

## THE REAR-VIEW MIRROR AND THE PERISCOPE: THE MEANING OF COMPUTER-MEDIATED INFORMATION FOR REFUGEES

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**Abstract:** This research-in-progress analyses the meaning of computer-mediated information and how it can contribute to the different aspects of human development. By explicitly recognising that the notion of human development goes beyond indicators of material progress, it adopts the view of human freedom as development. The unit of analysis are individuals who entered New Zealand as refugees, who received a refurbished computer with Internet access upon the successful completion of a government-sponsored, basic computer-training course. Following an inductive approach according to the tenets of grounded theory, the data collected through 10 in-depth interviews is analysed. Although the point of theoretical saturation has not been reached yet, the analysis so far reveals a twofold pattern of the meaning of computer-mediated information. This twofold pattern is expressed in the form of a metaphor by referring to two objects used to produce image representations: the rear-view mirror and the periscope. As a rear-view mirror, computer-mediated information makes possible for the refugees to connect back to their roots. As a periscope, computer-mediated information allows refugees to observe – and to some extent being part of – the activities happening in the host country without necessarily being exposed to other members of the community.

**Keywords:** Information and communication for development (ICT4D), refugee communities, access to computers, computer-mediated information, grounded theory

### 1. INTRODUCTION

Information and communication technology for development (ICT4D) has received garrulous attention in the last few years. Governments, non-governmental organisations and international donors have been making several efforts to contribute to development by providing access to computer technology (e.g., One Laptop Per Child). Although precise figures are hard to pin down, the number of ICT4D initiatives currently underway serves as an indication that large amounts of money are being invested.

However, how ICT tools can make an effective contribution to address developmental problems is still a topic open to discussion. There are examples of how ICT tools can help underserved communities to emerge (Unwin, 2009) and some authors suggest ways to make ICT4D projects financially sustainable (Best & Maclay, 2002). Some other authors, while recognising the potential of ICT tools for contributing to development, take a more cautious approach by revealing hidden power structures and vested interests behind ICT4D initiatives (Wade, 2004) and emphasising the problem of dominant discourses on ICT4D (Thompson, 2005). This research-in-progress contributes to the current debates on ICT4D research by analysing the patterns of computer usage

and actions that computer-mediated information prompts among refugee communities in New Zealand.

This manuscript is organised as follows. The next section presents the research questions this manuscript addresses along with a conceptualisation of the research problem, including a discussion of development and the meaning of computer-mediated information. The third section describes the methodological procedures that are being applied for the collection and analysis of data. The fourth section presents the preliminary findings with its two salient, emergent categories. The last section discusses what the evidence is indicating so far.

## 2. CONCEPTUALISATION OF THE RESEARCH PROBLEM

As it is explained later on in the methodology section of this manuscript, this research follows an inductive approach. Hence, instead of presenting a theoretical framework guiding the subsequent data collection, it is more appropriate to present a conceptualisation of the research problem in broader terms here.

The promise of improving people's living conditions is at the core of ICT4D initiatives. However, the mechanisms by which computer-mediated information contributes to improving people's living conditions remain unclear. Understanding how ICT4D can realise the developmental promise requires being cognisant of the process of reassembling the intangible elements of information into local practices. This intellectual endeavour calls for recomposing the invisible elements of computer-mediated information penetrating social reality in order to render a plausible explanation of its consequences on people's living conditions.

In the contemporary literature on ICT4D, Avgerou (2008) recognises three distinctive discourses. The first one assumes the transference of information systems knowledge from developed economies to developing economies. This discourse echoes the calls to bypass the painful steps in the learning curve that more advanced societies experienced at some point of their development, by means of the so-called "leapfrog effect" (cf. Azad, Erdem, & Saleem, 1998; Davison, Vogel, Harris, & Jones, 2000; Fleming, 2003; Gray & Sanzogni, 2004). The second discourse adopts a social constructionist view and is concerned with the analysis of techno-organisational change prompted by information systems innovation in the context of developing countries (cf. Miscione, 2007; Montealegre, 1997; Walsham & Sahay, 1999). The third discourse conceptualises ICT4D as a transformative socio-economic process aiming at improving people's living conditions.

This study is positioned within the transformative discourse and aims at understanding how computer-mediated information can contribute to the different dimensions of human development. While this statement reflects the overarching research problem, it does not restrict the emergence of conceptual categories during the grounded theory analytical process, which is described later in the Methodology section. As Dey (1999) explains, "what we discover will depend in some degree on what we are looking for" (p. 104). Keeping in mind the open nature of grounded theory, the following research questions are put forward with the intention of tackling the problem at hand:

*How is the accessed computer-mediated information contextualised by ICT4D users?*

*How do ICT4D users act upon the accessed computer-mediated information?*

The underlying assumption is that it is the user of computer-mediated information who executes the information-gap closing action within their time-space bound context. Hence, the focus of this research is on the scrutiny of how the computer-mediated information is absorbed, contextualised and utilised by the users of an ICTD initiative. It aims at theorising on the significance of accessing computer-mediated information in terms of how it enriches individual capabilities and allows individuals to be the authors of their own lives within the social groups they belong to.

## 2.1. The notion of development: Freedom, power and discourses

Human freedom is the ultimate goal of development (Sen, 1999). Development can only be assessed “in terms of whether the freedoms that people have are enhanced” and its realisation ultimately depends “on the free agency of people” (Sen, 1999, p. 4). This conceptualisation of development has two conceptually and practically interrelated implications. First, it recognises the need for certain social arrangements to be in place for the betterment of the individual. Second, it recognises that it is the individual who makes decisions, within the constraints of the existing social arrangements, on the course of action for their betterment. The main merit of this conceptualisation of development lies on its universality and neutrality. Its principles can be applied to different contexts without eroding unique local cultural values.

However, the fulfilment of development is hampered by existing power imbalances in society. This reality makes the term development subject to multiple interpretations. In the struggle for defining what development is, those in powerful position have the upper hand. They are in an advantageous position to rationalise, justify, produce and reproduce social practices depending on their particular agendas. It can be argued that the notion of development – and its opposite, underdevelopment – has been constructed from the perspective of capitalist societies that have created the dichotomous reality of developed societies as opposed to developing societies (Escobar, 1995). This biased view of development, based on a modernistic logic, relegates traditional values and beliefs of social groups, typically in a non-dominant position, while advancing imported models to achieving progress (Escobar, 2001, 2004, 2009). Hybrid modernity, which recognises the material comfort that technical progress brings while accommodating traditional and heterogeneous perspectives (Escobar, 1995), seems to be a more sensible approach to embark upon development efforts.

Consequently, in the course of this research a cautious approach is being taken in order to identify any asymmetric power relationship by which dominant groups might be imposing their system of beliefs on to the beneficiaries of the ICT4D initiative under study (cf. Díaz Andrade & Urquhart, 2012). Special thought is given to the perils of “mechanistic modernisation” (Freire, 1974) that computers might bring by producing an illusion of wellbeing. Although powerful, there is no evidence so far that ICT tools play an instrumental role to produce radical institutional changes to give way to a more equitable society. Recognising the limits of what ICT can do to tackle social, economic, political, historical, religious and geographical factors that might prevent people becoming autonomous is as important as appreciating its potential to enable development.

## 2.2. Accessing and using computer-mediated information

As a whole, indicators of both computer penetration and Internet penetration are showing that more and more people are becoming connected around the globe. However, access to computers and the Internet cannot be equated to access to information. The former carries a rather reductionist view of a complex problem – it is relatively easy to measure the number of computers and access to the Internet on any given population. Understanding the meaning and implications of computer-mediated information, however, is an entirely different endeavour. It requires a holistic interpretation of contextual factors and a deep examination of individual perceptions of and actions upon the accessed computer-mediated information. In this sense, the observation that the digital divide is not widening anymore but is deepening now raises legitimate concerns (van Dijk, 2006). The traditional dichotomous conceptualisation of the digital divide in terms of haves and have-nots material access is being left behind in favour of a deeper understanding of what really means having access to ICT in terms of literacy (Warschauer, 2003) and inclusiveness (Zheng & Walsham, 2008).

Information in general – and computer-mediated information in particular – is not an inert, static instrument. The etymology of the word information – which derives from the Latin verb *informāre*, “to give form or shape to” – reveals its subjective, dynamic essence. Information entails idiosyncratic and contextually-bounded characteristics, which help individuals cope with their

lives: “Information is... something that reduces uncertainty” (Dervin, 1977, p. 18). Thus, information can be interpreted in many different ways for different purposes (Castells, 2000; Galliers, 2004). As Castells (2009) expounds, “When seeking information, people begin with their values, and they look for information to confirm their values” (p. 149). It is the individual who eventually makes sense of, acts upon and gives meaning to information in a specific time and space context.

In the course of trying to reduce uncertainty, individuals are continuously packing and unpacking pieces of information. The extent to which information contributes to reduce uncertainty will depend on the existing institutional frameworks in place that forms an all-encompassing information ecology (Kallinikos, 2006). Access and especially use of information do not merely rely on computer technology; they all are affected by the existing social structures (Sassen, 2004; Wilson, 2004). Thus, an understanding of the institutional context where the ICT is to be deployed is essential to reveal the real opportunities for realising development, that is to say making individuals the authors of their own lives.

The opportunities to effectively use computer-mediated information are still limited by social and economic arrangements (Mansell, 2002), where deep-rooted institutional factors that encourage or discourage the use of ICT tools for collective actions (DiMaggio, Hargittai, Neuman, & Robinson, 2001). Not recognising this complexity may lead to an oversimplification of a rather multifaceted problem, assuming a technological deterministic view by granting computer technology an all-powerful role, while complex institutional structures have been largely ignored (Stehr, 2000).

It is possible to conceive computers connected to the Internet as a windowpane to the world. Users may be accessing to immense – and rather chaotic – sources of information that the Internet provides. It is expected that rather than being passive receivers of unfamiliar – and perhaps appealing information – users are able to find the information that, through critical consciousness, can help them become autonomous within the existing environmental conditions. Otherwise, ICT4D initiatives would be merely creating the illusion of an idyllic world in the eyes of the users because computers are now available, even though genuine development (enhancing individual freedom) has not been reached. This illusory perception represents the myth of technology, which Gurstein (2010) provocatively framed in the question “So what do we lose if we don’t have the Internet?”

### 3. METHODOLOGY

While recognising the inductive nature of grounded theory method, this research is informed by the notion of sociomateriality. Sociomateriality assumes that both humans and technology form an entangled unit and their interaction is influenced by the different actors and their historical and cultural backgrounds (Orlikowski, 2010; Orlikowski & Scott, 2008). It is worth pointing out that the adopted sociomaterial perspective does not presuppose a theoretical framework for guiding the theory building exercise. It indicates the fundamental assumption of symmetrical interaction between the social and the technical, where both cooperatively construct the world as we know it, at least as the author perceives it – cf. Callon’s (1999) and Latour’s (1999, 2005) actor-network theory.

The focus of this research-in-progress is on the process of computer-mediated information traversing the online-offline boundaries to, from and within refugee communities in New Zealand and how it contributes to the realisation of their personal life projects. This section explains the methodological procedures that are being followed in order to produce a plausible and cogent interpretation of the problem at hand.

#### 3.1. Data collection

The data collection is being conducted in New Zealand. The unit of analysis for this research project are the refugees who are beneficiaries of the *Computers in Homes* initiative. The declared

goal of this government-funded ICT4D initiative is “to provide all New Zealand families who are socially and economically disadvantaged with a computer, an Internet connection, relevant training and technical support” (Computers in Homes, 2012). This initiative includes the Refugee Families programme, whose beneficiaries are, in the main, recently arrived families with school-aged children from conflicted areas of the world. The *Computer in Homes – Refugee Families* programme offers them a 30-hour basic computer-training course, which covers how to log on to a computer, use a web browser, create and use an email account and produce documents. Upon the successful completion of the course, the participants receive a refurbished computer with broadband connection paid for one year.

These participants represent an intentionally sought sample. While they come from different regions and may have different cultural backgrounds, they all share the experience of being hosted by a new country. This purposive sampling strategy allows the researcher to observe their trajectories intensely (Morse, 2007). In virtue of international agreements, New Zealand receives 750 refugees every year. Since New Zealand is a country that consistently ranks near the top in the world in terms of human development indicator (HDI), it affords an excellent contrasting background to examine the role computer-mediated information plays in empowering members of disadvantaged groups to become autonomous individuals. In 2011, New Zealand ranked fifth in the world with an HDI score of 0.908 (UNDP, 2011). Table 1 shows HDI scores of the refugee’s countries of origin New Zealand hosts. The difference between New Zealand and the other countries, except for Colombia to a certain extent, in terms of HDI is apparent.

Countries	HDI (2011)
Colombia	0.710
Iraq	0.573
Myanmar	0.483
Rwanda	0.429
Afghanistan	0.398
Ethiopia	0.363
Eritrea	0.349
Democratic Republic of Congo	0.286
Somalia	0.284*

\*Somalia’s HDI score corresponds to 2001, the latest figure available

**Table 1: HDI of the refugee’s countries of origin (UNDP, 2011)**

The first stage of the fieldwork involves a round of interviews with participants that have completed the computer-training course. The purpose of having an initial round of interviews is to identify those participants who can provide rich data for subsequent analysis – i.e., key informants (Yin, 2003). Out of the 12 participants already interviewed, six participants have been identified as key participants. The second stage entails follow-up interviews with the key informants plus interviewing new entrants after the completion of the training programme in 2013. The final number of participants will be determined in the course of research until theoretical saturation (Glaser & Strauss, 1967) is reached.

At the time of writing this paper, 12 participants have been interviewed face-to-face; one of them, a key participant, twice. The semi-structured, in-depth interviews have been conducted between July and February 2013 and more interviews are being arranged. Nine participants live in Auckland, the largest city in New Zealand. The other three live in Hamilton, a city with a population of 200,000 located 130 kilometres south of Auckland. The interviews lasted between 20 minutes to 1.5 hours, depending on the richness of the data the researcher was able to extract.

Table 2 shows information about the countries of origin of the already interviewed participants, when they entered New Zealand and when they completed the computer-training course.

	Country of origin	Arrival to New Zealand	Date of training course
Participant 1	Democratic Republic of Congo	2008	2010
Participant 2	Ethiopia	May/2012	Sep/2012
Participant 3	Eritrea	Mar/2008	Dec/2008
Participant 4	Rwanda	Aug/2003	2009
Participant 5	Colombia	2007	2007
Participant 6	Myanmar (Burma)	Sep/2011	Sep/2012
Participant 7*	Myanmar (Burma)	Aug/2010	Jan/2011
Participant 8	Myanmar (Burma)	Jan/2011	Sep/2012
Participant 9	Myanmar (Burma)	May/2012	Jul/2012
Participant 10	Iraq	Jul/2012	Sep/2012
Participant 11	Democratic Republic of Congo	Jan/2009	May/2010
Participant 12	Myanmar (Burma)	Aug/2007	2009

\*Participant 7 has been interviewed twice

**Table 2: Information about participants**

Since a flexible attitude is being adopted during the data collection, the researcher accommodates to the participants' preferences and needs. This approach can be evidenced by the fact that nine interviews were conducted at the participants' houses and two at a community centre. The interviews with the only participant who was interviewed twice were conducted at a fast food restaurant in August 2012 and at the researcher's accommodation in February 2013.

In one case, the researcher needed the help of an interpreter for the length of the interview; in four other cases, family members – usually participants' children – assisted the researcher in translating questions and getting participants' answers back translated into English. Even for those participants who were able to sustain a conversation in English, the researcher tried to capture the nuances of the experience of using computers by probing the participants with more questions in order to clarify the message the participant was trying to convey. One interview was conducted entirely in Spanish, the native language of the researcher. Only six interviews could be audio-taped. In the other cases, either the participant did not agree to be recorded or, given the particular circumstances that could only be assessed in the field, the researcher deemed that introducing a recorder would hamper the natural flow of the conversation. In these cases, hand-written notes were taken.

In addition to the interviews that have already been conducted in Auckland and Hamilton, the data collection will be extended to two other cities in New Zealand in 2013. These two additional cities are among those where refugees are usually relocated: Palmerston North<sup>1</sup> – a town of around 85,000 people in the North Island – and Nelson – a town of 60,000 people in the northern tip of the South Island.

### 3.2. Data analysis

Data analysis is being conducted according to the tenets of grounded theory (Glaser & Strauss, 1967) following an interpretive approach (Charmaz, 2006). Both data collection and data analysis are being conducted simultaneously. Data collection will stop when theoretical saturation is reached – the point at which no new theoretical insights emerge from gathering more data (Glaser

<sup>1</sup> By the time this paper is presented at the IFIP Conference, the first round of interviews in Palmerston North should have been finalised – they are scheduled to be conducted in March 2013.

& Strauss, 1967). In the analysis stage no pre-conceived theoretical categories are imposed on the data – cf. (Glaser, 1992). The Glaserian variant of grounded theory (Glaser, 1992), as opposed to the Straussian one (Strauss, 1987), is adopted, since the former lets the theoretical findings emerge from the data.

Notes taken during the interviews and audio-recordings, if they are available, are being uploaded on to NVivo<sup>®</sup> software package. The data is being analysed inductively from lower levels of abstraction by creating initial codes to focused codes and then categories at a higher level of abstraction.

#### 4. PRELIMINARY FINDINGS

Before presenting a discussion of the categories that emerge from the analysis, there are three elements of background information that deserve to be briefly explained here. The first one is related to the nature of the *Computer in Homes – Refugee Families* programme, whose purpose is to train parents in the use of computers so they can assist their children when they need help to complete their homework. In the course of the interviews it became clear that children by and large do better than their parents in the use of computers – an observation that should not be completely unexpected since using computers is part of the daily school activities of the former. Two exceptions may be the case of the participant who holds a telecommunications engineering degree and has been working with computers since the early 1990s in his country of origin and the other one who perceives his computer devices as his “office”. The fact is that, regardless of the computer literacy of the parents, there was no household participating in this study where children were not active users of computers.

The second issue is intrinsic to the nature of the participants. They all underwent dreadful, some even traumatic experiences before entering New Zealand as refugees. If the situation they faced in the countries where they fled from was not extremely bad, their political liberties and opportunities for economic development were seriously curtailed. For the others, it was just a matter of survival; they had to flee their countries simply because their lives were in danger. At least three participants mentioned that going back to their countries was not an option, not even for a short visit – “I would be killed as soon as I landed there” said one. It is illustrative the case of one participant, whose husband and parents disappeared in 2004, and has not stopped inquiring about their whereabouts since her arrival to New Zealand in 2008. What all refugees have in common is that they had to leave their belongings (if any), dreams, stories, friends and families behind. They all are now trying to get ahead throughout their lives in a new country.

The third issue is related to the previous one. Even though the participants express their gratefulness for the opportunity to start a new life in a new country (e.g., “a peaceful, beautiful one” is a common expression), the adaptation process is not free of trouble (e.g., “everything is difficult when you are new to the country”). Upon their arrival in New Zealand, refugees spend six weeks at the Mangere Refugee Resettlement Centre in Auckland, where they are introduced to local culture, informed about their rights and services offered by government agencies and receive introductory English lessons. After the six-week period, they are relocated to six cities (including Auckland) across the country, where every family is provided with a state house, plus access to the public education and health systems. While all these benefits are intended to make their resettlement smooth, the transition imposes serious challenges for them. In the interviews with the recently arrived refugees, they make clear the overwhelming experience of trying to understand how the systems in place work. Above all, language represents a huge barrier for them. For instance, while in their countries of origin they used to pop over government agencies or schools when they needed, New Zealand largely operates under a system of appointments, which are mainly made by telephone. This practice, supposedly designed to simplify everyday life activities, imposes a stressful experience for refugees, whose command of the English language is, especially for the new arrivals, still below conversational level. There are other participants who are fairly competent in the use of English but do not feel confident about their language skills. This is the

case of a university graduate engineer with over 20 years of experience in the telecommunications sector, who is able to maintain a conversation in English but has decided to study English for one year before start looking for job opportunities. Another case in point is the participant who, as a swimmer represented his country at the 1980 Olympic Games in Moscow and worked as a swimming instructor for a number of years before entering New Zealand, feels frustrated because his limited language skills do not allow him to develop his full potential now. It is worth mentioning that he says he can speak three other languages fluently, a fourth one at an intermediate level and is able, with certain difficulty, to maintain a conversation in English (the interview with him was conducted entirely in English with no need of assistance).

This information provides the background for the two categories discussed next: emancipation and settling down. These two emergent categories reveal the role of computer-mediated information plays in the experiences the refugees are enduring. The appendix shows the construction of these two categories from the initial codes to the focused codes.

#### **4.1. Emancipation**

The first emergent category is emancipation. Emancipation represents the sense of control participants have gained / are gaining on their own lives through the access and use of computer-mediated information. This category is made of three focused categories: attitudes to computers, sense of liberation and maintaining connections.

##### **4.1.1. Attitudes to computers**

Participants express their overall satisfaction with computers. Those who did not know how to use computers before the computer-training course in New Zealand are especially proud of their newly acquired ability. One participant went at great lengths of showing his certificate of completion. In most of the households, the computer provided by the *Computer in Homes – Refugee Families* programme occupies a prominent position in the house. It is on a desk either in the main living room or in the dining room. When the computer is not visible, the participant makes it clear that the computer is used on a daily basis. Interestingly, even the only one participant who considers herself an apathetic computer user recognises that she uses it on a daily basis just “to check emails”. Moreover, it was not uncommon having participants inquiring about the possibility to take more advanced computer-training courses.

In some cases, a newer model has replaced the refurbished computer provided by the *Computer in Homes* initiative. In some others, even when the refurbished computer was not replaced, additional computers have been acquired. One participant exudes excitement when he explains he has supplemented the refurbished computer with three laptops (“I want my children and wife learning how to use computers”). Another participant shares that he carries his laptop wherever he goes and has bought a tablet for his four-year old daughter for her “to explore and learn new things”, while the desktop computer he received upon the completion of the training course remains at home, mainly for the use of his wife. Furthermore, in those households where the first year of paid broadband has already expired, particular arrangements were made in order to maintain the Internet access.

##### **4.1.2. Sense of liberation**

The evidence suggests that computers are empowering participants. One of them forcefully states, “my computer has made me independent”; it allows her to be informed and connected. In addition, some other participants express that computers allow them exercise their spiritual dimension by exchanging religious messages. Moreover, given the language difficulties some participants have, access to computers allow them to translate from and into English any information they have difficulties with. There is no need to wait for assistance, they say.



There are two personal stories that reveal how computers can help break the tyranny of disabilities, which are worth mentioning here. The 14-year old daughter of one participant suffers from palsy, which limits her physical activities. Not only does the girl feel much more comfortable typing on a keyboard instead of using a pen but also becomes more productive on her writing activities. The other personal story is about a 17-year old boy who is hearing and speech impaired. He belongs to an online community, with members from New Zealand and abroad, where he can interact using sign language with other people who suffer from the same condition as him. This opportunity to transcend space has broadened his network of contacts; in the past he was restricted to communicate with his mother and just a few others who could interpret sign language.

#### **4.1.3. Maintaining connections**

A common characteristic among all participants is that they all use computers to be in touch with people and places they left behind. Reading news online and watching entertaining videos produced in their countries of origin are activities that they do on a regular basis. As one female participant says, “I am here now but I want to know what is going on in my country”. This is particularly true in the case of one participant in his 60s who is not able to communicate in English at all. He comes from a village that had no electricity and had not touched a computer before coming to New Zealand; their children help him typing the URL of his favourite websites. Although it is hard for him to describe the feeling he experiences by watching, listening and reading content in his own language, it seems that doing so alleviates his nostalgic vibe.

Computers also help refugees keep in touch with their friends and family back home. In this case, computers fulfil an affective need, which brings enjoyment to them. As one participant mentions, “my wife uses Skype to be in touch with friends and family back in Burma”. In some other not so happy instances, participants use computers to inquire about their missing loved ones, who due to the particular circumstances of their countries of origin disappeared without leaving a trace.

## **4.2. Settling down**

This emergent category reflects the role played by computer-mediated information in supporting the adaptation to a new country. This category has emerged from two focused codes: engagement with the local community and everyday life activities.

### **4.2.1. Engagement with the local community**

Access to computers has opened opportunities for the refugees to become part of the community in New Zealand. This observation is reflected by how participants use computers to be in touch with their friends, including both their compatriots and members of the extended community in New Zealand. Some participants explain that they know what is going on in the local networks they belong to through computers (e.g., email lists, Facebook). Interestingly, the use of email to exchange communication with children’s teachers is not an uncommon practice observed among the participants.

### **4.2.2. Using computers for everyday life activities**

Although not every participant has fully embraced the use of computers for completing their everyday life activities, a group of them – especially those who have been living in New Zealand for a relatively extended period and those who were computer literate before coming to the country – are very active. How they access and use computer-mediated information includes contacting government agencies (e.g., New Zealand Immigration Service, Housing NZ), looking for jobs (on Seek, a popular job site in New Zealand), looking for study opportunities (at different polytechnic institutes and universities) and dealing with work-related issues (e.g., checking payslips online – as one participant explains, if he perceives a mismatch between the information on the payslip and the actual payment he proceeds to email the employer raising the discrepancy). The advantages computer-mediated information offers also include convenience (e.g. online banking) and even looking for maps (just for the sake of learning more about the city and the

country). In addition, some participants use their computers to prepare documents they need to conduct their everyday business in New Zealand.

The use of computers for learning English has been found in every participant, except for one man in his 60s who come from a rural, remote environment and has the support of his children in New Zealand. All the other participants use different online programmes, dictionaries and tutorials to learn and improve their English. As one of them say, using online dictionaries “helps me be in touch with my contacts in New Zealand”. A remarkable story is the one of one participant who serves a bilingual assistant for his community and wants to become a qualified translator; he took an English course online and is going to start soon a 10-month diploma in business.

## **5. WHAT IS THE EVIDENCE SHOWING SO FAR?**

As has already been explained earlier, theoretical saturation has not been reached yet, so it is not possible to extract an emergent, substantive theory from this grounded theory study at this stage. However, some patterns that explain the consequences of computer-mediated information consequences on the refugee communities’ living conditions are already surfacing. What is outlined in the following lines is an early attempt of theoretical integration (cf. Urquhart, Lehmann, & Myers, 2010), which needs to be fully elaborated once the simultaneous data collection and data analysis procedures have been completed.

The evidence indicates that computer-mediated information occupies a place in the participants’ lives. The refugees who participated in this study, to a more or less extent, are using computers and acting upon computer-mediated information. They are in a transitional stage. They all are experiencing some degree of “uprootedness”, by which their ties with the past have been partially evaporated and their connections in their host country have not been fully established yet (Weil, 2001). Behind emancipation and settling down, the two emergent categories so far, two salient aspects reveal how computer-mediated information is helping refugees enhance their freedoms. These two aspects give this manuscript its title: rear-view mirror and periscope.

On the one hand, computers are functioning as rear-view mirrors. It has been demonstrated that computer-mediated information makes possible for the refugees to connect back to their roots. The analysis illustrates instances of using computers for keeping informed of current affairs in their homelands, searching loved ones who mysteriously disappeared amid a violent situation, or just enjoying the pleasure of watching content to which they feel culturally and affectively connected. On the other hand, computers are functioning as periscopes. It has also been noted that computer-mediated information allows refugees to observe – and to some extent to be part of – the activities happening in their host country without necessarily disclosing their vulnerabilities to other members of the community. The evidence suggests that most of the refugees do not feel confident enough, at least not yet (language seems to be the highest barrier), to openly participate and take a leading role in the activities that take place locally. There are indications that refugees still prefer peering the landscape without being seen by others. Being in front of a computer screen affords privacy and protection while monitoring the environment.

In this sense, computers provide the material resource to circulate information that facilitates their integration to a new society while at the same time keeping the connections with their cultural and affective roots. A recent study on migrants in New Zealand reveals that while they grieve for their homelands, they do earnestly want to belong to their host country (Pio, 2010). Is this the case with the refugees that participated in this study? In some cases, the answer is a resounding yes; in some others, there is some degree of ambiguity. Regardless of how strong is the willingness to belong to the host country, they do not show intentions to cut off the connections with their roots and computers are giving them the opportunity to keep those links alive.

## 6. REFERENCES AND CITATIONS

- Avgerou, C. (2008). Information systems in developing countries: A critical research review. *Journal of Information Technology*, 23(3), 133-146.
- Azad, A. N., Erdem, A. S., & Saleem, N. (1998). A framework for realizing the potential of information technology in developing countries. *International Journal of Commerce & Management*, 8(2), 121-133.
- Best, M. L., & Maclay, C. M. (2002). Community Internet access in rural areas: Solving the economic sustainability puzzle. In G. S. Kirkman, J. D. Sachs, K. Schawb, & P. K. Cornelius (Eds.), *The global information technology report 2001-2002: Readiness for the networked world*. Oxford, UK: Oxford University Press.
- Callon, M. (1999). Actor-Network Theory - The Market Test. In J. Law & J. Hassard (Eds.), *Actor Network Theory and After* (pp. 181-195). Oxford, UK: Blackwell Publishers.
- Castells, M. (2000). *The rise of the network society - The information age: Economy, society and culture* (2nd ed., Vol. 1). Malden, MA, USA: Blackwell Publishers.
- Castells, M. (2009). *Communication power*. New York, NY, USA: Oxford University Press.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London, UK: Sage Publications.
- Computers in Homes. (2012). *The Computer in Homes story - Founding missions and goals*. Retrieved 7/Jul, 2012, from <http://www.computersinhomes.org.nz/about-us/founding-missions-a-goals>
- Davison, R., Vogel, D., Harris, R., & Jones, N. (2000). Technology leapfrogging in developing countries - An inevitable luxury? *Electronic Journal of Information Systems in Developing Countries*, 1(5), 1-10.
- Dervin, B. (1977). Useful theory for librarianship: Communication, not information. *Drexel Library Quarterly*, 13(3), 16-32.
- Dey, I. (1999). *Grounding grounded theory: Guidelines for qualitative inquiry*. San Diego, CA, USA: Academic Press.
- Díaz Andrade, A., & Urquhart, C. (2012). Unveiling the modernity bias: A critical examination of the politics of ICT4D. *Information Technology for Development*, 18(4), 281-292.
- DiMaggio, P., Hargittai, E., Neuman, W. R., & Robinson, J. P. (2001). Social implications of the Internet. *Annual Review of Sociology*, 27, 307-336.
- Escobar, A. (1995). *Encountering development: The making and unmaking of the Third World*. Princeton, NJ, USA: Princeton University Press.
- Escobar, A. (2001). Culture sits in places: Reflections on globalism and subaltern strategies of localization. *Political Geography*, 20(2), 139-174.
- Escobar, A. (2004). Development, violence and the new imperial order. *Development*, 47(1), 15-21.
- Escobar, A. (2009). Other worlds are (already) possible: Self-organisation, complexity, and post-capitalist cultures. In J. Sen & P. Waterman (Eds.), *World Social Forum: Challenging Empires* (pp. 393-404). Montreal, Canada: Black Rose Books.
- Fleming, S. T. (2003). The leapfrog effect: Information needs for developing nations. In S. Kamel (Ed.), *Managing Globally with Information Technology* (pp. 127-139). Hershey, PA, USA: IRM Press.
- Freire, P. (1974). *Education for critical consciousness*. London, UK: Continuum.
- Galliers, R. D. (2004). Reflections on information systems strategizing. In C. Avgerou, C. Ciborra, & F. Land (Eds.), *The social study of information and communication technology: Innovation, actors, and contexts* (pp. 231-262). Oxford: Oxford UP.
- Glaser, B. G. (1992). *Basics of grounded theory analysis*. Mill Valley, CA, USA: Sociology Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL, USA: Aldine Publications.

- Gray, H., & Sanzogni, L. (2004). Technology leapfrogging in Thailand: Issues for the support of e-commerce infrastructure. *Electronic Journal of Information Systems in Developing Countries*, 16(3), 1-26.
- Gurstein, M. (2010). *So what do we lose if we don't have the Internet?* Retrieved 20/Feb, 2010, from <http://gurstein.wordpress.com/2010/02/20/so-what-do-we-miss-if-we-don%E2%80%99t-have-the-internet/>
- Kallinikos, J. (2006). *The consequences of information: Institutional implications of technological change*. Cheltenham, UK: Edward Elgar.
- Latour, B. (1999). *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA, USA: Harvard University Press.
- Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford, UK: Oxford University Press.
- Mansell, R. (2002). From digital divides to digital entitlements in knowledge societies. *Current Sociology*, 50(3), 407-426.
- Miscione, G. (2007). Telemedicine in the Upper Amazon: Interplay with local health care practices. *MIS Quarterly*, 31(2), 403-425.
- Montealegre, R. (1997). The interplay of information technology and the social milieu. *Information Technology & People*, 10(2), 106-131.
- Morse, J. M. (2007). Sampling in grounded theory. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of grounded theory* (pp. 229-244). London, UK: Sage Publications.
- Orlikowski, W. J. (2010). The sociomateriality of organisational life: Considering technology in management research. *Cambridge Journal of Economics*, 34(1), 125-141.
- Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. *The Academy of Management Annals*, 2(1), 433-474.
- Pio, E. (2010). *Longing & belonging: Asian, Middle Eastern, Latin American and African peoples in New Zealand*. Wellington, New Zealand: Dunmore.
- Sassen, S. (2004). Towards a sociology of information technology. In C. Avgerou, C. Ciborra, & F. Land (Eds.), *The social study of information and communication technology: Innovation, actors, and contexts* (pp. 77-99). Oxford, UK: Oxford University Press.
- Sen, A. K. (1999). *Development as freedom*. New York, NY, USA: First Anchor Books.
- Stehr, N. (2000). Deciphering information technologies: Modern societies as networks. *European Journal of Social Theory*, 3(1), 83-94.
- Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.
- Thompson, M. P. A. (2005). ICT, power, and developmental discourse: A critical analysis. *The Electronic Journal of Information Systems in Developing Countries*, 20(4), 1-26.
- UNDP. (2011). *Human Development Report 2011 - Sustainability and equity: A better future for all*. New York, NY, USA: United Nations Development Programme.
- Unwin, T. (Ed.). (2009). *ICT4D: Information and communication technology for development*. Cambridge, UK: Cambridge University Press.
- Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the 'theory' back into grounded theory: Guidelines for grounded theory studies in information systems. *Information Systems Journal*, 20(4), 357-381.
- van Dijk, J. A. G. M. (2006). Digital divide research, achievements and shortcomings. *Poetics*, 34(4-5), 221-235.
- Wade, R. H. (2004). Bridging the digital divide: New route to development or new form of dependency? In C. Avgerou, C. Ciborra, & F. Land (Eds.), *The social study of information and communication technology: Innovation, actors, and contexts* (pp. 185-206). Oxford, UK: Oxford University Press.
- Walsham, G., & Sahay, S. (1999). GIS for district-level administration in India: Problems and opportunities. *MIS Quarterly*, 23(1), 39-66.

- Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA, USA: The MIT Press.
- Weil, S. (2001). *The need for roots: Prelude to a declaration of duties towards mankind*. New York, NY, USA: Routledge.
- Wilson, E. J., III. (2004). *The information revolution and developing countries*. Cambridge, MA, USA: The MIT Press.
- Zheng, Y., & Walsham, G. (2008). Inequality of what? Social exclusion in the e-society as capability deprivation. *Information Technology & People*, 21(3), 222-243.

## APPENDIX

### Inductive construction of the category “emancipation”

Focused codes (3)	Initial codes (18)
Attitudes to computers	“the computer is my company”, “my computer is everything”, open mind to learn how to use computers, sense of achievement, “the computer is like a teacher at home”, “want to learn how to find things”, “want to learn more”, concerns about excessive and inappropriate use of computers
Sense of liberation	“computer has made me independent”, computers for translation from and into English, computers for religious messages, liberating from physical disabilities
Maintaining connections	computers are helpful for communicating, computers for entertaining, teaching others how to use computers, “my wife uses Skype to be in touch with friends and family back in Burma”, asking for the whereabouts of missing loved ones, “I am here now but I want to know what is going on in my country”

### Inductive construction of the category “settling down”

Focused codes (2)	Initial codes (13)
Engagement with the local community	being part of a community, communication with friends in New Zealand, computers for being part of New Zealand, computers to be in touch with friends, children’s school communication
Everyday life activities	computers for contacting government agencies, computers for convenience, computers for finding a job, computers for finding study opportunities, computers for learning English, computers for preparing documents, computers for work-related issues, computers for looking maps