowledge is a prerequisite to achieving the Millennium Development Goals\textsuperscript{4} presented by the UN in 2000 and ICTs have the capacity to improve living standards for millions of people around the world (ITU\textsubscript{a}, 2011). Even though the digital revolution has connected people all over the world in a new way, the vast majority remains excluded from the digital community and there is still a development gap between the rich and the poor among and within countries (ITU\textsubscript{a}, 2011). The recognition that this new dynamic requires a global discussion has launched a variety of publications, bodies, events, programmes and projects since the end of the 1990’s: the 1998 World Development Report from the World Bank that highlighted the role of information, knowledge and ICTs in development; the creation of the Digital Opportunities Task Force by the G8 countries in 2000, setting an agenda for action on ICTs within development; and the World Summit on the Information Society (WSIS) in 2003 and 2005, acting as a key player and policy maker in research within ICT research for development (Heeks, 2008). Since then, several WSIS-related events have been held on an annual basis. In 2009, the cluster of WSIS-related events was renamed the WSIS Forum (WSIS, 2011).

3.2 Information and Communication Technology for Development

There seems to be a growing recognition that ICTs are powerful tools that can make development work effective on a large scale for disadvantaged people. As a result, an increasing number of development organisations in all parts of the world use ICTs to promote development, poverty reduction, empowerment and participation (Weigel & Waldburger, \textit{ibid}.

\textsuperscript{4}In 2000, 189 nations committed to the eight Millennium Development Goals (to eradicate extreme poverty and hunger, achieve universal education, promote gender equality and empowerment of women, reduce child mortality, improve maternal health, combat HIV/AIDS, ensure environmental sustainability, and develop a global partnership for development) to be achieved by 2015. For more information, visit \url{http://www.un.org/millenniumgoals/}. 
Information and Communication Technology for Development (ICT4D) is an emerging area of research, investigating how ICTs can make a difference by connecting people and places. Development strategists are increasingly arguing the need for the developing countries to use ICTs as a way to avoid further social and economic marginalization and to offer opportunities for growth of their economies (Sachs, 2000). The main focus and application of ICTs is to reach the Millennium Development Goals, and the key actors within the field of ICT4D are international development organisations such as the World Bank and the United Nations Development Program alongside NGOs (Heeks, 2008). The ITU, with its clear focus on ICT infrastructure and technology, is the key player regarding the WSIS, ICT regulation and infrastructure (Weigel & Waldburger, 2004:165).

The research field of ICT4D is about helping poor and marginalized communities across the world to benefit from technological development to improve their quality of life (Spider, 2011). Vast amounts of resources have been invested in efforts to increase access to ICTs in developing countries and among the underprivileged, to adapt these tools to the specific needs of the poor, and to promote awareness and encourage effective policy-making in developing countries to take advantage of these technologies and their economic and social potential (The World Bank, 2003).

The focus of ICT4D was initially on setting objectives and establishing infrastructure to facilitate access to different technologies, but is today moving towards creating solutions that have been developed by local communities themselves. One could say that there has been a shift from allowing local communities to receive information towards establishing more interactive modes of communication, developed by the local communities themselves (Weigel & Waldburger, 2004:165).

ICTs can be powerful tools and offer great opportunities for economic and social development. They do, however, have the potential to increase inequalities depending on the social, political and economic contexts within which they are introduced (Unwin, 2009:7). If they are not used strategically to strengthen development and poverty reduction efforts, there is a great risk that they widen social inequalities within and between societies.

### 3.3 The Digital divide

While the role of ICTs is becoming increasingly influential when it comes to transforming political, economic and social life all over the world, it is also becoming clear that the benefits of ICTs are spread unevenly between and within countries (Primo, 2003). There is commonly a gap in how different social and economic groups adopt new technologies, which leads to a knowledge gap in-between them (Mariscal, Gil Garcia & Adama Nalda, 2011).

This uneven access to and distribution of ICTs within societies and between countries is referred to as the digital divide. The term digital divide was introduced in the 1990s to refer to the imbalances between developed and developing countries in terms of the inadequacy of telecommunication infrastructure and the individual’s affordability of accessing ICTs (KIT, 2005). Today, the definition of the digital divide has grown from just referring to the division of those that have and those that don’t have access to ICTs, to a wider perspective. The digital divide nowadays is related to the way in which people are able to understand, learn, express, produce, share, collaborate, create and innovate using technology (Fonseca, 2010). It reflects a division within countries by race, ethnic group, class, age, region and gender; and between countries and those who have access to a variety of information resources and those that do not have this type of access (Hafkin & Taggart, 2001).

Kofi Annan, at the time Un Secretary General, talked about the digital divide in his address to the WSIS in Geneva, December 2003, and described it as the following:

The so-called digital divide is actually several gaps in one. There is a technological divide – great gaps in infrastructure. There is a content divide. A lot of web-based information is simply not relevant to the real needs of people. And nearly 70 per cent of the
world’s web sites are in English, at times crowding out local voices and views. There is a gender divide, with women and girls enjoying less access to information technology than men and boys (…). There is a commercial divide. E-commerce is linking some countries and companies ever more closely together, but others run the risk of further marginalization (---). And there are obvious social, economic and other disparities and obstacles that affect a country’s ability to take advantage of digital opportunities (Annan, 2003).

The difference in capacity of countries, regions, sectors and socio-economic groups to access knowledge through ICTs, and to use them for different purposes is part of the digital divide, and there is little opportunity for countries or regions to develop without becoming part of the information age (Sachs, 2000). Considerable effort has gone into defining what the digital divide is, trying to measure it, and understanding how to bridge it (Hafkin & Taggart, 2001).

3.4 Access

One of the major issues regarding the digital divide is access to different ICTs. Access figures are hard to come by, and measuring access is difficult since there is no clear definition of what it is (Heeks, 2008). Statistical data on access from different countries is not always available and does not always correctly describe the actual amount of people being able to effectively use different ICTs.

Access can be seen in terms of not only the physical presence of a particular technology, but also its reliability, its cost, its cultural acceptance, the ability of people to use it and whether or not there is relevant content available to them (Unwin, 2009:70). The fact that there is an Internet café in a rural Peruvian village, for example, does not necessarily mean that all of the inhabitants of that village are able to access the Internet.

Poverty, illiteracy, social circumstances and language barriers are some of the factors impeding access to ICTs, especially in developing countries, and for women in particular (Primo, 2003). Access to ICTs requires education, infrastructure and institutions - resources that many developing countries lack (Rodriguez & Wilson III, 2001:3).

3.5 Techno centrism

ICTs have increased globalisation processes and they have changed the daily communication patterns for people everywhere in the world. The digital revolution that started in the 1980’s, encouraged a wave of positive statements on the alleged effects of ICTs on development and poverty reduction, and at the end of the 1990’s and beginning of the 21st century, many debates at international and national levels concluded that access to information through ICTs would directly eliminate poverty and allow low-income countries to rise to the level of rich industrial countries (Weigel & Waldburger, 2004:17).

One of the biggest critiques directed towards ICT4D research and efforts to bridging the digital divide has been how these approaches have been highly techno centric and focused on technology and the supply of the same. Key attention has been given to issues of infrastructure and the acquisition of devices, and less focus has been placed on the issues of the actual use of the technology (Fonseca, 2008). Many of these projects have been applying an invention-down approach, meaning that they have brought new technologies into development contexts, instead of analysing how existing technologies could best be applied within poor communities (Heeks, 2008).

Toyama discusses in his article “Can technology end poverty“ that there are many ICT4D related projects that believe that the large-scale distribution of appropriately designed technology can provide solutions to poverty and other social issues, and that technology penetration is associated with progress. Toyama brings up an interesting example of a
technology-centred project called One Laptop Per Child (OLPC). The main focus of their work is to enable self-empowered learning in children, where teachers in theory would be completely absent. The project does not take into consideration the need for pedagogy (training teachers, building curriculums, strengthening weak school systems) or the fact that PC-based education for children might not be the preferred alternative for many parents. Toyama argues that OLPC widely disseminate the distribution of technology instead of establishing a foundation of competent people that with the help of technology can amplify the capacity and learning experience for these children.

Tim Unwin, UNSECO chair in ICT4D and Professor of Geography at Royal Holloway, University of London, argues in his book “ICT4D – Information and Communication for Development” that many ICT4D projects in the past have concentrated primarily on the technologies and the supply of them, and that the potential these technologies may have to offer poor and marginalized communities has been neglected or come in second. As a consequence, many of these projects have insufficiently delivered on the real information and communication needs of poor people, and have therefore been unsustainable once initial external funding and support has been consumed.

Technological invention itself is no guarantee for empowerment, and it is imperative to consider the local circumstances to be able to obtain sustainability.

### 3.6 Digital literacy

Access to information is useless without the knowledge to understand the content, to make sense of it and then use it. The inability to transform the content on the Internet into economic and social values is part of a knowledge divide far more significant than the issue of being able to access technology. To consider that there exists such a knowledge divide raises issues beyond access to the Internet and digital opportunities.

Terms such as digital literacy or e-literacy are now becoming much more widely used, emphasising that people need to have a wide range of communication skills to effectively be able to communicate within the information society.

When talking about literacy in this sense, it is necessary to make a distinction between information on the one hand and knowledge on the other. Information and knowledge are complicated concepts, and it is not within the scope of this study to include an elaborate discussion on all that they encompass, but it is of importance to recognize a distinction in-between them. Information must somehow be produced, stored and accessed if it is to be of any value, and it needs to be received and understood. Knowledge, on the other hand, is the interpretation of that information. The acquisition of new knowledge depends on personal experiences, reflections and ambitions, and depending on our levels of prior knowledge we can understand and assimilate new knowledge.

One of the basic definitions of literacy is that it is the combination of skills that are essential for people being able to communicate in a particular format and the literacy of today is far more complex than merely the acquisition of a set of specific reading and writing skills. To be digitally literate one must be able to research information online, have the knowledge to interpret that information, and then transform it into economic and social values.

### 3.7 Women and ICT in developing countries

Gender is an important factor in determining who has access to and benefits from different ICTs. Studies show that ICTs are not gender-neutral and that they impact men and women differently, and in the majority of cases, women have lesser access to and use of the technologies and lesser representation in decision-making positions related to ICTs.

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5 For more information about this project, visit [http://www.onelaptopperchild.com](http://www.onelaptopperchild.com)
The WSIS held in 2003 in Geneva recognized ICTs as vital tools for women’s empowerment. They state “we are committed to ensuring that the Information Society enables women’s empowerment and their full participation on the basis on equality in all spheres of society and in all decision-making processes. To this end, we should mainstream a gender equality perspective and use ICTs as a tool to that end (WSIS, 2003).”

The gender gap in the digital divide is of increasing importance. Without strategic actions, women will continue to be unequally represented among the information poor, and the potential that ICTs have to promote women’s empowerment will go unrealized (Azaryeva, 2011). The use of ICTs is related to social and economic development, and it is therefore necessary to make sure that women in developing countries understand the significance of these technologies and use them. If not, lack of access to ICTs can become a significant factor in further marginalizing women from economic, social and political aspects of society (Hafkin & Taggart, 2001:7).

A number of factors influence women’s access to information technology, such as literacy and education, language, time, cost, geographical location, social and cultural norms, and skills. This subsection of the paper will present these issues interfering with women’s access to ICTs in developing countries.

### 3.7.1 Literacy and education

The United Nations Educational, Scientific and Cultural Organization (UNESCO) define literacy as the percentage of the population aged 15 years and over that can both read and write. The term literacy also includes numeracy, which is the ability to make simple arithmetic calculations (UNESCO, 2012). UNESCO states that women make up nearly two-thirds of the world’s illiterate, and one out of every two women in developing countries is illiterate (UNESCO, 2010), making them more likely to lack basic computer skills.

Education is one of the most important drivers of human development and is part of the Millennium Development Goals. Access to sufficient education, however, tends to be a larger barrier for women than men. Women are faced with challenges in pursuing education because of lack of time to attend school, familial and household duties, lack of control of funds to pay for education, and socio-cultural norms that give female education low priority (UN, 2010).

Also, education in science and technology is considered to be a male domain in many countries, which means that training in ICTs is usually not tailored to women’s needs (Melhem & Tandon, 2009).

### 3.7.2 Language and content

There is a dominance of English as well as other major international languages such as Chinese, Spanish and Japanese on the Internet (Internet World Stats, 2010). This excludes access for those of the world’s population who do not speak these languages. Because of their lack of education, women are less likely than men to know the international languages that dominate the Internet, excluding them from using ICTs (Hafkin & Taggart, 2001).

This lack of language skills also influences the ability to relate to online content. UgaBYTES, an NGO based in Uganda that works to promote access to ICTs in rural East Africa, conducted a field study in two rural telecentres6, trying to better understand if the telecentre services were meeting the different needs of women and men. They found that the women felt that they lacked the language skills to research information online and that the content did not speak to them. Illiteracy in English was one of the main reasons for why they could not fully utilize the telecentres, unlike many of their male counterparts who were mostly literate in English (APC, 2010).

### 3.7.3 Time and geographical location

The majority of people in developing countries use shared ICT facilities to access the Internet or

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6 A telecentre is a facility where there is access to different types of ICTs, such as fax-machines, telephones, computers, Internet etc.
to use computers (ITU, 2011). The geographic location of a public Internet facility can affect women’s access to ICTs in developing countries. It may be located in places where women are not comfortable visiting, for example in unsafe neighbourhoods or at a great distance from the residence. Women, especially in rural areas, have heavy domestic responsibilities that make them less likely to have the free time to spend using the Internet, whether it would be at home, at work or in public Internet facilities. It may also be more problematic for them than for men to use public facilities in the evenings after finishing their domestic chores, and then return home in the dark (Hafkin & Taggart, 2001).

There is also an issue with the fact that telecommunications infrastructure is largely concentrated in urban areas, while the majority of women in developing countries live in remote or rural areas (Primo, 2003). This means that these women have no access to the technology. CEPES, a social studies research group based in Lima, Peru, evaluated a telecentre in the Huaral Valley to try and understand why so few women came to use their services. One of the biggest concerns expressed by the women was that the telecentre was located a long way from home, and that they faced serious security issues with the public transportation system to get there. The mothers also expressed that even if it would be more easily accessible, they would send their children to use it since they themselves were too busy with household chores (APCb, 2010).

### 3.7.4 Cost

A major factor that affects women’s access to education and training in ICTs is the cost, along with their ability to afford the actual use of the technology. Women with a low income are not likely to afford private education in ICTs. Access to ICT training at the workplace would be one possible solution, however most women in developing countries work within the informal sector, where they work with domestic services or in manufacturing rather than in offices. Women working in the informal sectors would therefore not have access to computers (Hafkin & Taggart, 2001).

Having a computer and Internet connection in the home is a great obstacle for people living in developing countries, and it is unlikely for low-income families to have access to these services. Statistics from the ITU show that 25% of households in developing countries have computers, compared to 74% in developed countries, and that only 20% in developing countries have Internet access, compared to 71% in developed countries (ITUa, 2011).

Women are less likely than men to have the income needed to pay to use a public access point, either because of lack of resources or because they are not in charge of the household funds. They also might be hesitant in using family resources reserved for food, education and clothing for information (Hafkin, 2002).

### 3.7.5 Social and Cultural norms

Social and cultural factors influence women’s access to public ICT facilities. Shared Internet facilities and other information centres often become social venues for young men, which influence women’s absorption of and adoption to ICTs (Melhem & Tandon, 2009). Women may be uncomfortable attending a cybercafé with primarily male users, or seek the assistance of a male staff, and cultural norms sometimes discourage interaction between men and women outside of the family (Hafkin & Taggart, 2001).

Girls and boys may also have different skills and opportunities for training during primary and secondary school years, where boys will often get priority access to computers where they are available (Melhem & Tandon, 2009). This behaviour between boys and girls can be demonstrated by the “Hole in the wall” project launched by The National Institute of Information Technology (NIIT) in India. The NIIT installed a computer screen and keypad with an active Internet connection into the wall of a slum or a school on three different locations. Through a hidden camera, the researchers could monitor who would access the computer and how. There was a higher rate of boys than girls making use of the technology, allegedly because the boys pushed the girls aside, and then the girls withdrew from fear of getting physically threatened by the boys (Hafkin & Taggart, 2001).
3.7.6 Skills
Even if women do have access to all of the above, they still cannot use ICTs without a minimal set of computer skills. An example of this is the Bamshela telecentre project in South Africa, where the women (who were the primary users of the telecentre) mainly used it as a phone shop because they lacked the skills to use the computers and the fax machines that were available (Schreiner, 1999).
4 Peru

This chapter includes background information about Peru, describes the country’s ICT policies and presents some relevant aspects about being a woman in Peru.

4.1 General information

Peru, officially the Republic of Peru, is situated along the Pacific coast in western South America and is the continent’s third largest country. It was the cultural and political centre of the Incan empire from early 1400’s until the Spanish conquistador Francisco Pizarro arrived to South America in 1532 and colonized the country. Peru was declared independent from the Spanish on the 28th of July 1821 (Swedish Embassy, 2011).

The land area is 1,28 million km² and the country has a population estimated to be about 30 million. Peru has a high number of indigenous inhabitants; approximately 45 % of its population is of Indian heritage, and 37 % is mestizo, people with mixed indigenous and Spanish heritage. The official languages are Spanish and the indigenous languages Quechua and Aymara. The largest religion is Catholicism, and there are minority groups of Protestants, indigenous religions and others (Swedish Institute for International Affairs, 2011).

Peru is rich in minerals such as copper, silver, lead, zinc oil and gold, and in 2011 Peru was said to have one of the fastest growing economies in the world (BBC, 2011). With the exception of the international year of recession in 2009 (during which Peru only grew by 1 %) the Peruvian economy has had a strong growth during the past 10 years. The average annual growth for the period 2000 to 2010 amounted to just over 5.5 %, which was the highest in South America (Swedish Embassy, 2011). Peru is a constitutional republic with a multi-party system, with elections every 5 years, and as of June 2011 Ollanta Humala is the president (Swedish Institute for International Affairs, 2011).

Peru has three distinct geographic regions; the narrow and dry coastal areas (that make up for 10 % of the country), the high and rugged mountain range (32 %), and the dense, vast rainforest (58 %). Peru’s population is unevenly distributed across these geographical areas, with the coast accounting for 63 % of the population, the mountains 28 % and the rainforest 9 %. The geographical variations have generated different development challenges in each region. In the mountains, many people are living in rural poverty because of the difficult terrain, a widespread population, and a lack of infrastructure that undermine opportunities for economic growth. The regions in the rainforest are facing increasing challenges in finding a balance between economic development, environmental issues and the traditional ways of life of the indigenous populations. In coastal areas, population growth and industrial development have raised challenges with respect to urban infrastructure, pollution and urban poverty (The World Bank, 2011). Trujillo, the location of this field study, is situated on the north coast (see Figure 1).
4.2 Education and literacy

According to Instituto Nacional de Estadística e Informática (Peruvian National Institute of Statistics, INEI), the total adult literacy rate in Peru in 2010 was 92.6%. The male adult literacy rate was 95%, and the female was 85%. There is a geographical difference in literacy rates within the country, and in 2010 merely 82.7% of the rural population were literate (INEI, 2011).

Primary and secondary education in Peru is compulsory and free in the public schools, ranging from ages 6 to 16. The quality of education in Peru, however, is low, and according to UNICEF, many children that finish second grade of primary school in the rural areas do not know how to read or write (UNICEF, 2011). In the year 2002, Peru participated in an international standardized test for the quality of education, and Peru’s scores in this test were the lowest of any other participating country, including the other developing countries in the sample (The World Bank, 2007:3). UNICEF states 5 characteristics that contribute to the low quality of education in Peru: long distances to the schools (most of the children have to walk for hours to get to school, and the physical strain combined with malnutrition do not support adequate concentration in class), the number of classroom hours (classes start late and finish early and due to a great number of teachers leaving on Fridays to visit their families in urban areas and not returning until Monday night, children only receive classes Tuesday through Thursday), single-teacher schools (a large amount of the teachers in Peru have students in different grades in the same classroom and must implement education for all of them at the same time), quality of teaching (many schools are single-teacher and multi-grade, and many of the teachers are not prepared for this kind of teaching and do not have the proper training and appropriate methodology for the task), language (many children speak indigenous languages, and efforts today are not adequate to fully satisfy the demand for education in native languages). In addition to these great challenges in improving education quality, Peru faces issues with high rates of grade repetition and primary school dropouts (UNICEF, 2011).

It is not within the scope of this study to thoroughly explore the quality of education in Peru, nor the literacy issues that the country has, but it is of importance to keep these in mind when approaching the Peruvian women and trying to understand how they relate to ICTs.

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7 Defined as % of total population ages 15 and above that are literate (INEI, 2011)
4.3 Poverty

Despite the economic growth in Peru during the last decade, many people are still living in poverty and extreme poverty, and the distribution of resources is considerably uneven within the country. In 2010, the amount of people living in poverty in Peru was 31.3% of the population (INEI, 2011) and people living in extreme poverty in Peru amounted to 9.8% (INEI, 2011). Out of these, 54.2% of the people living in poverty and 23.3% living in extreme poverty lived in rural areas (INEI, 2011; INEI, 2011).

Poverty is a complicated concept, and has different definitions and levels. It is not within range of this study to investigate the poverty situation in Peru, but it is essential to consider the high number of people living in poverty and extreme poverty when investigating access to and use of ICTs.

4.4 Women in Peru

Being a woman in Peru is a significant culturally based injustice (Bossio & Sotomayor, 2012). The prospects that a woman has in Peru depend on her social and economic class, where women living in urban areas and with higher social and economic status have more opportunities than their rural equivalents. Middle-class women can obtain a college education, enter the labour market, and compete with men for work positions that are traditionally male-dominated.

Women in rural areas, however, are often sent to work instead of school and many of them do not continue on with school after their primary years (World Trade Press, 2010). The Peruvian government promotes women’s rights, and the Constitution of Peru from 1993 upholds the principle of equality between men and women (OECD, 2010). Peruvian women were granted the right to vote and to run for office in 1955. Women have the right to own and manage property and businesses independently, and they can inherit property on an equal basis with men (World Trade Press, 2010). Long-standing social prejudice and discrimination against women, however, have resulted in women experiencing higher levels of poverty and unemployment than men, and women are paid up to 40% less than men for equal work.

Peruvian tradition also prevents women from holding senior positions in both public as well as private sectors (OECD, 2010).

According to the UN, the legal age for marriage in Peru is 16 years (UN, 2007). A woman can, however, get married at a younger age with a special permission by the court. Young women living in rural areas, therefore, sometimes end up getting married at the age of 12, after completing primary school. They consequently do not continue on to secondary school (World Trade Press, 2010).

The male-dominated society in Peru and the traditional religious culture put women in secondary status, regardless of their significant contributions to the households and to the economy as a whole. They are under a lot of pressure by the lack of education (particularly women in rural areas), domestic abuse, inadequate healthcare facilities and unequal employment opportunities (World Trade Press, 2010).

4.5 ICTs in Peru

4.5.1 ICT policies

The Peruvian government has viewed an advanced ICT infrastructure as a way to attract foreign investment and to diversify the economy of the country (Ferrer, 2009:164). It bases its ICT policy and approach on the definition of the information society stated in the Declaration of the

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8 Poverty is defined as the % of people living on below 2$ a day at 2005 International prices.
Extreme poverty is defined as the % of people living on below 1.25$ a day (The World Bank, 2011)
Latin American and Caribbean Regional Conference for the First Phase of the WSIS in January 2003. The declaration states that the information society is “an economic and social system where knowledge and information constitute fundamental sources of well being and progress.” It has a strong human rights perspective, and asserts that the development of the information society needs a “deeper appreciation of fundamental principles, such as those of respect for human rights within the broader context of development, fundamental freedoms, economic progress and social equity (ECLAC, 2003)”.

In 2001, the Peruvian government took significant steps towards bringing Peru in to the digital age. They created the Comisión Multisectoral de Masificación de Internet (the Multi-Sectorial Commission to Broaden Public Internet), and the role of this commission was to organize various IT-initiatives being launched by the government and private companies. During this time, all public offices in Peru were obliged by law to prepare action plans referring to the information society, measures for access to public information, and content for web pages (CMMI, 2001).

Since then, a number of government bodies have developed initiatives for the information society, and in 2004 la Comisión Multisectoral para el Desarrollo de la Sociedad de la Información (the Multi-Sectorial commission for the Development of the Information Society, CODESI) was created, with the mission to come up with ”a plan for the development of the Information Society in Peru, which should analyse Peru’s current situation within the context of the Information Society, the actions that must be taken to develop it, and the proposed rules and measures that facilitate the appropriate development, implementation and promotion of the Information Society in Peru.” This national plan, called La Agenda Digital, promised to play a central role in economic and social development in the country. The main goal was to enhance the Peruvian ICT-sector and take full advantage of its ability to compete in local, regional and global markets (CODESI, 2005).

There are two mechanisms that the government uses for developing the Peruvian information society; Fonde de Inversión para Telecomunicaciones (FITEL) and el Ministerio de Comunicación y Transportes (the Ministry of Transportation and Communication, MTC).

FITEL has concentrated on improving accessibility to ICTs. In the beginning, the project mainly focused on installing public telephones, but later began including Internet connectivity through public Internet facilities. By the end of 2007, FITEL initiated a project to go beyond installing telephones and connectivity, and expanded their work to include wireless home and mobile phone connections (Bossio & Sotomayor, 2012). Their vision is to provide access to all areas of the country, and during 2010 and 2011 invested in projects providing broadband to rural areas (CODESI, 2011). The MTC on the other hand has worked on developing an electronic platform for the state since 2009, in order to improve the services that the government can offer online (MTC, 2011).

Bossio and Sotomayor state in their research on public access to ICTs in Peru, that the government has come a long way when it comes to providing infrastructure and telecommunication installations thanks to the economic growth during the last decade, but that not enough resources have been put in to capacity building. Capacity building includes strengthening ICT skills and competencies of people and communities, and the authors assert that the government should work with issues that go beyond access to the technology (2012).

In the updated version of La Agenda Digital, presented in October 2011, CODESI stated that capacity building would be an important part of their future ICT-related work (CODESI, 2011). The mission declares support for a society that “is based on equality and integration, that does not discriminate and that uses ICTs to effectively and efficiently spread information and promote development processes (CODESI, 2012).”

It is not the purpose of this paper to present a rigorous analysis or review of the national ICT policies in Peru, but it is of interest to present an overview of the ICT based initiatives that have been executed to get an idea of what the ICT-culture looks like in the country.
4.5.2 Access

Statistics from the INEI from September 2011 show that 36.5% of the Peruvian population from 6 years of age access the Internet. Apparently, out of the Peruvians that access the Internet, 93% navigate it to research information, 74.1% use it to communicate with other people (through chat or email), 66.2% use it for entertainment and to play games, 9.1% use it for activities related to education, and 5.9% use it for online banking and other financial services (INEI, 2011:31).

There are significant differences in the Peruvian people’s opportunities to access information and use of ICTs, and the most noteworthy ones are geography, gender, language and level of education.

4.5.2.1 Geography

There is a wide geographical difference, where only 10.7% of people living in rural areas make use of the Internet (INEI, 2011:24). Data suggest that 56.1% of the Internet users use it through a public access point, compared to 35.6% who use it at home, and 15% that use it at work (INEI, 2011:26). This means that more than half of the Internet users in the country use public Internet facilities, which is not surprising given the relatively low level of ICTs in households. In the report Las Tecnologías de Información y Comunicación en los Hogares, presented by the INEI in December 2011, only 25.5% of the households in Peru have access to a personal computer in the home, and the majority of these are living in Lima or in other urban areas. Only 3.8% of households in rural areas have access to a computer in the home. The amount of households in total that have access to the Internet is 16.5%, most of which are located in Lima or urban areas. Only 0.6% of the households in rural areas have Internet access (INEI, 2011:8).

4.5.2.2 Gender

Statistically there is a difference between the amount of male and female users in Peru. Data presented by the INEI in 2011 show that 32.7% of the women aged 6-74 use the Internet, and 40.4% of the men (INEI, 2011:21). This may not be a large difference, however it is essential to keep in mind that the differences in accessibility are big depending on the geographical location, and that the opportunities to use the Internet for women living in rural areas are different than those for women living in the urban ones.

4.5.2.3 Language and level of education

The language is an important factor that impedes access to the Internet. People who do not speak Spanish face difficulties, since there is little information available in any of the native languages in Peru (Bossio & Sotomayor, 2012). According to the INEI, only 10.8% of the population that has a native language different than Spanish (such as Aymara or Quechua) access the Internet (INEI, 2011:25).

Level of education also seems to influence the access to the Internet, where 15.8% of the population that has only finished primary school use the Internet, compared to 37.5% of those that have finished secondary school, and 81.6% that have continued on with tertiary education, such as university.

4.5.3 Cabinas

The public Internet facilities in Peru are called cabinas and offer Internet access at a relatively low cost (it costs approximately 1 Peruvian Nuevo Sol to use the Internet for an hour). Many of the cabinas are fairly rustic, with improvised facilities, operating out of people’s homes or small neighbourhood storefronts. They usually have a number of computers lined up on a row with an Internet connection, but the appearance of the cabinas and the quality of the computers and the connection can vary a lot. The facilities do not offer any form of training or capacity building for people who do not already know how to use computers.

9 1 PEN = 2.52 SEK (XE, 2012)
According to Bossio and Sotomayor, mostly young males searching for entertainment and information related to education use the cabinas. They have found that older people are a small minority among users, partly because they lack the technological capacity to use the computers, partly because they do not find them useful tools to solve their particular information and communication needs (Bossio & Sotomayor, 2012).

They go on to say that the cabinas are recognized as a successful model for accessing the Internet, and that the government support for the cabinas is based on the concept that information and communication services should be provided by private parties and entrepreneurs. Therefore there are no significant regulatory or legal barriers governing the performance of the cabinas (Bossio & Sotomayor, 2012).

It is of importance to keep in mind that the cabinas are not stable enterprises (Villanueva Mansilla, 2004), meaning that they come and go, making an estimation of their number quite difficult.

4.5.4 ICTs in El Porvenir and Huanchaco

As previously stated, this study was executed in the two areas El Porvenir and Huanchaco outside of Trujillo. There is a total of 33,180 households in El Porvenir. Out of these, approximately 28 % have a landline telephone, 44 % have at least one cell phone within the household, and 2 % have an Internet connection (ODEI, 2011:167).

In Huanchaco, there is a total of 11,109 households. Out of these, approximately 31 % have a landline telephone, 53 % have at least one cell phone within the family, and 4 % have an Internet connection (ODEI, 2011:167).

There is no available data on the amount of Internet users in either of these areas, since the INEI only presents their data in three sections; Metropolitan Lima, Urban areas and Rural areas. Therefore, statistics on the amount of Internet users in Huanchaco and El Porvenir could not be found. Furthermore, there is no data available on the number of cabinas or public Internet access facilities in neither of these areas. One of the limitations for the target group of this study, however, was that the women could access the Internet through a cabina or other Internet facility within walking distance of their residence, which is why this data is not necessary for the study.
5 Results

This chapter contains the results from the data collection and the interviews with the women, Liz Wilson and Elvis Luis. The observational research from the computer class is also presented.

5.1 Introduction

The structure for the interviews and their questions are presented in Appendices I – III. The 24 interviews with the women have been conducted during October and November 2011, and for those interviews there is a template assembled in Appendix I. All of these interviews are based on the same questions, but each interview has been unique and taken its own form. Out of the 24 interviews, 16 of the women live in El Porvenir. 4 of these women have also been part of the 10-week observational study in the computer class. The remaining 8 participating women live in Huanchaco.

The interview with Liz Wilson took place on December 10th 2011, and the interview with Elvis Luis took place on December 16th 2011, and the questions can be found in Appendices II and III.

5.2 Interviews

The results from the interviews are presented through the themes available in the theoretical framework: literacy and education, language and content, time and geographical location, cost, social and cultural norms, and skills.

5.2.1 Literacy and education

As previously stated in the theoretical framework, literacy is a problem for Peruvian women, where merely 85 % of the female population are literate. Liz Wilson, director of SKIP, explained in her interview that literacy is a significant issue for the women living outside of Trujillo, not only in El Porvenir but in other areas as well, due to the lack of appropriate schooling in their early years. For the women to be able to join SKIP’s computer class, they had to have basic literacy skills. Therefore, they had to go through literacy training first, and once they were able to read and write they could transfer to the computation class. One of the limitations for this study was that the women taking part in it must have basic literacy skills and be able to read and write, since literacy issues are not part of the focus of this thesis but a crucial prerequisite to becoming digitally literate.

Out of the 24 women being interviewed, 22 of them had completed primary school, 6 of them had gone on to secondary education, and 2 of them had moved on to tertiary levels (university or other academic studies) (see Table 1). Out of the 16 women that had only finished primary school, 12 of them had married at an early age, and stated this as the reason for not continuing on with their studies. This was also the reason given by the 2 women that had dropped out before finishing primary school.
Elvis Luis talked about the differences in learning abilities amongst the women in his classes during his interview. He said that he had noticed differences in the women’s abilities in learning depending on their level of education. He claimed that women who have only completed primary school are struggling with understanding the different tasks given during class, that they do not understand the basic structure of the computer and its software, and that they are advancing slower than those that have completed secondary school or continued on to higher education. He said that there is a strong correlation between level of education and the speed at which the women are learning.

Liz Wilson explained that many of the women that SKIP is working with have grown up in rural areas in the jungle or the mountains, and at an adult age moved to the poor areas outside of Trujillo in hope of finding better job opportunities to provide for their families. In their early years, therefore, they suffered from malnutrition and lack of stimulation due to poor schooling.

In 2011, SKIP performed IQ tests with the children that are in the program, and found that roughly 80% of the children had, or were close to having, IQ levels that indicate learning difficulties. Based on these findings, Wilson mentioned that it is likely that the women suffer from learning difficulties as well as the children.

### 5.2.2 Language and content

Language can be an issue restricting access to information online and pose problems concerning relevant content for women. Language is definitely an issue for those that are of indigenous decent in Peru, since most content online is not available in their native tongues (see section 4.5.2.3). All of the women taking part in this study, however, speak Spanish fluently. None of them expressed having any problems with a language barrier since a lot of online content is available in Spanish. It is essential to keep in mind, however, that a large part of the participants in this study had never previously accessed the Internet by themselves, or they had received help in looking for information online. The women who had received help in accessing the Internet most probably were presented with relevant content by someone digitally literate that had the ability to filter what was relevant and what was not.

The women were asked what they would want to use the Internet for in order to identify whether or not there is relevant content available for them online. Nearly all of the women stated that they would like to learn to research information to be able to help their children with their schoolwork (see Table 2). Other reasons expressed by the women were the ability to read the news and look for community information, find information on medical websites and look for knitting patterns. 4 of the women also said that they would like to use the Internet for social media and communication with other people, especially with family members living in other
parts of the country or the world. A couple of the women said that they would like to be able to make documents of different kinds; especially to register business related items. Downloading music was an interest expressed by 1 of the women.

Many of them said that they hoped to be able to find a job by learning computation. When asked what type of job they were hoping for, they said that they wanted to find work in an office or a cabina. Liz Wilson expressed some doubt to whether or not these women would ever be able to have the skill set to work in an office, especially since many of them have received no education since the age of 12, but that working in a cabina could definitely be an option.

Generally, the women seemed to think that the ability to use the Internet is a crucial part of staying updated and informed on what is going on in society and in the community. Little focus, however, has been placed on the women’s part on the actual computer. They seem to identify the ability to use a computer with the ability to use the Internet, and they do not appear to make a distinction between the two. They expressed more interest in learning to use the Internet than learning to use different software and computer related items.

### 5.2.3 Time and geographical location

Time is a major restricting factor for the women’s access to computers and the Internet. All of the women living in El Porvenir said that they were busy with domestic chores, and for some of them with work, and that there were only a few hours on certain afternoons when they would be able to attend class or receive computer training through other channels (such as friends or family members showing them how to do it). Liz Wilson talked about the difficulties that the women in El Porvenir are living under. They are constantly pressed for time, having to do all of the domestic work while tending to the children and/or attending classes that SKIP are offering etc. Generally, these women have little additional time to focus on their own wishes and needs. Therefore, taking time out of their busy days to learn something as complicated as computers might not be a preferred alternative for them.

The women living in Huanchaco did not seem to have the same type of issues. They said that they had more time to visit the cabinas or they could make time for computation training.

When asked if there was a certain time of day or a particular day of the week that would be better to make use of computers, access the Internet, or attend computation class, most of the participants said that it would be during the afternoons, when they were done with chores and/or work.
All of the women had access to a cabina within walking distance of their homes, and most of them said that their children frequent them for playing games or doing research for school related assignments. The women in El Porvenir said that they do not go to the cabinas themselves because they lack the skills to use the computers. In Huanchaco, however, 4 out of 6 women said that they frequent the cabinas by themselves at least once a week. None of them expressed any worries about feeling unsafe attending the public facilities. However, at night time, when it might be unsafe for the women to walk around by themselves, most of them would not have the time to frequent the cabinas as they then tend to the family.

5.2.4 Cost
Cost seems to be a restricting factor for these women to use computers and the Internet partly because they cannot afford to have the technology at home, partly because some of them cannot afford computing classes.

Out of the 24 participants in this study, 3 of them had a computer at home, and out of these three, only one had access to the Internet. The reason given for why the majority of the women do not have access to a computer or the Internet at home was a lack of funds.

All of the women living in El Porvenir said that they did not have enough funds to pay for computation classes, and that this was one of the reasons for why they had asked SKIP to start up the computer class. The 8 women living in Huanchaco, on the contrary, said that they would all be interested in, or already had been, paying for computation classes in order to increase their knowledge and improve their skill set.

Elvis Luis, who runs computer classes that cost money in and around Trujillo, said that there is more or less the same amount of men and women in his classes. He added, however, that women have a higher drop-out rate, mainly because of domestic responsibilities or because of changes in the household dynamic. He brought up an example that if a child gets sick, it is commonly the mother that has to stay at home and tend to it, and therefore she cannot attend the class. The woman then often feels that she is too far behind in the coursework after missing a couple of classes that she ends up quitting the course.

There does not seem to be a financial issue in the women’s access to the public Internet facilities. Even though one of the reasons given by the women living in El Porvenir for not frequenting the cabinas was that they felt it unnecessary to pay for access to the computers when they did not have enough skills to use them, 21 out of all of the 24 participants said that they would pay to use the facilities if they did have enough abilities.

5.2.5 Social and Cultural norms

5.2.5.1 Women’s preferred channel of information
An essential part of this study was to identify where the women are looking for information. As stated in the theoretical framework, a distinction needs to be established between on the one hand information, such as community information and news, and on the other hand knowledge and finding information with the purpose of learning something.

When asked where they would go to find information, 18 of the women claimed the TV and the newspaper to be their most important means to become updated on current events, and 16 of the women had a television set at home or access to a TV through someone else close to their home. 9 of them said that they would also go to a person senior to them to ask for information, and 2 of them said that they had a radio in the house that they would use. None of the women stated the Internet as a means.

Another aspect of the study was to identify where the women would go to find information in order to learn something new, to acquire knowledge or a certain skill. The majority of the women said that they primarily would ask a person in the community that they think would know about the subject at hand and that could teach them. If they could not find someone who knows, they would then visit the library to look for literature on the topic. Only 2 of the women
said that they would look online, and both of these women were attending computation classes in Huanchaco.

Elvis Luis said that the ICT-culture in Peru is not as advanced as in other Latin American countries. He said that most people use the computer only to play games or to communicate through social media, and that the Internet is not considered an important tool for finding information or learning new things. He claimed that the TV is the prime source for information. The TV culture in Peru is very strong where most people have access to and watch it everyday. He also said that asking around the community is a central resource for information.

5.2.5.2 Interest in learning

Part of the study was to identify whether or not there was an interest for these women to learn how to use computers. Almost all of the participants expressed that they think it is imperative to know a bit of computation, because everything is getting more and more digitalized. There was only one woman who said that she had no interest what so ever in learning how to use computers, she said that she did not find it useful.

The participants were asked whether or not they were talking about the need for knowing how to use computers with other women in the community. Most of the participants said that there is a definite interest among the women in their neighbourhood to learn how to use computers, and that this is something that they discuss with each other. The main reason mentioned as to why most of the women do not know how to use computers was that they did not receive any computer training during their school years, and as grown ups they now suffer from lack of time and resources to attend computing classes.

Most of the participants said they thought it essential to know a bit of computation to be able to keep up with their children who are learning how to use computers at school. The women said that they wanted to understand what their children are doing when they go to the cabinas, and stay updated on the children’s everyday lives, and that without knowing a bit about how computers and the Internet work this would be difficult.

5.2.5.3 Cabinas

The cabinas would be the main access point to computers and the Internet for these women due to the financial situation that they are in. Most of them, however, do not frequent these facilities at all or very often. Apart from their lack of knowledge, the women said that there are a number of reasons as to why they would not use the cabinas. One of these was that mainly young men, that do not let the adults get access to the computers, usually occupy these facilities, and the women expressed a discomfort with this. This is confirmed by Bossio and Sotomayor (2012) who claim that mostly young people that search for entertainment and information related to education occupy the cabinas. Liz Wilson said that she did not frequent the cabinas enough to have an opinion on the matter, but she did say that there is generally a lack of confidence among the women mainly due to the cultural implications they are living under where the man has the most power in the home. This lack of confidence might then constrain them from entering a fully occupied cabina.

The participants also said that they did not feel comfortable going to the cabinas because they do not know how to use the computers, and they would feel uncomfortable asking for help to get started. They expressed shame over this, and it seemed to hinder them from taking any initiative to learning by themselves.

Elvis Luis said that he has noticed a difference in self-confidence when it comes to the men and women in their approach to learning in his classes. He said that the women seem less confident in their own abilities than the men, and that they are more insecure when they are presenting their assignments. He mentioned that this is a cultural implication in Peru, where women struggle with self-worth and are considered inferior to the man.

5.2.5.4 Drop-out rates

There have been quite a few dropouts in the computation class at SKIP. Unfortunately, the exact amount of women who have dropped out could not be found, but during the observational study
there were only 4 women left in the class. 6 women that had previously been registered in the class, but no longer attended, were asked about the reasons for dropping out. They all said that they had not had time to continue on with the class for a variety of reasons. Some of them had gotten a new job that changed their weekly schedule, others had to stay at home and take care of the children because of a change in the household dynamic. None of them expressed lack of skills, or the speed at which they were learning, as factors to why they had quit the class. They all expressed an interest in coming back to the class though.

Liz Wilson talked about the reasons for why the women had been dropping out of the computation class and she said that follow-through is a common issue when working with people living in these areas. They commit to something but then for a variety of reasons have trouble carrying out what they have taken on. She also said, though, that SKIP has had some issues with the structure of the class. They have had different teachers changing the layout and content during the coursework, which might have been confusing for the women.

5.2.5 Other cultural concerns

Another cultural implication that might influence the women’s access and ability to learn how to use computers is problem solving, or rather lack thereof. Liz Wilson talked about the way Peruvians handle problems, and said that the general take on problem solving is to blame someone else and that no one really wants to take the responsibility for when something goes wrong. If an issue occurs, the Peruvian mentality is to hold someone else responsible and withdraw from the situation. To be able to solve problems and to deal with issues that occur when handling a computer is an important part of learning, and this Peruvian mentality might influence the way women relate to computers and the Internet.

Another concern regarding the women living in El Porvenir is the high rates of depression in the area. SKIP has done research on depression amongst the mothers associated with their organisation, and according to Liz about 65% of the women are severely depressed. She said that she found it impressive that some of these women even make it out of the bed in the morning, considering all of their responsibilities and their workload, and that attending class or trying to develop new skills is not an easy task when living with this type of depression.

5.2.6 Skills

Part of this study was to review the experience with ICTs that the women had, and to find out what type of skills they had in using different kinds of ICTs.

All of the women living in Huanchaco had cell phones, but only 10 out of the 16 women living in El Porvenir had them. The main application for the cell phone was to send SMS. It is relatively expensive to call from a cell phone in Peru, so the women said that they preferred sending text messages to calling. None of them were using their cell phones to access the Internet. Reviewing their ICT possession in the household, 21 of the women have access to a TV, 2 of them have access to and make use of the radio, and 3 of the participants had a computer at home, where only 1 had an Internet connection (see Table 3).
Generally, the women living in Huanchaco had more experience using computers and the Internet than those living in El Porvenir.

Most women in El Porvenir had never used a computer or accessed the Internet. Only 8 of the 16 women interviewed had ever used a computer, and 7 of these had ever accessed the Internet. All of them had received help to do so, most of them from their children.

None of the women that were not attending the computer class at SKIP were using computers or entering the Internet on a regular basis. Most of them said that they never did, or that they had only tried it a few times with the help of their children.

To summarize, the only women in El Porvenir that were using computers or entering the Internet on a regular basis were the 4 women who were attending class at SKIP. All of the other women had either never used a computer, or had received help to use it once or twice.

Most of the women in Huanchaco, however, were using the computers and the Internet at a regular basis. 4 of them had paid for computation classes, and the remaining 4 had learnt the basics at school. 6 of them felt comfortable enough in their computer skills to go to the cabinas, and did so on a weekly basis.

The women that had some sort of experience using computers were asked what they found the most difficult in using them. The women living in Huanchaco, that used computers regularly, expressed issues in understanding how to learn more about a particular software, such as Microsoft Office Word or Excel. They said that they did not have any trouble accessing the Internet, researching information or using input devices such as keyboard and mouse.

The women living in El Porvenir, that had significantly less experience, found the main issue to be the structure of the computer, where most of them expressed that it was difficult to understand how to save a document and then reopen it. They also said that they were having problems with understanding the different parts of a program window, and what it meant when there were several tabs or windows open at the same time.
5.3 Observations

The observations were carried out during 10 weeks with the purpose of trying to identify some of the issues that the women were facing when learning to use computers. There were 4 women in the class, each session was 2 hours long and took place once a week.

5.3.1 Assignments

The main goal of the computation class given by SKIP is to provide the women with the abilities to access the Internet, research information, make documents and save them, as this was what the women expressed an interest in learning.

Therefore, a lot of the exercises took a similar form, where the women got to research a certain type of information online, write it in a document, and send that document per email to the teacher. All of the women had been assigned their own web-based email addresses through Gmail\(^\text{10}\). For the purpose of this study, some sort of measurement of the women’s advancement had to be used. In order to be able to measure their progress, the group received the same exercise during the first and the last class. The assignment was to answer 10 questions that were sent to the women in an email. They then had to log on to their email accounts, read the questions, use the Internet to find the answers, and then reply to the teacher with an email containing the solutions.

Focus of the observations was placed on the time it took them to perform the task, what type of issues they encountered during the assignment (especially technical and content related), and the way that they were writing their answers (punctuation, spelling, structure of email etc.).

5.3.2 Time

Time seemed to be an issue in two ways related to the women’s learning; the time it took them to finish a task, and the time it took them to advance and learn something new in class.

Most of the exercises performed within the class were very much alike; still the women struggled with finishing their assignments on time. Many of the exercises that were supposed to take them one class to complete had to be continued the following week since the women did not finish it during the session. It took them the same amount of time to perform the task that was given to them during the first and the last class, and 2 of the women did not finish it on time on both occasions.

The women were not advancing particularly fast in their learning. Even though they got to practice the same things almost every week, they were struggling in understanding the assignments and performing the exercises. They rarely remembered things from week to week, and a lot of the time they needed to repeat the lessons from the week before. Generally, it took them a significant amount of time to understand something new related to the computer, remember it from class to class, and then use it without the assistance of the teacher.

The classes were set up to be once a week, which did not seem enough since the women were progressing slowly. They would probably need to have two classes per week, on two different days, to allow them to repeat what they had learnt in order to firmly establish the skills that they were being taught. However, even though one class per week seems to be too little, this group of women might have difficulties committing to more than that due to time constraints.

5.3.3 Skills

In general, the skills of the four women that were observed in class did not really progress during the 10-week observation. They had more or less the same skills at the beginning of the research as in the end. This could be explained by a variety of factors. The learning environment

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\(^{10}\) Gmail is a free, web-based e-mail service provided by Google. For more information visit: [http://mail.google.com/]
is one. The computer class took place in a small room with no windows, that a lot of the time got pretty hot because of all of the computers. This could influence the concentration of the women. Also, the teacher was not a professional computer teacher, but a digitally literate female volunteer working with SKIP that had no previous experience teaching computers. It is probable that the women would learn better had they received training by someone with more experience. There were also noticeable indications that the women had learning difficulties, probably related to their level of education and childhood as previously stated.

In order to get an idea of what level the women were at, here is a description of the skills that they had at the end of the class:

- They knew how to use the mouse, and the keyboard, although they made many typographical errors, such as using the wrong type of punctuation, too many spaces in between the words, only using lower-case letters etc. This, however, was probably more strongly connected to their literacy levels, rather than their computer skills.

- They experienced issues when several programs were active at the same time, and they did not understand how to go between tabs within the same window. It seemed difficult for them to understand the purpose of different software. They did not seem to realize that there is a difference in use between the word processor Microsoft Office Word and the Internet browser Mozilla Firefox, for example. They found it difficult to understand what tasks should be performed in Microsoft Office Word and what tasks should be performed in the Internet browser.

- They were struggling with the structure of the computer. They did not understand where a document was saved or how to retrieve it. They needed assistance in attaching documents to emails and to reopen documents that they had saved. They did not comprehend the basic structure of the computer filing system.

- Their understanding of the Internet and how it works was basic. They knew how to enter a search word into a search engine, e.g. Google, and press enter. They did not, however, understand how to browse the different search results and understand which of the links provided were actual websites with useful information, which ones were advertisements and what was other information. They needed help clicking on a link to go to a website from the search results, and instructions to understand where the information they were looking for was located.

- They knew how to start up the computer themselves, and how to open a program from the start menu. They could open a web browser, but usually needed assistance in typing in the address or direction of where they wanted to go. They needed help, for example, to enter the address to Gmail, but once they were there they could enter their usernames and passwords without difficulty, and open up and read received emails.

The women needed to practice a lot to learn new things, and since they got no training outside of class, the progression was slow.

5.3.4 Social and cultural connotations

One of the more interesting observations made during the study was that the women seemed rather unsure of their own abilities, and often asked if something was correct even though they had done it several times before. They appeared weary of doing something that could be considered wrong or inappropriate. They wanted the teacher to confirm that what they were doing was accurate, to be sure not commit an error.

There was little initiative when they were given an assignment, and they wanted step-by-step instructions to be able to move forward with a task, and they did not do anything unless they were told to. If something went wrong, they got stuck or became unsure of how to proceed, they did not ask for help but waited until approached by the teacher. Just like Liz Wilson talked about in her interview, problem solving in Peru implies taking a step back from the situation and not taking responsibility for what has happened. This aspect of the Peruvian culture became clear during class, where the women did not take any initiative to solve the problems that arose during the class but waited to have someone else solve the issues for them.
Almost all of the women interviewed expressed that they wanted to learn to be able to help their children. They made sure to put the children at the centre of attention and their own needs secondary. It was interesting though, because when the women in class were given the opportunity to research whatever they wanted they were looking for answers to their own questions, not those of their children. They researched recipes, looked for medical advice and information and searched for knitting patterns.

5.3.5 Final group discussion
At the end of the 10 weeks, a group discussion with the four women was conducted regarding their experiences in class, where they expressed that they now would feel comfortable enough to go to a cabina by themselves and felt that they would know what to do. All of them said that they would join their children when they go, to make sure that they could work on some of the skills that they had acquired in class.

When asked what they considered to be the most difficult part regarding the classes, they said that the Internet was the most challenging, especially to understand how it works with several windows or tabs activated at the same time. They said that this was very confusing. They also said that they were confused as to where the documents end up after they have been saved, and that they wanted to practice this more.

They said that they really enjoyed coming to the computation class, since they got a moment for themselves without their children, and that they could really relax and have a good time. They said that they felt like they had learnt a lot, and that they were happy and proud to be able to say that they know a little bit of computation.
6 Analysis

This section includes an analysis of the results presented in the previous chapter. Initially the interview results are analysed (based on the themes presented in the theoretical framework), and then the observations.

6.1 The interviews

6.1.1 Literacy & Education

All of the participants in this study were literate, in the sense that they knew how to read and write. As stated in the theoretical framework, however, to be digitally literate one must be able to research information online, have the knowledge to understand that information, and then convert it into economic and social values. For these women, developing basic computer skills is only one step towards becoming digitally literate. They also need to be able to interpret the information that they find and make it into knowledge.

The results of this study show that many of the participants have not completed higher levels of education than primary school, and they also indicate that some of these women might be suffering from learning difficulties due to a variety of reasons. In her interview, Liz Wilson talked about the probability that these women have trouble learning due to the poor quality of schooling and the lack of nutrition as children. I would argue that having a certain level of analytical thinking and problem solving ability is crucial in order to progress and understand the structure of a computer and learning how to research information on the Internet. Having learning difficulties definitely would have a negative effect on the capacity to take in information and developing it into knowledge, and this would therefore influence these women’s development towards becoming digitally literate.

Low IQ levels due to malnutrition and poor schooling in their early years is one factor that would influence the women’s access to ICTs in terms of education. Another aspect is the level of schooling, and there seems to be a correlation between level of education completed and the performance in class. As mentioned earlier, Elvis Luis said that he had in fact noticed how the level of education influences the speed at which women in his class advance in the course work. The women with lower levels of education are taking on new knowledge more slowly, and face more difficulties completing the assignments given, than the women that have completed higher levels.

I could not say for certain that the women with lower levels of education struggle more in learning how to use computers and the Internet, but there are indications of this being the case.

6.1.2 Language & Content

There does not seem to exist a language barrier for this particular group of women. All of them were fluent in Spanish, and did not express having had any issues with the language. This is however an issue in other parts of Peru that has a significant indigenous population that does not speak Spanish. As presented in the theoretical framework, 45% of the population is of indigenous heritage, meaning that a large part of the population stand excluded from the digital world and are limited in their opportunities to becoming digitally literate.

Even though the women in this study did not express having any language issues, it is important to keep in mind that most of them have not had a great deal of interaction with computers and Internet previously, and therefore their perception of language difficulties might not be completely accurate.

The results show that the women wanted to learn how to use computers for a variety of reasons, and there is no question about the existence of relevant content for these women online, and that the access to this content could definitely help them in their everyday lives. For these women,
the ability to research information for themselves and to help their children with their assignments could be a boost for their self-esteem. To not have to ask for or receive help from someone else could potentially give them a sense of liberty and power.

It is interesting how all of the women connected the ability to use the computer with the ability to use the Internet. For them it seemed as though being able to use a computer would automatically mean that they could make use of the Internet, which is not entirely true. I would argue that to be able to research information online, one needs skills to screen all of the search results and be able to distinguish what is relevant content and what is not. To be able to use a computer for basic tasks, however, would be easier as it does not require quite the same amount of previous experience. It would require more training and analytical thinking to be able to use the Internet successfully, compared to using only the computer.

### 6.1.3 Time & Geographical location

One of the limitations for the thesis was that all of the participants had access to a public Internet facility within walking distance of their residence. The location of the cabinas does not seem to be an influencing factor in these women’s access to them, as none of them expressed having had any problems in accessing these facilities that were related to safety. However, even though this particular group of women have not expressed any issues with the geographical location of the facilities, there might be other women in the area that find it unsafe to attend them, especially at night-time when it would be the most dangerous for a Peruvian woman to be out by herself.

There is a possibility that there is a need for a larger quantity of cabinas in these areas, although that information has not been found during the research for this study since all of the women have had access to a cabina close to the home.

Time is a major restricting factor for these women when it comes to getting access to computers and the Internet, and more so for the women living in El Porvenir than for the women living in Huanchaco according to the results. Most of the women in El Porvenir expressed having very little time to spare for learning how to use computers, they would mainly have time a few afternoons per week, and it seems improbable that they would take the spare time that they do have to put towards their own needs. The women living in Huanchaco that have taken part of this study have not expressed the same type of issues with time, although this is not to say that other women in this area do not suffer from similar time-related problems.

I would argue that there is a strong correlation between the spare time that a woman has, and what she culturally could be allowed to make of that time. Most of the women constantly put the needs of their children and the family first; she herself always comes in second. The spare time that she might have is probably to be spent on the family and its needs rather than her own. This would restrict her opportunities to learn how to use computers and the Internet, and to have the time to actually use it once she has the skills to do so.

### 6.1.4 Cost

For most of the women living in El Porvenir, having the financial resources to pay for computer classes is an improbability. And even if they did in fact have the money, it would be unlikely that they would use that money to pay for computer classes for themselves instead of putting the money towards the needs of their families.

It is also unlikely that they would have the financial resources to have a computer with Internet access in the home. For these women, a free computer class provided by for example an NGO or other actor seems to be the only way that they would be able to learn.

The classes provided by SKIP definitely leave room for improvement in terms of quality, but at least they provide the women with basic computer skills for free. More of this type of free initiatives would create many more opportunities for women living in these areas.

In Huanchaco, the financial situation is different, and the women there do not seem to suffer as much from a lack of funds. That being said, these women could also definitely benefit from
more of these types of initiatives in order to develop the skills that they do have. There are also other women in this area that have little to no computer skills that would absolutely profit from computer training.

Since it is improbable for most of these women to have access to the Internet and a computer in their homes, the cabinas would be their main point of access. The majority of the women expressed that they would pay to use these facilities, if they knew how to use the computers, so I would say that there appears to be an issue in skill set, rather than a financial one, restricting these women in their access to the cabinas.

6.1.5 Social and cultural norms
According to the statistics presented in the theoretical framework, 93% of the Internet users in Peru access it to research information. This is somewhat contradictory to what Elvis Luis said, where he claimed that the Internet in Peru is mainly used for interactions through social media and entertainment. One should keep in mind, though, that the demographics of users are centred in the urban areas of Peru and the use of and penetration of the Internet might take a different form in more rural areas. It is possible that the use of Internet in and around Trujillo looks differently than in the capital city Lima.

The results show that the women are not really considering the Internet as a means for them to get updated on current events, mainly because they are lacking computer skills and resources to acquire those skills. Although, I would argue that there seems to be a growing recognition amongst Peruvians, and this group of women in particular, that the Internet can in fact be a powerful tool for acquiring new knowledge and looking for information. Most children are learning how to use computers at school, and the government is putting resources towards providing better access and facilitating opportunities for the use of computers and the Internet in all areas of the country. Considering the fact that the children are learning how to use computers at school, it is of even greater importance that these women get educated and learn how to use them to make sure that they are not excluded from the digital community.

Almost all of the participants expressed that they are interested in learning, and that they recognize a value in knowing computation. Also, there is definitely an interest in the female community surrounding them to learn, although it might not be clear to these women how they would go about acquiring computer skills. Most of these women are strained for time, financial resources, and a lack of self-confidence, which restricts their access to and use of the Internet and computers.

The woman in Peru places herself in second to her family, and is not encouraged to promote self-growth. Consequently, for her to attend computation classes or to use the family’s financial resources to get educated is improbable. I would say that the lack of self-confidence, and especially the lack of self worth that is connected to this, probably makes the women refrain from promoting their own abilities. They might not consider it important to make sure they stay up to speed with the development, but rather promote the skills of their children and families.

The fact that the cabinas would be these women’s main access point for computers poses a problem, as they seem uncomfortable attending these facilities because of the male-dominated youth culture that is residing there. Improving the accessibility to the cabinas would be crucial for these women to develop their computer skill set, since without practice they would not be able to progress. If they do attend computer classes, it would be widely helpful if they could frequent the cabinas to train and further develop their skills. A possible way of doing that would be for the women to go along with their children, and observe them when they do their work. Observation could be an effective means of learning new things related to the computer, even if they do no use it themselves. Also, since the children take up a lot of the women’s time, incorporating them in the learning process could be an option for these women to learn. Providing them with exercises where both women and their children have specific responsibilities could potentially encourage learning for both parties, and make sure that they are both progressing instead of the children taking up all of the time and focus. These assignments could be performed at a cabina or elsewhere.
It would also be useful if the cabinas provided more services, such as for example capacity building by providing computer training or offer classes in how to effectively research information online. Another option could be restricting access to certain groups on certain days, to make sure that people from all kinds of backgrounds would feel comfortable attending the facilities. There could for example be a few hours a day where only women are allowed to enter the cabinas. The culture in these facilities definitely needs to become more equal, which would probably have to be government initiated. The government could set up regulations for how the cabinas should function, to make sure that all social and economic groups have the same access. The government could also work towards providing subsidized broadband connections, to enable access to the Internet in people’s homes. Since most of these women spend the majority of their time within the household, having the access to the technology there would be widely useful for them, as they then would have a more secure place to practice and learn. Having a computer in the house does not automatically mean that the women have access to it, considering their social status, but it might still encourage them to try for themselves and practice.

The computation class with SKIP has had quite a few drop-outs can be explained by a variety of reasons, but I find the most interesting aspect of this to be the fact that the women that have dropped out have not come back to class. When asked about the reasons for this, they mentioned a few motives but all expressed how they now wanted to come back. This way of answering the question shows that they might be more concerned about getting into trouble for saying something incorrect or that would be considered offensive during the interview, rather than having an actual interest in coming back. Liz Wilson talked about having issues with follow-through with these women and how they are struggling with honouring commitments. The fact that they say they want to come back, but have not actually done so, shows this cultural behaviour quite clearly, and it makes it difficult to figure out whether or not the women are speaking truthfully in the interviews. As a researcher, I must therefore hold critical distance towards some of the answers given by the women in this regard.

The cultural approach to problem solving in Peru definitely influences these women in their ability to learn to use computers. I would say that the Peruvian culture, where one takes a step back when an issue occurs and usually places blame on the next person, could be a limiting factor in learning how to use computers as it leads to a lack of initiative. Learning something new, and especially in regards to using a computer, requires a bit of ambition, and one must try things out even if they are incorrect. Therefore, this lack of initiative might have a negative effect on learning for these women.

The high rates of depression among the women living in El Porvenir has not been fully reviewed in this study, even though it would be an interesting aspect to investigate further. It is however an indication of how these women are living their lives and the issues that they are facing on a daily basis.

6.1.6 Skills

Generally, the experience that the women living in El Porvenir have of ICTs is quite limited. Some of them have cell phones, but most of them have never, or only a few times, sat in front of a computer and interacted with the Internet. The women living in Huanchaco, however, are more advanced in their interactions with technology, and the majority of them use the Internet on a regular basis.

The main focus of this study is to consider the women’s access to and use of computers and the Internet, but it was of interest to consider their interaction with other technologies, or rather lack thereof. Since these women only use simple cell phones, mainly for sending texts, it might be too far a step to start using computers. To become digitally literate, the use of and interaction with other ICTs might help developing technical skills quicker. It is possible that the transition between technologies and incorporating the use of computers in the women’s lives would be smoother if they already had some experience using other ICTs.
6.2 The observations

One class per week is definitely not enough for these women to reach a level of digital literacy where they can research information by themselves without the help of a teacher. They need more opportunities to repeat what they have learnt in class and practice their skills. Providing the women with homework, or exercises that they could perform at home, might be a way for them to reinforce the knowledge. They may need to reflect more on the work that they are doing in class, and providing them with some assignments to do in between classes could possibly get them to think more about what they are learning.

One of the most important results coming out of the observational research was the relationship between the women and the teacher. The women were constantly double-checking with the teacher that what they were doing was correct. This fear of doing something wrong definitely hinders them in their progress. If they do not take initiative, and try for themselves, it will be hard to advance forward and acquire new skills. It might also make them too dependent on the teacher telling them what to do, and they will not feel secure enough in their own abilities to go to a cabina by themselves. The teacher was a woman, and I do not know how the behaviour would have taken form had it been a man. It is clear, though, that these women need to be able to trust and feel comfortable with the teacher in order to progress their skill set.

These issues, where they do not try for themselves, are related to the self-confidence and self-worth problems that they are struggling with as women living in Peru. They constantly come in second to the man, and are placed lower in the social hierarchy, and their confidence levels are remarkably low. They need a lot of encouragement from the teacher, to strengthen them in their learning and make them feel comfortable enough to trust their own capabilities and to progress.

Generally speaking, the women were advancing slowly in acquiring new skills in class. I would say that the biggest issue for these women is their lack of self-confidence and initiative. Although, other factors such as the poor learning environment and the fact that their teacher was not formally educated probably influenced their results quite a bit.

The women said in the final group discussion that they now, after these classes, would in fact feel comfortable enough to go to a cabina by themselves, but the credibility of this should be taken lightly considering their follow-through issues, and their fear of doing something considered incorrect. I do believe, however, that the computer classes have in fact provided them with more self-confidence. During the final discussion they expressed how much fun they had in class, and that they could take pride in being able to say that they know a bit of computation. This, to me, is the most important result of this study; that these women feel empowered by the recognition in the community that they know a little bit about computers. Even though their computer skills are not at a level where they are self-sufficient, they still seem content that they can say that they know, to some extent, how it works.
7 Conclusions

This chapter provides the answers for the research questions, and ends with a critique of the work together with proposals for future work.

7.1 Answering the research questions

How and from where do the women assimilate information, and how do they go about acquiring new knowledge?

The study shows that the main source of information for these women was the TV and newspapers. Almost all of them had access to a TV, and it is a major part of the Peruvian culture and a central element in the family life and the social interactions between Peruvian people.

The women expressed a strong sense of community, where asking a superior person for information or for a skill is an essential part of the information exchange within these communities, and part of the Peruvian culture.

At the time of this study, the Internet was not used as a source for information for the majority of the women, mostly because they lacked computer skills for a variety of reasons. Information and knowledge was therefore acquired through other channels. There was, however, a growing recognition that the ability to research information online is important to have and most women expressed an interest in learning.

What kind of experience do the women have of ICTs?

Generally speaking, these women do not interact with different types ICTs on a regular basis. They have had little to no previous experience using computers, some of them use cell phones, and none of them have cell phones with Internet access. This lack of interaction with technology could potentially influence their adoption of computers.

Do they have an interest in learning to use computers and the Internet, and if the do, for what would they want to learn?

There is definitely an interest amongst these women, and within the community, to use computers and the Internet. They would like to use it to find information, stay updated on current events and to learn new things.

Most of the women expressed that they want to learn to use computers for their children’s sake, to be able to help them in their schoolwork, or to be able to keep updated on their lives and what they are up to. This seems to be a cultural circumstance, where the role of the woman is to provide support and care for the children, and she does not promote herself, her own abilities or her own needs. The sense of self of the Peruvian women, and their self-image issues, is definitely something that influences the way that they express themselves in interviews where they constantly undermined their own rights. This was also clear during the observational research, where the women were careful and weary of doing something that might be considered incorrect.

What are the social and cultural factors that influence the women’s access to computers and the Internet?

The main social and cultural factors that have been identified in this study that influence the women’s access to computers and use of the Internet are:

- Issues with self-worth and self-confidence
- Learning difficulties
- Lack of proper education in their younger years
- Literacy issues
• The learning environment and the teacher
• Time constraints
• The approach to problem solving

I would say that the most significant obstacle that these women are facing in their access to ICTs is the issue of self-worth and self-confidence. Their lack of confidence and initiative limits them greatly in taking advantage of existing, or pursuing new, learning and training opportunities.

What are their needs regarding education in learning to use computers and the Internet?

Most of the women have had no, or very little, previous experience with computers, and the majority of them would need to attend computation classes in order to become digitally literate. For them to be able to learn, they would need quite a bit of time and a teacher with the right qualifications that is aware of the challenges that they are facing in their everyday lives.

Since it is probable that they would find it difficult to commit to much more than a few hours of learning per week, they would need to be provided with resources that allow them to repeat what has been taught in class at home, to make sure that the knowledge stays with them.

Would the use of computers and Internet empower the women?

For these women to become comfortable and have skills enough to use computers to research information online will take time and a lot of resources, since they are facing many different kinds of challenges that hinder them in their advancement.

However, the ability to use computers would help these women immensely in building self confidence and giving them a larger sense of self worth. The idea that they would be able to reach a level of digital literacy that would provide them with better job opportunities is probably not realistic. That they would reach a level where they would be comfortable enough to go to a cabina and research a question or some sort of information that interests them, however, is definitely probable.

The capability to go by themselves to a cabina to research information will make them less dependent on their family members and the community. This ability to use computers might give the women a sense of liberation, and provide them with a feeling of power.

Some of the participants expressed how they were ashamed that they did not know anything about computers, and the women who were in the computer class said they were happy to be able to say that they knew a little bit of computation. There is an element of gratification connected to these issues, where the women can take pride in having a certain skill and that they can become part of the digital community. This in itself would empower them greatly, the feeling of being part of the digital world.

So would the use of computers and the Internet empower the women? The answer is yes. They might not be able to reach a high level of digital literacy, but the ability to use computers to research information online would provide them with a sense of pride, better self confidence and therefore give them a stronger position in the community and within the family, and they would be less reliant on other people.
7.2 Critique to the study

One of the main issues that influenced the quality of the results of this study was the women’s interaction with me as a researcher. It seemed as though they were providing me with answers according to what they expected that I wanted to hear, not necessarily their own personal opinions. This was particularly an issue that arose when interviewing the women that were connected to SKIP. They seemed to be afraid of getting into trouble if they said something inappropriate. At times it was a real challenge to get them to talk about their own experiences, instead of providing me with general answers that they thought would be correct.

These women might have said different things or expressed other issues had a Peruvian woman or someone else that they felt more comfortable talking with approached them. There was of course a language barrier that might have influenced the interpretation of the results, but more importantly, I would say that there was a cultural barrier that limited the interaction and communication between the participants and me as a researcher. A lot of the time, especially in the beginning, there seemed to be a lack of trust between us, and sometimes the women were suspicious of the purpose of this study. This probably influenced their answers and what they decided to communicate to me.

To say that these results are not reliable, however, would be untrue as there are several aspects that have been considered and different forms of data have been collected aside from the interviews with the women. The observational research was an important part of understanding the hands-on issues that the women face when trying to learn, and the interviews with Liz Wilson and Elvis Luis give a good basis for understanding the culture and the social conditions under which the women live. The literary research also provides a firm basis for the work.

In the beginning of the study, I had hoped that I would be able to observe more women during the computer class, but as it turns out that would probably have been too heavy a workload. In between setting up interviews with the women (who a lot of the time did not show up when decided) and doing research, it would not have been possible to do more than one class per week. Also, had there been more than four women in that one class, it is probable that I would not have been able to establish the trust and closeness that I did with the women, or been able to observe the things that I did. Having only 4 women in the class might not be representative of a whole population, but at least it gives an indication of the situation in these areas.

7.3 Reflections and future research

This has been a great experience, and has opened up for several more questions that I would be interested in researching.

One aspect that would be fascinating to research further is the IQ-levels of these women, to see if they are in fact suffering from learning difficulties, and figure out what issues they might be facing because of this in terms of ICT-training.

It would also be of interest to look into a possible correlation between the quality of education in Peru and the population’s interaction with and adoption of ICTs. It could also be interesting to look into the literacy issues that Peru has, and see if and how ICTs could be a tool to improve the country’s literacy rates.

A project that would be useful for Peruvians, and perhaps the women in particular, would be to investigate the quality of the cabinas and the services that they are providing. It would be valuable to identify what the culture in the cabinas looks like, and come up with ideas for how they could become more accessible for the women and other disadvantaged groups.

The Indigenous population in Peru are to a large extent excluded from the digital community, and working with them to see what their information needs are and whether or not they could be met through ICTs would also be fascinating.
Another interesting aspect would be to investigate further how this particular group of women best could learn to use computers and research information online. They would probably benefit from using a more simplistic system with fewer functions and features than a fairly advanced computer. This could be a software or other device that would have a less complicated interface, with larger buttons and fewer choices, that would allow them to learn and practice particular issues that are unique to the individual, such as for example researching information online. It would be really interesting to see what would be needed, in terms of time and resources, to get these women to reach a high level of digital literacy.

Technologies such as mobile broadband, smart phones and surf tablets are not widely available in Peru today, mainly because they are too expensive for the majority of the population to use. It would however be interesting to look into what possibilities there are to spread these technologies to a larger extent, and see if these could be useful tools for women and other groups in disadvantaged areas to research information online. Particularly surf tablets would be of interest, as they have a simpler user interface than computers that could potentially benefit these different groups.
8 References

8.1 Literature


XE, 20112 *XE: (PEN/SEK) Peruvian Nuevo Sol to Swedish Krona Rate* [online]. Available at: 

### 8.2 Interviews

- Liz Wilson, director at SKIP  
  E-mail: contact@skipperu.org

- Elvis Luis, Computation Teacher, Instituto Los Abetos  
  E-mail: elvis_ub_810@hotmail.com
Appendix I – Template for Interviews with the women

The interviews were performed in Spanish, but the questions have been translated to English by the author. Depending on the interview, all or a selection of these questions have been asked, and they have sometimes been asked in a different order than the one presented here.

Disposition

1. Introduction to myself, my thesis, and the objective, format and likely duration of the interview.
2. Ask if the participant would allow the interview to be audio recorded.
3. Ask the respondent whether or not I am able to use their name in my thesis, and if I am allowed to contact them in the future in case I have any more questions.

Interview questions

- What is your name?
- Are you married?
- Do you have children?
  - If yes, how many and what ages are they?
- What is your level of education?
- Do you have a job?
  - If yes, what do you do?
  - How many times a week do you work?
- Could you describe a typical day in your life? What do you have to do regarding housework, your children etc.
- If you want to learn something new, how do you go about doing that?
- If you want to research information, like news or community information, how do you go about doing that?
- Do you have access to a computer at home?
  - If yes, who uses it the most?
  - Do you use it?
    - If no, why not?
  - If no, why not?
- Do you have access to the Internet at home?
  - If yes, who uses it the most?
  - Do you use it?
    - If no, why not?
  - If no, why not?
- Do you have a cell phone?
  - For what do you use it?
- Do you have a radio?
- Do you have a TV in the house?
- Do you have the possibility of accessing a computer outside of your home?
  - If yes, where do you access it?
  - If yes, how often do you use it?
  - If no, why not?
- Would you pay money to use a public Internet facility, a cabina?
- Do you use computers?
  - If yes, when do you prefer to use it?
Appendix I

• For what do you use it?
  o If not, why not?
• Do you use the Internet?
  o If yes, when do you prefer to use it?
  o For what do you use it?
  o If not, why not?
• Are you interested in computers and the Internet?
• Are you interested in learning how to use computers and the Internet?
• What do you find to be the most difficult with computers?
• What do you find to be easiest with computers?
• Do any of the members in your family know how to use computers?
• Do your friends know how to use computers?
• Do you and your friends ever talk about computation and if it necessary or not to know how to use them?
• Here are some questions about your knowledge about computers:
  o Do you know how to turn on the computer?
  o Do you know how to use the mouse?
  o Do you know how to type on the keyboard?
  o Do you know how to open the Internet and research information?
  o Do you know how to open Microsoft Word and write a document?
  o Is there anything else that you know how to do on the computer?

For the women who are connected to SKIP:
• Why or why not are you attending the computation class?
• Do you like taking these classes?
  o If yes, why/why not?
• Why do you no longer attend the class, even though you used to be registered?
Appendix II

Interview with Liz Wilson

This interview was performed in English.

Disposition

1. Introduction to myself, my thesis, and the objective, format and likely duration of the interview.
2. Ask if it the participant would allow the interview to be taped.
3. Ask the respondent whether or not I am able to use their name in my thesis, and if I am allowed to contact them in the future in case I have any more questions.

Interview Questions

• What were the reasons for why SKIP set up the computer classes?

• What are the objectives of the classes?

• What has happened in the time that they have been running?

• What do you think might be the reasons as to why so many of the women have dropped out?

• Do you think that learning computation would be of help for these women in getting a different kind of job etc.

• Do you think that the women could have a chance of a better life learning to use computers?

• Do you think that the women would ever be comfortable enough going to a cabina by themselves to use the Internet after they have obtained a certain level of skills in these classes?

• Do you think there are cultural barriers that hinder them in their use of computers? Would you say that they are discriminated on when going to a cabina for example?

• What are some of the issues that you have noticed when working with the women when it comes to learning abilities, self-confidence, cultural aspects etc.
Appendix III – Questions for interview with Elvis Luis

This interview was performed in Spanish, but the questions have been translated to English by the author.

Disposition

1. Introduction to myself, my thesis, and the objective, format and likely duration of the interview.
2. Ask if the participant would allow the interview to be taped.
3. Ask the respondent whether or not I am able to use their name in my thesis, and if I am allowed to contact them in the future in case I have any more questions.

Interview Questions

• Could you describe a bit about yourself and the work that you do?
• What type of classes do you teach, and what classes are provided here at the school?
• Have you noticed a correlation between level of education and how the students are learning?
• What are the proportions between men and women in the classes?
• Have you noticed a difference in how men and women are learning?
• Are they advancing differently? In what way?
• Have you noticed a difference in confidence when it comes to their own abilities between men and women?
• Is there anything in particular that the women are struggling with learning?
• Do you know if the women are using computers outside of your classes?
• For what do they want to learn to use computers?