

**Conscientisation and Human Development:  
The case of digital inclusion programmes in Brazil**

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## **Declaration of Authorship**

I Sammia Cristina Poveda Villalba hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated. This work has not previously been submitted in part or in whole to any university for any degree or other qualification. In accordance with regulations of Royal Holloway, University of London, the dissertation contains no more than 100,000 words of text.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

For to be free is not merely  
to cast off one's chains,  
but to live in a way that respects and  
enhances the freedom of others.

*Nelson Mandela*

# Abstract

This thesis analyses digital inclusion programmes in Brazil through the combined theoretical lens of the Capability Approach (CA) to development and Freire's Pedagogy of the Oppressed. Findings suggest that a process of conscientisation is needed for individuals to fully take control of their appropriation of the technologies. Appropriation is understood as individuals being able to use ICT as tools to achieve what they value and have reason to value.

Through interviews, focus groups, observation, participatory methods and action research, the research examined two separate digital inclusion initiatives in Campinas, Brazil. The courses were offered free of charge, one by a public body and one by an NGO, and targeted disadvantaged and vulnerable groups.

The thesis contributes to the growing literature of operationalising the CA in the field of Information and Communication Technologies for Development (ICT4D). It integrates Freire's Pedagogy of the Oppressed into the CA, as a way to address some of the critiques this approach has received, and to strengthen concepts related to power and distinct mechanisms for social change. Further, the thesis offers a key contribution by developing concrete methods to implement the CA in a participatory manner with organisations in the field. Further developing Kleine's Choice Framework, an operationalisation of the CA, it proposes a visualisation tool to reflect changes in the portfolio of resources over the course of a digital inclusion programme. This tool can be used in monitoring, evaluation and reporting, as well as within the conscientisation dialogue between teachers and students. Empirically, the in-depth research shows that the process of conscientisation is time-consuming and resource-intensive, but effective in supporting learner-led appropriation of the technology, in line with the lives the learners themselves have reason to value.

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## List of Acronyms

ANATEL	<i>Agência Nacional para Telecomunicações</i>
ANSP	Academic Network at São Paulo
BPC Idoso	<i>Benefício Assistencial ao Idoso</i>
BR	Brazil
CA	Capability Approach
CDHU	<i>Companhia de Desenvolvimento Habitacional e Urbano</i>
CDI	<i>Comitê para a Democratização da Informática</i>
CDI-CPS	<i>Comitê para a Democratização da Informática em Campinas</i>
CEDLAS	<i>Centro de Estudios Distributivos Laborales y Sociales</i>
CEPROCAMP	<i>Centro de Educação Profissional de Campinas</i>
CGI.BR	<i>Comitê Gestor da internet no Brasil</i>
CIA	Central Intelligence Agency
CPqD	<i>Centro de Pesquisa e Desenvolvimento</i>
CV	Curriculum vitae
DFIF	Department for International Development
EIC	<i>Escola de Informática e Cidadania</i>
ENEM	<i>Exame Nacional de Ensino Médio</i>
FAPESP	<i>Fundação de Amparo à Pesquisa do Estado de São Paulo</i>
FVG	<i>Fundação Getúlio Vargas</i>
GDP	Gross Domestic Product
HDCA	Human Development and Capability Association
HDI	Human Development Index
IBGE	<i>Instituto Brasileiro de Geografia e Estatística</i>
ICECAP	ICEpop CAPability
ICT4D	Information and Communication Technologies for Development
ICT	Information and Communications Technologies
IPEA	<i>Instituto de Pesquisa Econômica Aplicada</i>
ISP	internet Service Provider
IT	Information Technology
ITU	International Telecommunication Union
ITU-ICT	International Telecommunication Union Development Index
JC	Jovem.com
M&E	Monitoring and Evaluation
MCT	<i>Ministério de Ciência e Tecnologia</i>

MPI	Multidimensional Poverty Index
NGO	Non-governmental organisation
NIED	<i>Núcleo de Informática Aplicada à Educação</i>
ONIC	<i>Observatório Nacional de Inclusão Digital</i>
OxCap-MH	Oxford Capability Instrument
PAR	Participatory Action Research
PBF	<i>Programa Bolsa Família</i>
PBSM	<i>Plano Brasil Sem Miséria</i>
PDF	Portable Document Format
PhD	Doctor of Philosophy
PNBL	Programa Nacional de Banda Larga
PPE	Problem-posing education
PPP	<i>Propuesta Política-Pedagógica</i>
RNP	<i>Rede Nacional de Pesquisa</i>
SEI	<i>Secretaria Especial de Informática</i>
SMCAIS	<i>Secretaria Municipal da Cidadania, Assistência e Inclusão Social</i>
SOCINFO	<i>Programa Sociedade da Informação</i>
SUS	<i>Sistema Único de Saúde</i>
TV	Television
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNICAMP	<i>Universidade de Campinas</i>
WSIS	World Summit on the Information Society
WWW	World Wide Web

# Chapter 1 Introduction

## 1.1 Inequalities and ICT4D

Rapidly changing technological innovation was at the forefront of the last century, becoming ubiquitous and impacting more and more on all areas of our daily lives. Already in the early 2000s, Wacjman (2004) had stated: “[t]echnology is an intimate presence in our lives and increasingly defines who we are and how we live” (p.102). This research focuses in particular on Information and Communication Technologies (ICT), which are today being used in the education, health and economic sectors to mention just a few. The television, telephone and radio, followed by digital technologies such as computers, the Internet, mobile phones, digital radio and digital television have spread worldwide, and each new technology experiences greater penetration rates than the previous ones. However, this so called ‘digital revolution’, has not been even, both worldwide or within each country (Henwood et al. 2000, van Dijk 2006, Toyama 2010). This asymmetry, known as the digital divide, was first understood as the difference of access to ICT, but research has shown this phenomenon has a complex nature. Differences in users' operational, and strategic, ICT skills and motivation, among other dimensions, are as important to consider as access to these technologies in order for individuals to benefit from ICT usage (Thomas and Wyatt 2000, Gunkel 2003, Fonseca 2010, Kleine 2011a). This thesis is interested in contributing to a greater understanding of the complexity of the digital divide, in particular its impact on development practices. While ICT ranges from TVs and radios to tablets and mobiles, this research focuses specifically on the internet and its use on computers and laptops (for a more detail discussion of the scope of this research refer to Chapter 3).

Efforts to overcome the digital divide are also known as digital inclusion. Aleixo et al. (2012) define digital inclusion as “the effective participation of individuals and communities in all dimensions of the knowledge-based society and economy through their access to ICT, made possible by the removal of access and accessibility barriers, and effectively enabled by the willingness and ability to reap social benefits from such access” (p.222). Literature on the use of Information and Communication Technologies for Development, known as ICT4D by some authors (Unwin 2009), particularly in digital inclusion, usually presents examples of projects

that use ICT with results that include: economic growth; the improvement of life conditions and social cohesion; increased social relationships; broader access to finance and government services, and more. For example, research into the use of mobile phones has shown that these can improve people's communication capacities during emergencies (e.g. Mascarenhas 2010). Mobile phones can enable or strengthen social, economic and governance networks (e.g. Smith et al. 2011) and increase access to financial services, such as receiving and sending money (e.g. Mascarenhas 2010; Yunus 2008). Similarly, research has shown that the internet may have positive outcomes from a personal perspective, for instance, increasing access to online government services (e.g. Dijst 2004); and improving social connectedness (e.g. Heeks and Kanashiro 2009); or from an entrepreneurial perspective, for instance, promoting local services at a global level at low costs (e.g. Wresch and Fraser 2012); and from a governmental perspective, for instance, improving governance (e.g. Ojo et al. 2013).

Research has also shown that the impacts of digital inclusion do not depend solely on the project itself and the ICT being used. It is enhanced or constrained by people's capacities and their intentions, whether people find meaningful ways in which ICT can benefit their lives, and how these impacts are defined (van Dijk 2009, Toyama 2010, Busch 2011). This thesis will focus on whether digital inclusion enhances development, using the capability approach (CA) as a theoretical framework. This approach places the individual in the centre of the analysis, with her freedoms as the means and ends of development. It acknowledges the constraining impact social structures may have on her freedom, known as adaptive preferences, explained in section 1.3 (below). The CA has been criticised for not addressing how to overcome adaptive preferences, and for a lack of attention to power relations. For this reason, Freire's Pedagogy of the Oppressed will be used to complement the theoretical framework, as Freire has proposed a specific methodology to address this adaptation, called conscientisation, which also offers the CA a wider understanding of power relations and social change. This is introduced in section 1.4 (below).

Research using the CA has stated that "there is not a direct and causal relationship between ICT and development" (Gigler 2011, p.21), thus, digital inclusion also needs to be defined in terms of the individual. Individuals should evaluate whether they find using ICTs meaningful, based on their own self-chosen goals and their own ability to use ICTs to achieve those goals. This means that digital inclusion, in

order to be able to promote development, should go beyond simple inclusion and promote appropriation. Namely, while inclusion indicates integrating individuals into a predetermined space, appropriation recognises the individual as an agent who, in the case of ICT, will not only be able to operate the technologies, but will also be able to find ways to use them to solve her problems and/or achieve her goals, adjusting or changing the technologies as necessary (Overdijk and van Diggelen 2006, Cabral and Cabral 2010, van Dijk and van Deursen 2014). Accordingly, individuals will only be able to benefit from ICT if their choices are not constrained by adaptive preferences, as these limit what individuals expect from life.

If the multiple options and opportunities available through ICT use, in particular the Internet, are considered, people may require assistance to identify what are meaningful uses and to appropriate the technologies. According to Gigler, “an effective and local intermediary is required before ICT can have a positive contribution towards expanding the livelihoods of the poor” (2011, p11). However, according to him, what makes an intermediary ‘effective’ is not clear and research is still necessary. If the intermediary organisation plays such an important role for the individual to achieve development from ICT usage, then close attention to the process used to introduce these technologies is required. Considering digital inclusion programmes offer services to various groups of people or communities, the organisations operating the programmes can be considered intermediaries. Studying the role of these intermediaries may provide evidence to explain the gap in the literature mentioned above.

***How can digital inclusion intermediaries support a meaningful appropriation of the computer and the Internet?***

## **1.2 Introducing the case studies**

Digital inclusion or technological appropriation has been implemented in different ways by different intermediary organisations. Considering that the CA focuses on the individual’s freedom and Freire’s pedagogy focuses on conscientisation, two case studies were selected to compare their practices. The first, the *Comitê para Democratização da Informática*<sup>1</sup> – CDI (Committee for the Democratization of

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<sup>1</sup> Quotes from sources in Portuguese and Spanish, have been translated by the author.

Informatics), is a non-governmental organisation, which differentiates itself from other digital inclusion programmes because its aim is to promote social inclusion through a Freirean methodology. CDI adapted this methodology into their 'digital inclusion' practices, calling it a '*proposta político-pedagógica*' (PPP) (political-pedagogical proposal). The PPP is used in the classroom, promoting the use of ICT as tools to help the students solve their problems, instead of just learning how to use the technologies (CDI 2005b). In CDI's view, ICT are tools that can help students to achieve this freedom. This organisation embodied digital inclusion practices, aiming for development outcomes, but applying a Freirean approach. This combination made CDI a suitable first case study.

The selection of the second case study aimed to provide a parallel with which CDI's practices could be compared. The second organisation, *Jovem.com* – JC (Youth.com), is a programme from the *Secretaria Municipal de Cidadania, Assistência e Inclusão Social* – SMCAIS (Municipal Secretary for Citizenship, Assistance and Social Inclusion) of Campinas Municipality. Their more orthodox approach aims to promote "social inclusion and digital citizenship, by offering scholarships for young people aged 15 to 29 years old, [for a maximum of two years] who will receive educational training to be able to promote digital inclusion to communities of territories with great social vulnerability" (Jovem.com 2013). Distinct from CDI, JC's approach is not based on any particular theory and all their activities are guided by three strategic lines: (i) digital culture, (ii) citizenship and social development, and (iii) telecentre management. Both organisations will be further introduced in Chapter 3, and an overview of the context in which they are located, the city of Campinas in Brazil, will be explained in Chapter 4.

Fieldwork conducted with these two organisations lasted over 6 months, from January to July 2013. Participatory methods were used, when possible, to level the power relations between the individuals involved, in particular empowering the organisations to take ownership of the research. The organisations were considered partners and all the results were co-produced and shared with them. As a result, I organised 6 meetings and 7 workshops, attended 9 different activities organised by the two organisations, conducted 92 interviews, collected 65 questionnaires, gathered 45 participant observation notes and extensive field notes. The methodology, methods, and data collected are discussed in more detail in Chapter 3.

### 1.3 Defining development as freedom

Above, appropriation was defined as meaningful ICT use, having the individual, as an agent, define what meaningful means for her on her own terms and being able to use ICT accordingly. This approach is inspired by a famous heterodox approach to development, the Capability Approach. The CA, initially inspired by the work of Amartya Sen, 1998 Economic Nobel Laureate, and subsequently expanded by the work of academics in a diversity of areas, has been used as a conceptual framework in the creation of the Human Development Index (HDI) used by the United Nations Development Program (UNDP). Development<sup>2</sup>, in this approach, is “a process of expanding the real freedoms that people enjoy” (Sen 1999c, p.3). This is a general approach “that concentrates on the capabilities of people to do things - and the freedom to lead lives - that they have reason to value” (Sen 1999c, p.85). Freedom, namely the freedom to choose (*ibid.*), is seen as both an end and a means to development, considering in a “comprehensive and integrated manner ... the links between material, mental, spiritual and social well-being, or to the economic, social, political and cultural dimensions of life” (Robeyns 2003a, p.8).

To explain how to achieve the expansion of the individual’s real freedoms, the CA describes the diverse things a person may value doing, or being, as *functionings*. If the person is able to achieve these, it is said that she has the appropriate *capabilities* to do so (Sen 1999c). Additionally, the ability to pursue what the individual values, and has reason to value, is known as *agency* (*ibid.*). It is this ability that enables a person to act towards the achievement of her goals.

Deneulin and Shahani (2009) state, “the key idea of the capability approach is that social arrangements should aim to expand people’s capabilities – their freedom to promote or achieve what they value doing and being” (p.31). Placing human freedoms at the focus of the analysis represents a strength, as it forces researchers and/or practitioners, to look beyond ICT and consider what other factors might be enhancing or constraining the individual’s development, and how the ICT services, such as training courses offered, are or are not expanding her<sup>3</sup> freedoms during

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<sup>2</sup> The term ‘Development’ will henceforth be used from a CA perspective.

<sup>3</sup> In recent years, due to gender discussions, the choice between “he” and “she” while writing has gained attention. Feminist authors, including Sen and Freire, may be inclined to use “she” to support their pro-women views, and also, in development studies, “she” has been used as a way to clarify that gender issues are being considered. Accordingly, in this thesis “she” will be used to represent both genders. On the other hand, using “she” is simpler than using he/she or they, which will facilitate reading of the document.

digital inclusion programmes, i.e. whether the individual is able to appropriate the technologies in order to meaningfully use ICT.

In the analysis of ICT4D the use of the CA is not new but literature is still limited. Authors such as Johnstone (2007), Zheng and Walsham (2008), Kleine (2007; 2009; 2010; 2011b; 2013), Oosterlaken (2011) and Gigler (2004; 2011), among others, have applied the CA to study ICT4D initiatives. Their work will be further discussed in Chapter 2. This thesis, however, will limit the concepts applied to those which I have found most relevant to the analysis of digital inclusion programmes, one of which is choice.

The choice framework by Kleine (2007; 2009; 2010; 2011b; 2013) in particular defined a resource portfolio, electing to cover eleven resources - material, informational, natural, time, financial, educational, social, cultural, geographical, psychological and health - that may influence an individual's ability to choose.

***What resources do individuals need to meaningfully appropriate the computer and the Internet?***

Further, if appropriation is successful, it might be possible to see positive impacts on the resource portfolio. This thesis aims to contribute by further developing a methodology to trace changes in these resources over time, considering concrete ways to implement this methodology in a participatory manner with organisations in the field, and proposing a visualisation tool to reflect the changes as will be further explained in Chapter 3.

From a CA perspective, choice may be hindered by adaptive preferences. This concept refers to the adjustment and mental conditioning that an individual may suffer due to continued exposure to unsuitable living conditions. A person living in conditions of oppression and deprivation may become used to these conditions and accept them as normal, and this will unconsciously limit her desires for things she considers she might obtain, with disproportionate reactions of happiness to very small improvements in well-being (Johnstone 2007; Nussbaum 2000). So, if digital inclusion programmes aim to expand choices, the limiting effect of adaptive preferences has to be considered and addressed.

However, while one of the strengths of the CA is its wide informational basis, it can be argued that this also weakens the approach. Criticisms of the CA range from difficulties for its operationalisation (Corbridge 2002; Devereux 2001; Robeyns 2000; Sen 1999c); an absence of attention to power relations (Corbridge 2002; Robeyns 2000; Stewart and Deneulin 2002); an over reliance on the ability of human beings to make reasoned choices (Alkire 2007; Corbridge 2002; Giri 2000); and a lack of attention on how to overcome adaptive preferences and their constraining effects on the individual's development (Chan 2010; Evans 2002; Frediani 2010) (a full analysis is available in Chapter 2).

Various authors have called for a radicalisation of development practices, particularly with reference to the CA (Frediani 2010), in order to promote emancipatory social change (Belda et al. 2012) that enhances individual capabilities as well as "valuable structures of living together" (Stewart and Deneulin 2002, p.9). They call for a development that focuses both on the individual and on social structures. Stahl and Zheng (2011) proposed to integrate critical theory into the CA to bring about this change. Similarly, Frediani (2010) and Chan (2010) have proposed the integration of Freire's Pedagogy of the Oppressed - a critical pedagogy theory - into the CA to add the critical aspect. This thesis will contribute by offering an integration of critical pedagogy into the CA.

## **1.4 Defining freedom as a result of struggle**

Paulo Freire was a Brazilian educator who worked widely in the field of adult literacy and critical thinking and was mostly interested in "how to link education and citizenship building" (Gadotti and Torres 2009, p.1255). He believed that education could be liberating if the individual was allowed to have responsibility for herself, using critical thinking to analyse her own life, and consequently taking action to improve it. His book "Pedagogy of the Oppressed" (Freire 1970b, first published in Portuguese in 1969) was a result of his field experience as an adult literacy teacher, in which he also proposed an appropriate methodology to obtain the results he praised. This methodology is based on Problem-Posing Education (PPE), which motivates students to engage with real-life problems in order to teach them how to read and write. Freire (1970b) stated that people have to liberate themselves: they have to "fight for their own emancipation" (p.67).

The core of Freire's work is a process called '*conscientização*' (conscientisation). Conscientisation "represents the development of the awakening of critical awareness" (Freire 1974, p.15). In the 1960s, Freire argued that knowing how to read and write helped people to better understand the world in which they lived, and by doing so, they were 'awakened' from the state of oppression to which they had been submitted (Freire 1970b). Freire did not assume that the individual would spontaneously start a conscientisation by herself. As a pedagogue, Freire was a critic of the educational techniques used during the 1960s, calling them partly responsible for causing oppression, as he believed authorities were imparting adaptive rather than critical education (Gadotti and Torres 2009, p.1258-1259). To Freire (1970b), adaptive education follows a 'banking' process' in which students are seen as empty depositories that the teacher has to fill by adding information. This concept does not allow dialogue, because the student is subjected to the simple role of spectator. Therefore, to acquire conscientisation, Freire proposed the PPE as "an antithesis to banking education" (Mejía 2004, p.67). PPE is based on participatory consultations: first identifying topics that the community/students may find interesting and valuable, and second, building up a curriculum appropriate for the group.

Starting from the students' realities and common understandings, the problem-posing educator has to enter into a dialogue with the students, so that they are challenged to present valid arguments to support their ideas or else reformulate them. Students are required to participate and be co-responsible for the educational process, developing their critical thinking. By doing and reflecting on doing, also called dialogue by Freire, students will improve their level of consciousness. "In other words, the practice of critical teaching, implicit in a correct way of thinking, involves a dynamic and dialectical movement between 'doing' and 'reflecting on doing'" (Freire 1998, p.43).

***Is there a relationship between conscientisation and  
meaningfully appropriating the computer and the Internet?***

Freire believed in education as a liberation process, not just in a pedagogical sense, but as a strategy to obtain "radical changes in society in such areas as economics, human relations, property, the right to employment, to land, to education, and to health, and to the reactionary position whose aim is to immobili[s]e history and maintain an unjust socio-economic and cultural order" (Freire 1998, p.99). This mobilisation responds to the belief that those in power will

not give up their position willingly (Freire 1970), so action is required, and it may manifest itself as collective action. This is particularly relevant for this thesis, because two different digital inclusion programs - CDI and JC - will be compared, exploring whether individuals experiencing Freire's methodology do or do not gain greater freedom - in terms of their freedom to make real choices - than do those who do not experience this methodology, and, if they do, what mechanisms are used to achieve this freedom.

***Is there a relationship between meaningfully appropriating the computer and the internet and promoting social transformation?***

In other words, "one of the primary goals of conscientisation is social transformation" (Chan 2010, p.40), where freedom "is actually a necessary aspect of being fully human" (Glass 2001, p.19). Indeed, both for the CA and the Pedagogy of the Oppressed, freedom is fundamental for human flourishing (Glass 2001, p.16). For Sen, "expansion of freedom is [...] the primary end and [...] the principal means of development" (1999c, p.xii), while for Freire, freedom is an indispensable "requirement of our human condition" (1998, p.55).

## **1.5 Sen's and Freire's approaches applied in digital inclusion**

Freire's concepts coincide in numerous ways with the CA. Individuals' ability to act freely, particular their agency-freedom, may be hindered by a view of the world that has been distorted by oppressive social structures. Sen conceptualises this issue as adaptive preference, which for Freire is internalised oppression, characterised by different levels of consciousness - semi-intransitive, naïve or fanaticised consciousness (see Chapter 2). While both authors acknowledge the detrimental impact of this distorted view on the individual's development, only Freire offers a methodology - problem-posing education (PPE) - to indicate how to promote this 'awakening' of the consciousness. Freire's ideas offer an interesting view of how to address adaptive preferences, align individuals' motivations/goals and choices, and increase individuals' agency.

So this research aims, first, to explore whether a Freirean approach to digital inclusion is better at promoting meaningful appropriation of ICT than other traditional approaches, identifying which resources the individual requires for such an

appropriation. Second, it aims conceptually to link the CA and Freire's Pedagogy of the Oppressed and to further develop tools to operationalise the CA, as a way to address some of the CA's criticisms, including how to overcome adaptive preferences and a wider understanding of power relations and social change.

## **1.6 Research questions**

Grounded in the overall research aims mentioned in the previous section, the research questions for this thesis are as follow:

Research question 1 (RQ1):

***How can digital inclusion intermediaries support a meaningful appropriation of the computer and the Internet?***

Research question 2 (RQ2):

***What resources do individuals need to meaningfully appropriate the computer and the Internet?***

Research question 3 (RQ3):

***Is there a relationship between conscientisation and meaningfully appropriating the computer and the Internet?***

Research question 4 (RQ4):

***Is there a relationship between meaningfully appropriating the computer and the internet and promoting social transformation?***

## **1.7 Thesis structure**

This thesis uses the CA to define development, introducing Freire's 'Pedagogy of the Oppressed' concepts to address some of the shortcomings for which the CA has been criticised. While the previous sections have briefly introduced both theories,

Chapter 2, Freedom, 'Conscientisation and ICT', will explore the literature further, critically evaluating their advantages and disadvantages, and propose how Freire's theories can be integrated into the CA. This is followed by Chapter 3, 'Freedom and Digital Inclusion', which explores the potential benefits of using the CA and the Pedagogy of the Oppressed for the study of digital inclusion programmes.

Chapter 4, 'Fieldwork and data collection', introduces both case studies and explains in detail how the data was collected during fieldwork and how it was analysed. Chapter 5, 'Brazil and Campinas', provides background information to the reader about Brazil and the city of Campinas, where both case studies were located. Information about economic growth, current inequalities, development initiatives and particularities of the ICT sector are introduced, keeping in mind the CA and the Pedagogy of the Oppressed.

Chapters 6, 7 and 8 are analysis chapters, presenting results from the fieldwork. Chapter 6, 'Motives, goals and constraints', examines the complex relationship between agency and social structure, exploring how the particular conditions experienced by participants in this research influenced their motivations and goals. Keeping the CA in mind, which sees an individual's freedom as the focus of the study, this chapter aims to understand the individual prior to the digital inclusion intervention, which will provide a baseline for Chapter 7. This chapter, 'Implementing Conscientisation', reflects on data collected from the practices of both intermediaries. The CA and Freire's pedagogy are used to examine how the different implementation strategies impacted on those involved, also identifying the limitations of these strategies. Subsequently, Chapter 8, 'Expanding freedoms: choice, agency and reason', explores any impacts on the individual's freedoms which may be attributable to the digital inclusion courses. It also explores whether these changes, if any, have been translated into actions towards social structural change as a way to improve the agency of each individual to become agents of change for their own benefit, and the benefit of their communities, as expressed by Freire's Pedagogy of the Oppressed.

Finally, Chapter 9, 'Conclusions', reflects on the empirical findings and the theoretical framework, situating both within the literatures of digital inclusion and operationalisation of the CA. It also suggests some theoretical, methodological and empirical contributions of this thesis, and closes by reflecting on recommendations for future research.

# **Chapter 2 Freedom, conscientisation and ICT**

## **2.1 Introduction**

The Capability Approach (CA) and the Pedagogy of the Oppressed each provide elements relevant to the analysis of development projects, such as the digital inclusion programmes that will be investigated as case studies of this thesis. While Chapter 1 briefly introduced Sen's and Freire's ideas, this Chapter, on the one hand, presents each of the theories in greater depth, and discusses strengths and weaknesses; and, on the other hand, proposes how these may be combined in order to address some of the shortcomings identified in the CA. In particular, considering both the CA and the Pedagogy of the Oppressed use terms that may have different dictionary definitions, this Chapter will examine the terms significant to this thesis, to provide the reader with an understanding of these two approaches. Also, literature from a variety of fields – development studies, human geography, information systems and pedagogy, to mention the most important ones - will be presented, as these have also been used to enrich the theoretical concepts used in this thesis. This analysis will serve as an introduction to Chapter 3, where it will be explained how the theoretical concepts proposed benefit the understanding of digital inclusion.

## **2.2 Expanding freedom: the capability approach**

The CA was presented as an alternative to other social ethics and justice theories like utilitarianism, libertarianism and Rawlsian theory of justice, learning from their advantages and trying to overcome their difficulties. As described by Robeyns (2003a), Sen argued against these theories because they limited their informational basis by focusing exclusively on utilities, happiness or rights accordingly, rather than on the individual as a whole, considering, for instance, her interpersonal differences, adaptive preferences or context, as will be explained below. The CA was also introduced as an alternative way of understanding development as distinct from economic growth. Although Sen did acknowledge the usefulness of economic growth for “enhancing human lives and freedoms”, he called for special attention to how growth “depends on the advancement of human capabilities (through education, health care and other facilities)” (Drèze and Sen 2013, p.38-39).

The freedom-based perspective of the CA has both advantages and disadvantages. Sen (1999c) himself has recognised that the CA exhibits some challenges, since for “many practical problems, the possibility of using an explicitly freedom-based approach may be relatively limited” (p.86). It is Johnstone’s (2007) view that “many of the difficulties are probably symptoms of the relatively early stage of development rather than being fatal flaws, but they do point to the need for further work” (p.85), which is the effort of several academics including the work of members of the Human Development and Capability Association (HDCA 2012).

This section will identify the relevant CA strengths for this research, and will name the critiques and challenges that the approach faces, in order to then propose alternatives to overcome them in section 2.4.

### **2.2.1 The individual: reason and choice**

The CA is built upon what the individual values and has reason to value. Values may change over time, or, when goals have been achieved (called *achieved functionings* in the CA), these might be replaced by others. Therefore, development is seen as a process of endlessly improving the individual’s freedom. Individuals are able to identify their values because, according to Sen (1995), individuals are reasoning human beings that engage in a process of reasoned social choice with themselves and with others. Sen’s work on reasoning and social choice relates to social choice theory and focuses mainly on a systematic approach to rational decision-making for collective agreements and public choice in relation to public policy-making (Corbridge 2002; 1999a; Sen 1995). Both individual choices and collective choices are understood to result from a reasoned process that aims at both the individual maximisation of outcomes and the satisfaction of all those involved (Sen 1995).

Having human freedoms at the centre of the analysis is particularly important for the study of digital inclusion as it focuses on the individual rather than on the technology, a mistake that has occurred repeatedly in ICT4D practices (Zheng and Walsham 2008; Kleine 2013; Toyama 2015). In the case of digital inclusion, this shift of focus away from the technology itself means that, in order for the individual to improve her development, what she values being or doing needs to be addressed. This may be related to acquisition of digital skills or to achieving something that can be enabled by

using the computer or the internet. For instance, as will be presented in Chapter 8, various participants attend digital inclusion programmes to improve their CVs, but others engage in the programme to improve their self-esteem, as not knowing how to use the computer makes them feel out-dated and socially excluded.

Putting human freedom at the centre of the analysis has been considered the fundamental strength of the CA as a way to have “clarity of the objective” of development (Alkire 2005, p.117). It has also been criticised for overly relying on the capacity of human beings to make reasoned choices, and for being individualistic. Regarding the first, Giri (2000) argues that Sen “takes the self for granted and thinks that the task of creating a good society is primarily a task of collective action at the level of state and society” (p.1004). As Alkire (2007) argues, the CA views individuals “as agents who have diverse valued goals and commitments on behalf both of themselves and of their society, and who contribute to public discussions about social goals” (p.125) without acknowledging the possibility of there being individuals who are not committed to their society and/or not willing to contribute to public discussions, neither does it offer an alternative to these scenarios. In this respect, Freire’s Pedagogy of the Oppressed offers an explanation for individuals’ political apathy and offers a process for “awakening” citizens to participate in public discussion and collective action, as will be explained in section 2.3.

While Sen’s CA does not explore the reasons behind individuals’ choices, the CA scholar Kleine (2010; 2011b; 2013), has studied the choice process. Drawing on fieldwork conducted in Chile and Brazil, among others, Kleine’s (2010) four dimensions of choice, based on Alsop and Heinsohn’s (2005) degrees of empowerment and her own experience studying ICT4D (Kleine 2007; 2009; 2010; 2011b; 2013), provide an insight on choice that may show where the individual is experiencing difficulty in achieving meaningful ICT usage. The dimensions are: *existence of choice* which refers to all the options available to the individual, and that “are, in principle, attainable for the individual if the combination of their resource portfolio and the social structures allow it” (Kleine 2010, p.679); *sense of choice* which denotes the ideas an individual may have about a technology she does not know, for which “they have to imagine use/non-use” (*ibid.* p.680); *use of choice* describes “whether or not an individual actually makes the choice” (*ibid.* p.680); and; *achievement of choice* “refers to whether the outcome matches the choice expressed” (*ibid.* p.680). Improving each dimension of choice, is understood by Kleine (2010), as an improvement in the individual’s ability to choose, and, therefore, their agency.

Accordingly, considering the internet has been called the “medium of choice par excellence” (Norris 2001, p.24) because it enables the user access to a vast amount of information, then exploring the different dimensions in the individual’s choices when using the internet may help to understand her decision-making process, and consequently how the choices made reflect and affect her life (Kleine 2010). Conversely, if her ability to choose is impaired, for example if her sense of choice about the internet is mistaken, it shows that the individual has a lack of agency and/or that she has been constrained by adaptive preferences (Frediani 2010), a concept that will be explained in the next section.

A further critique sees the CA as being too individualistic (Devereux 2001). In this regard, Robeyns (2000) mentions that this critique is based on the assumption that the CA fits with methodological and ontological individualism which “states that only individuals and their properties exist, and that all social entities and properties can be identified by reducing them to individuals and their properties” (p.17). Robeyns (2000) affirms that the CA responds to an ethical individualism, which “makes a claim about who or what should count in our evaluative exercises and decisions. It postulates that individuals, and only individuals, are the units of moral concern” (p.16). Keeping this in mind allows the CA to acknowledge how unique each individual is, both in how each one has adapted to the environment that they live in, and also how each individual is different from others – i.e. acknowledging the uniqueness of each participant of the digital inclusion programme, as will be explored in the following two sections.

### **2.2.2 Human diversity and adaptive preferences**

One of the merits of the CA is its careful attention to distribution within a social group, and the need for an approach that will not only focus on happiness, as utilitarians do, as discussed above, but also provide every human being with a good quality of life, even if, due to adaptive preferences, they do not perceive their own scarcities. Distribution, from a CA perspective, considers individuals’ uniqueness, as “the assumption [that having the] the same choice behaviour and same demand function ... provide no reason to expect the same utility function” (Sen 1999c, p.69).

This would be the case in a digital inclusion programme, for instance, where, of two people, one has a lesser schooling level that may limit her capacity to read fluently.

Even if both choose to attend the same course (choice) to improve their CVs (functioning) and have the help of the same teacher, every time some reading is required, the less able person may need more time to achieve the same functioning than the other. In the case of two individuals aiming for similar functionings, if their interpersonal differences affect their achieved functionings, to support them to achieve similar functionings, distribution needs to focus on equity, rather than equality. Regarding the example above, having equality of access to ICT or even to ICT skills training, will not necessarily guarantee that the students achieve similar functionings, as each individual may require different support from the teacher, for example different amounts of time to finish a task, among other things. This is quite important for this research (relating to RQ1), as the intermediary, in this example the teacher, needs to pay close attention to each of the students' own characteristics and needs.

Attention to distribution is a common concern shared by capability theorists and redistributionalists, such as John Rawls. It is also a common critique of utilitarianism expressed by these theorists (Johnstone 2007). Rawls' Theory of Justice is based in what he calls 'Justice as Fairness', and is built on two justice principles. The first, the liberty principle, states that "each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all" (Rawls 1973, p.53). The second, the difference principle, declares that "social and economic inequalities are to be arranged so that they are both: (a) to the greatest benefit of the least advantaged, consistent with the just savings principle, and (b) attached to offices and positions open to all under conditions of fair equality of opportunity" (*ibid.* p.53). Based on these principles, this theory establishes a list of social primary goods, such as liberty, opportunity, income, and wealth, among others, which have to be equally distributed, paying special attention to the most deprived. Its objective is that by achieving equality in the distribution of primary goods or resources, society may become fairer.

However, Sen (1999c) states that although Rawls' theory gives high priority to liberty and considers distribution as a way of justice, it overemphasises on resources, failing to consider conditions such as social exclusion or health, that cannot be reduced to material resources. Crucially, individuals' interpersonal characteristics influence their achieved functionings, even if all start with the same set of resources. For this reason, the CA tries to integrate "Rawlsian theory's focus on individual liberty and on the resources needed for substantive freedoms" (Sen

1999c, p.86), by changing the focus to human capabilities. Sen (1990) mentions that even though a Rawlsian understanding of primary goods is valuable, these are only “means to freedoms, whereas capabilities are expressions of freedoms themselves” (p.48). This characteristic of the CA values liberty and allows a deeper evaluation of problems like poverty and inequality, considering the diversity of each individual both with non-financial and non-material elements (Robeyns 2000, p.7). In the case of studying digital inclusion programmes, individuals’ motivations and aspirations, time available to learn and practice, and confidence in their own skills may be as important to consider as access to the computer and the Internet.

Indeed, attention to diversity also implies acknowledging how each individual has been influenced by the context where she lives, in particular, how she has adapted to her personal circumstances. Adaptive preference, as indicated in Chapter 1, is one of the relevant concepts of the CA for this thesis. Adaptation, per se, is a natural human characteristic. According to Steward and Deneulin (2002), “no-one is truly autonomous, independent of the influences of the society in which they live” (p.7). Individuals’ understanding of the world is the result of all the exchanges they had had with their surroundings since birth. If raised in a wealthy environment, a person may adjust to certain living standards (Clark 2009a), which, as stated by Spring (2011), may cause the person to be unhappy for reasons different to a lack of resources. Similarly, if the individual learned to evaluate her own life satisfaction by comparing herself to others, she may adapt her preferences to measuring her happiness by the gap with others, for example by establishing clear economic differences between her and her employees, constraining the latter to unjust and low salaries (Corbridge 2002). In the case of individuals living in constraining environments, adaptation may occur as a coping mechanism to help them experience brief moments of relief, since, as indicated by Teschl and Comim (2005), they may lower their expectations of life to experience less disappointment, therefore suffering less.

What differentiates adaptation from the CA’s term adaptive preference, is that the latter refers to the negative impact that adapting their preferences may cause to the individual’s freedom (Nussbaum 2000; Sen 1999c). On this matter, Sen (1999c) says: “The deprived people tend to come to terms with their deprivation because of the sheer necessity of survival, and they may, as a result, lack the courage to demand any radical change, and may even adjust their desires and expectations to what they unambiguously see as feasible” (p.63). According to Nussbaum (2000),

“habit, fear, low expectations, and unjust background conditions deform people’s choices and even their wishes for their own lives” (p.114). Thus, Sen (1992a; 2003) and Nussbaum (2000) have found this term useful to analyse individuals that have adapted their preferences due to constraining cultural traditions, as these traditions may help reinforce their adaptive preferences, making them behave in ways that may hinder their own well-being, while still reporting feeling happy.

Adaptive preference is a term that is considered both a merit and a shortcoming of the CA. On one hand, acknowledging the negative impact adaptation may have on the individual’s freedom, solicits looking beyond what the individual reports about her own happiness or well-being, as these may be the result of her adaptive preferences. In reference to digital inclusion programmes, taking adaptive preferences into consideration urges us to consider that what the students are expressing as their motivations for attending the course, and what they prefer to learn, may be affected or constrained by their adaptive preferences. Rejection or fear towards ICT may also reflect adaptive preferences. For instance, older adults may resist learning how to use new technologies due to a belief that these are only for young people, or due to their lack of skills, among other reasons, as will be discussed in Chapter 8. The CA becomes particularly useful in these situations, as acknowledging the presence of adaptive preferences encourages the analysis of the individual’s choices and the reasons for those choices.

On the other hand, adaptive preference is a term considered not well developed and somehow detrimental to the CA. Various authors argue that considering adaptive preferences as defined by Sen, leaves the CA unprepared to understand how different social structures as well as each individual’s culture may influence preferences, and how social interventions may address this challenge to be able to support individuals’ development (Chan 2010; Evans 2002; Giri 2000). For instance, regarding social structures, Evans (2002) has investigated the role of advertising on preferences. This author argues that power relations need to be considered to conceptualise the adaptive preference problem successfully. In particular, he studies the role of media organisations and the harmful impact these may have on what people have reason to value, especially when controlled by powerful organisations (Evans 2002). Moreover, authors have stated that Sen’s term conflicts with how individuals may determine what capabilities they value and have reason to value (Bifulco 2012; Burchardt 2009). To this respect, Deneulin and McGregor (2010) explain:

“the capability approach rests on the notion of reasoning, but reasoning depends upon the meanings that we share and that are constructed through our relationships in society. What we each understand to be valuable freedoms is dependent upon shared meanings and what we are prepared to agree upon in social collectives in order to live well together. However, Sen’s writings never acknowledge explicitly how the inevitable conflicts that arise from people’s different conceptions of wellbeing are ultimately to be resolved. His faith in human reasoning is unshakeable” (p.512-513).

If capabilities reflect what people value and have reason to value, but people lack reason due to adaptive preferences, then how are we to determine what capabilities are necessary to improve the individual’s development? As indicated above, Sen does not address this issue in his work, but various authors have expanded on this work using integrated concepts such as culture or autonomy to offer alternatives to this issue. For example, Clark (2003; 2009a; 2012; 2009b) argues that adaptation can occur not just from continued exposure to constraining circumstances, but also due to social conditioning, cultural and religious indoctrination, or from a lack of “necessary education, knowledge and experience to harbour grand desires and make rational choices” (Clark 2009a, p.25). Accordingly, this adaptation is reflected not only on individuals’ preferences, but also on their values, their ideas of what is a good life, their desires, aspirations and goals (Clark 2003). Appadurai (1981; 2004; 2013) has dedicated his work to understand how culture impacts on an individual’s aspirations, wants, preferences and choices. For Appadurai (2013), “culture is a dialogue between aspirations and sedimented traditions” (p.195), where “ideas of the future, as much as of those about the past, are embedded and nurtured” (p.179). Individuals’ understanding of the world and how they reflect this understanding in preferences about the present moment or aspirations about their future is then the result of a social constructed process. These aspirations and preferences are consequently not static, but dynamic, adjusting themselves to the contextual elements and the experiences individuals have (Conradie and Robeyns 2013a). Individuals, even those in the most constraining situations, rely on their available resources and capabilities, and are guided by their culture to ‘reason’ what they value and have ‘reason’ to value. Explicitly, these individuals do not lack reasoning ability, but their reasoning may not have sufficient resources or capabilities, or might be constrained by their culture (Clark 2009a; Deneulin and McGregor 2010; Ibrahim 2011).

Appadurai (2004) explains that the restricted exposure that poor individuals have to social, political and economic experiences limits their knowledge of cultural issues in

terms of ideologies, doctrines, abstract norms and beliefs. This in turn means poor individuals are less “conscious of the links between the more and less immediate objects of aspirations” (Appadurai 2004, p.68). Accordingly, aspirations from the poor reflect these limitations, expressing their aspirations in concrete objects or resources, such as housing or employment, rather than in more abstract terms (Clark 2003; Clark 2009a; Ibrahim 2011). Appadurai (2004) indicates that, “the capacity to aspire, conceived as a cultural capacity, especially among the poor”, may provide individuals with “the resources required to contest and alter the conditions of their own poverty” (p.59). It is by considering the individuals’ capacity to aspire, that constraining cultural norms may be revealed and addressed. For example, Conradie and Robeyns (2013a) argue that “thinking about, talking about, and reflecting upon aspirations, especially when this is part of a group process that creates a supportive and encouraging atmosphere, motivates people to use their latent agency to make changes in their lives, which will expand their capabilities. This would particularly apply when the reflection is linked to action” (p.565). In sum, the effect culture has on individuals may be clearly visualised through their capacity to aspire. This revelation can, on the one hand, help distinguish which constraining social structures affect the individuals’ adaptive preferences, and, on the other hand, be used to reflect and act upon to motivate individuals to use their latent agency towards improving their own lives. This action will indeed improve individuals’ adaptive preferences, but relies on existing agency, and will not aid those lacking agency (Conradie and Robeyns 2013a).

Another perspective to study how to overcome adaptive preferences is provided by Khader (2009; 2011; 2013; 2012). This author argues that postcolonial feminism aids the analysis of adaptive preferences, because it allows a reinterpretation of this term considering the agency of individuals. This consideration aims to avoid misrepresenting oppressed people as helpless, justifying paternalism (Khader 2012). Conversely, this author defines adaptive preferences as “preferences persons did not choose to have, that is, preferences that are procedurally non-autonomous (p.169). [Where] autonomy is the capacity to be the source of one’s actions” (Khader 2009, p.171). By developing this definition, Khader argues that the improvement of people’s autonomy will decrease the constraining effect of adaptive preferences. Consequently, inspired on Paulo Freire, this author indicates that “empowering beneficiaries is not about making them prefer certain things, it is about increasing their capacity to form authentic preferences [...] and giving them a capacity to choose that they previously lacked” (Khader 2009, p.172). This

empowerment, seen as an increase in the individual's consciousness, is the same approach that has been taken in this thesis. Namely, if development is related to what the individual values and has reason to value, digital inclusion programmes have to take these values into consideration. However, if these values have been affected by adaptive preferences, the CA does not provide a way to approach this challenge. In particular, the CA does not tell us what teachers can do to overcome adaptive preferences in order to be able to promote their students' freedom. To address this, Freire's ideas have been incorporated, first as a useful source in understanding adaptive preferences, second, to appreciate their impact on the individual's reasoning process, and finally to provide a procedure to 'awaken' the individual through conscientisation, as will be explained in section 2.3.

### **2.2.3 Social structure and agency**

Human diversity relates not just to individuals' interpersonal differences, but also, as Sen (1992b) comments, it refers to the different social structures of the society where each individual belongs. Consequently, what a person accomplishes (achieved functionings) is the result of the interplay of her interpersonal differences, her capabilities and agency (by which her portfolio of resources is implied) and the social structure, all-unique to each individual. Considering context as part of the study of well-being is one of the strengths of the CA. As Corbridge (2002) explains, "none of us are the sole authors of our fortunes or misfortunes. We are largely the accidental products of history and geography" (p.187). Two equally responsible and hardworking individuals may have very different outcomes depending where they live, which could also be a consequence of where they were born, a circumstance over which they had no control.

Particularly for development practices, including the ICT4D field, considering human diversity and context encourages bottom up approaches, where projects are tailored to each circumstance. Accordingly, projects using a 'one model fits all' idea may be expected to fail, as these ventures are likely to have different results in different contexts. For instance, the One Laptop per Child project created affordable laptops containing educational content and intended to improve developing countries' education by selling and distributing these laptops to interested governments. However, lessons from this project encourage practitioners and researchers to have a deep understanding of the environment where the project will take place (Kraemer

et al. 2009). This project was designed in a top-down manner as a unique global initiative that had to be adapted upon implementation. This has caused each country to have very different results, which can be explained if human diversity is considered, as each individual is influenced by the context of her surroundings, impacting on how she uses ICT. Thus, ICT4D projects need to be customisable (Kleine 2010) and some would say co-designed with the specific individuals or communities (Oosterlaken and Hoven 2012).

Even as the importance of structure for Sen can be seen in specific studies, for instance when he approaches issues about gender inequalities (Drèze and Sen 2013; Sen 1992b; 1999c), Sen's CA did not fully develop an analysis of social structures. According to Giddens (1984), agency and social structures have a mutual effect on each other, structure is both medium and outcome of social activity and exists insofar as it continually produces and reproduces via this duality. Layder (1994) explains this duality as an internal flow that consists both of action and structure: "social production has to do with the way in which social life is produced (or created) by people as they engage in the social practices which are the substance of their lives and social experiences" (p.132).

The agency aspect is very present in the CA. For Sen, the individual is an agent, who needs to engage in a "careful assessment of aims, objectives, allegiances, [... that] must enter the moral accounting by others not only as people whose well-being demands concern, but also as people whose responsible agency must be recognised" (Sen 1985, p.204). As an agent, the individual must make public her understanding and beliefs about her deprivations (Sen 1999c), to feed public policy or other social initiatives, to be directed to what she values and has reason to value. That is, the individual has to take responsibility for her own development by exercising her agency; raising her voice to complain about her situation to the authorities, through, for example, any communication medium, the government's opposition parties or civil society institutions, or, even better, organising the local community to solve the problem.

For the CA, the individual's freedom comprises well-being freedom and agency freedom (Deneulin and Shahani 2009; Frediani 2010; Robeyns 2005a; Sen 1985; 1999c). For Frediani (2010), "well-being freedom is concerned with objectives that a person values for his/her well-being. Agency is concerned with the individual's freedom to choose and bring about the things that he/she values" (p.176). When the

functionings pursued by the individual are related to aspects of her well-being, she is using her well-being freedom, and if these are achieved, it is said that the individual has achieved well-being. Sen (1999c) points out that the “*intrinsic* importance of human freedom as the pre-eminent objective of development has to be distinguished from the *instrumental* effectiveness of freedom of different kinds to promote human freedom” (p.37). Well-being freedom may be very important, especially from an instrumental perspective, because it is guaranteeing the individual’s quality of life. But, as stated by Sen, freedom in itself is something the individual has reason to value, and there are situations in which she may pursue values which will negatively affect her well-being. If an individual follows one of these values, she is enacting her agency freedom, and if she fulfils it, it is called agency achievement (Robeyns 2003b). This is particularly important because “motivation and aspiration are of equal importance to subjective well-being” (Teschl and Comim 2005, p.240).

For Kleine (2013), agency allows individuals to navigate the social structure, while agency “in turn is linked to their resource portfolio” (p.49). Because the CA focuses both on doings and beings of the individual, resources are much more than commodities or services, and these are not valued “for their own sake, but always for some other reason, some type of activity or state that they enable us to achieve” (Johnstone 2007, p.75). For this reason, Kleine (2013, p.46-48) defined a resource portfolio, which covers eleven resources that may influence the individual’s capabilities:

- *Material resources*: These resources sum up the material objects owned, including machinery and other equipment. They are also essential inputs in production processes.
- *Financial resources*: These stand for financial capital in all its forms (cash, savings, shares etc.). The ability to obtain credit is a combination of the structural character of the formal and informal lending rules and individual collateral.
- *Natural resources*: This includes issues such as climatic and geomorphological conditions in a locality, along with related aspects such as soil quality, naturally available resources and access to water as well as the attractiveness or specific features of the surrounding natural environment.
- *Geographical resources*: This covers the practical implications of location, along with relative distance and proximity, which is of varying significance depending on the transport and communication infrastructure available. It also includes the intangible psychosocial qualities of a location. [...]
- *Human Resources*: [...] this term needs to be disaggregated into *health* and education and skills (*educational resources*). Within Sen’s paradigm of development, good health is

a prerequisite for much of a person's ability to choose and realise the life they have reason to value. Educational resources represent education and skills acquired through formal and informal means.

- *Psychological resources*: Alsop and Heinsohn (2005, 8) recogni[s]e the significance of “psychological assets”, and as an example, offer the “capacity to envision”. More broadly, psychological resources may include self-confidence, tenacity, optimism, creativity and resilience. In addition, many people draw spiritual strength from a variety of sources. Religious and other beliefs stand in complex interrelation with psychological resources; depending on their specific narratives about agency, they can strengthen or weaken an individual's psychological resources. [...]
- *Informational resources*: Alsop and Heinsohn list informational assets as a key resource. Heeks (1999) calls for putting information at the centre of analysis of ICT and Development, and Gigler (2004), adds “informational capital” to the capital portfolio. Access to information is the first step to knowledge acquisition, the process of filtering and transforming information into meaningful knowledge.
- *Time*: What is crucial here is not the absolute time an individual has but rather the combination of time and the degree of control they have over it. For example, employers, dominant household members, or medical or institutional routines might control a person's time. Self-controlled time, or the use of time that has been sanctioned by such dominant forces, is a vital resource that forms the base for using other resources and realising individual agency.
- *Cultural resources*: “Cultural capital” – which in the choice framework is called cultural resources – exists, according to Pierre Bourdieu (1986), in three states: an embodied state (the “habitus” a particular person lives in); an objectified state (objects like paintings, instruments and monuments that only the initiated can use or appreciate); and an institutionalised state (prestige attached to, for example, academic titles or leadership roles). While Bourdieu considers cultural capital in relation to class in Western Europe, this concept can be applied to status considerations based in cultures that are not necessarily dominant in a particular society – say, indigenous cultures.
- *Social resources*: [...] For the choice framework, the definition of social capital supplied by Bourdieu (1986, p.249) is used:

*The aggregate of the actual and potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a “credential” which entitles them to credit, in the various senses of the word.*

Membership of these groups can be defined by, for example, kinship, friendship, shared ethnicity, class, or informal commonality ties.

It is the way the individual, with her agency based on her portfolio of resources, navigates the social structure in which she lives, that will influence her freedom to achieve what she values and has reason to value. Changes in her portfolio of resources will accordingly impact her agency and her capabilities. Thus, if digital

inclusion is considered, it could be argued that attention to the individual's portfolio of resources may provide a way to accompany changes in the individual's agency over time, which is related to RQ2.

However, having an individual enact her agency does not necessarily mean positive outcomes. As Hoggett (2001) states, not all agency is good. As agency is the capacity to act, agency will also be required to produce or reproduce inequalities. For example, Sen and Drèze (Drèze and Sen 2002; Sen 1992a; 2003) have identified that increases in mothers' agency has increased sex-specific abortion, meaning in this case that more agency only gave women a different venue to reproduce negative cultural preferences. Drèze and Sen (2002) argue that what is needed is the "freedom and power to question and reassess the prevailing norms and values. The pivotal issue is critical-agency" (p.258). Yet, neither Sen nor Drèze, have developed this concept further, stating what critical-agency is or what is needed to achieve it. To this date, only one project has focused on filling this gap, the PhD research of Tony Roberts (2015). This author explains that critical-agency provides individuals with the ability to critically assess, and where necessary reject, existing constraining norms and values. As Roberts' research has been on-going in parallel to this thesis, the concept of agency in this research will be not be unpacked as critical or non-critical, as the findings and conclusions from Roberts' (2015) work have arrived too late in the process. This will be an interesting add-on in future research.

Returning to the relationship between agency and structure, for Sen, structure, represented by a democratic government, in the form of social arrangements, will strengthen and safeguard an individual's human capabilities. The greater the individual's freedoms and capabilities, the greater her ability to act and be responsible for her own development (Sen 1999c) she will become. Accordingly, if the individual lacks capabilities, according to Sen, the role of governments and other social institutions is to start the process of enhancing peoples' responsibility for their own lives, for instance by providing free digital skills training, as offered by the digital inclusion programmes studied in this research.

Unfortunately, "Sen's concept of democracy seems an idealistic one, where political power, political economy and struggle are absent" (Stewart and Deneulin 2002, p.4). Johnstone (2007) mentions the "capability literature can appear to assume goodwill unproblematically on the part of the powerful, and seems to have little to say about

their obligations or about how oppression of others might be seen as, in some sense, a capability lack in its own right” (p.85). An individual in a condition of power may not willingly agree to cede this power in favour of others, especially if power is understood as ‘power over’ or a zero sum game. Indeed, if these individuals are within governmental institutions, even if they do foster development, it could be argued they may also find ways to retain their power, regardless of them working within a democratic institution. Corbridge (2002) argues that Sen’s faith in democracy does not allow him to acknowledge successes that authoritarian regimes have had in terms of human development, and consequently does not pay enough attention to cultural or political issues that may be limiting development in democracies (p.196-197). Moreover, Chan (2010) argues that “barriers to freedom can be deeply internalised, and become part of the psyche of an entire community or culture” (p.32), which will limit the ability of any social policies and structures to be effective in addressing oppressive power relations, which agrees with Clark’s (2003; 2009) understanding of adaptive preferences as resulting from manipulation or social conditionings. Thus, reliance on good public institutions and increasingly responsible citizens appears to be unachievable if constraining power structures are not addressed, as “development also involves concerted struggles against the powers of vested interest, at all spatial scales” (Corbridge 2002, p.209).

Considering development from a CA perspective, digital inclusion programmes aiming to foster development for their participants, should focus on helping the individual to achieve what she values and has reason to value. If a training program is only training individuals to be able to work in a particular way for the interest of a company, the labour market or the country’s overall economic growth, the training is more concerned with the company’s, market’s or government’s values than with the individual’s. In this case, Freire’s Pedagogy of the Oppressed provides a framework to study power relations within digital inclusion programmes – i.e. the two case studies, CDI and JC, and their participants – i.e. the students.

Sen (1985) did talk about power, but referred to it as the freedom “to achieve chosen results” (p.208), which only refers to power from the individual’s perspective. For this reason, other concepts of power have to be considered for this thesis. Power is a concept that is usually understood in terms of having power over someone else. Steven Lukes (2007), argues that power can also “consist in the securing of consent to dominant power relations through the shaping of desires and beliefs ...[in which] the processes and mechanisms involved need no longer be intentional and active”

(p.60). Feminist scholars, such as Miller (1992) and Rowlands (1997), prefer to expand the concept of power to more than domination. For Miller, power is “the capacity to produce a change — that is, to move anything from point A or state A to point B or state B” (Miller 1992, 241). Rowlands (1997), on the other hand, segments power in four interrelated categories: *power over* others, who may respond willingly or with resistance; *power to* generate or produce, similar to Miller’s definition; *power with* others, where groups act together to achieve a common goal; and *power from within*, referring to the power the individual has in herself.

Disaggregating power in this manner helps to identify if the complexity of power is present or not in the CA. Evans (2002) mentions that Sen’s “analysis focuses on individuals and their relation to an overall social context, not on collectivities as the necessary link between the two” (p.56). This lack of attention to collectives has left Sen “poorly equipped to deal with questions of entrenched power and the politics of conflict or social mobilis[ation]” (Corbridge 2002, p.203). Various CA scholars have studied collectivities within a CA perspective (Evans 2002; Ibrahim 2006; Kabeer and Sulaiman 2015). For instance, Ibrahim (2013) explains collective capabilities as those that the individual alone could never achieve, which will benefit both the collective and the individuals. Conversely, Volkert (2013) argues that although collective action may help individuals to achieve their aspired capabilities, what individuals achieve will be unique to each of them, making it rather difficult to have a “*collective*’ capability for the entire membership” (p.10), preferring then to focus on collective action rather than capabilities. Another alternative is presented by Davis (2013), who proposes to study collectivities through collective intentions, where “intentions reflect people’s purposes, and collective intentions reflect their purposes in combination with others” (p.13). However, this thesis will constrain its understanding of collective action to Freire’s ideas, as will be explained in section 2.4.

#### **2.2.4 The challenge of operationalisation**

Due to the unique characteristics of the individual, the challenge the CA faces is, first, how to choose what capabilities are going to be considered, second, how to prioritise them and third, how to measure each of them. The first challenge, how to choose capabilities, is a matter that has been approached in two different ways within the CA. On one hand, Sen (1999c) chose to leave the CA with an undefined set of capabilities acknowledging that the nature of each situation will determine

what capabilities may be chosen. On the other hand, Nussbaum (2000) proposed a set of basic capabilities as a way to facilitate policy discussions. Nussbaum and Sen are “without doubt the most widely known, and the most productive” (Robeyns 2003a, p.23) authors working on the CA.

These two authors agree on several issues related to the CA, but they have developed slightly different versions of the approach. While Sen’s objective is to elaborate a framework that allows for interpersonal comparisons that may lead to an increase in individual freedoms (Robeyns 2003a; 2005a; Sen 1999c), Nussbaum’s (2000) aim is to “provide the philosophical underpinning for an account of basic constitutional principles that should be respected and implemented by the governments of all nations, as a bare minimum of what respect for human dignity required” (p.5), i.e. a “philosophical theory of justice, rather than a framework of evaluation” (Robeyns 2005b). As mentioned by Robeyns (2005a), both versions respond to different epistemological goals: therefore, it is necessary to acknowledge this differentiation and opt for one.

In this thesis, bearing in mind that the intention of the research is to analyse the relationship between intermediary and students, and the impact of these interactions in each individual’s development, Sen’s perspective is more appropriate rather than a fixed list of capabilities. Accordingly, leaving the selection of capabilities to the participants implies that a social exercise will be required to define capabilities. For Sen (1999c) a social choice exercise is a process of reasoned consensus that “requires public discussion and a democratic understanding and acceptance” (p.79). Certainly, this increases the difficulty, and, as Sen (1999c) states, this process could be “extremely messy, and many technocrats are sufficiently disgusted by its messiness to pine for some wonderful formula that would simply give us ready-made weights that are ‘just fine’” (p.79).

However, the importance of the social choice exercise is to avoid imposing a predefined set of capabilities, allowing participation and legitimacy of the outcomes (Robeyns 2005b). The individuals, in their diversity, are the ones who have to choose which capabilities are the ones that represent them as a group. As Corbridge (2002) indicates, “true development, in other words, necessarily involves the active participation of informed human beings in the processes of social change” (p.191). This characteristic plays an important role in facilitating the integration of Freire’s theories into the CA. Participation is a crucial element in Freire’s problem-

posing methodology, as will be explained below, and he has stated that “many political and educational plans have failed because their authors designed them according to their own personal views of reality, never once taking into account (except as mere objects of their actions) [those...] whom their program was ostensibly directed” (Freire 1970b, p.75).

After choosing what capabilities to consider based on a social choice exercise, the second difficulty is how to prioritise the chosen capabilities. To prioritise, Sen (1999c) proposes that an appropriate range of weights to be assigned to each capability in order to be able to value each accordingly. This prioritisation may consider how these capabilities may support the acquisition of instrumental freedoms: political freedoms, economic facilities, social opportunities, transparency guarantees and protective security. However, “how are these freedoms achieved or acquired? On this question, Sen is indeed ‘curiously’ silent” (Corbridge 2002, p.205).

The third challenge is how to measure capabilities. This has proven to be difficult, as it requires appraising the opportunities a specific individual has. Nevertheless, there have been several attempts to measure capabilities or achieved functionings, as proxy, using both quantitative and qualitative methods. Multidimensional measurement instruments, such as the Oxford Capability Instrument (OxCap-MH) and the ICEpop CAPability (ICECAP) in the area of mental health, the Human Development Index (HDI) and the Multidimensional Poverty Index (MPI) in the area of development evaluation, have been proposed to measure capabilities quantitatively through indicators (e.g. Alkire and Santos 2010; Simon et al. 2013; Vergunst et al. 2014; Coast et al. 2015). These instruments try, in particular, to collect information from medium and large sample populations, and allow econometric analysis. On the other hand, especially designed questionnaires (e.g. Kinghorn et al. 2015) and self-report tools (e.g. Al-Janabi et al. 2012; Van Ootegem and Verhofstadt 2012) have been used to assess capability well-being, and a set of agency and empowerment indicators have been proposed to allow international comparisons (Ibrahim and Alkire 2007).

Qualitative analysis may have some advantages. According to Robeyns (2003a), most studies that use quantitative data acquire it from existing sources; it may be the case that the data was not collected to represent capabilities. Also, she points out how some more descriptive studies, such as those conducted by Nussbaum in India, reveal very interesting insights that are not available in purely quantitative

studies (*ibid.* p.32-33). Indeed, studies that aim at a deep understanding of a process, for instance the one conducted for this thesis, benefit further from qualitative methods. However, considering both qualitative and quantitative methods may support the analysis, a mixed method approach was used during fieldwork, as will be explained in Chapter 3.

Because of the challenges mentioned above, operationalisation has been one of the greatest critiques of the CA. Johnstone (2007), for instance, states that the CA is “perhaps more naturally suited to diagnosis than to treatment” (p.85). Alkire (2007) correspondingly indicates that operationalising the CA is “not a one-time thing” (p.127), as every situation will need to be analysed and the approach adapted: therefore, the CA should be seen as a wide “analytical map” (*ibid.* p.128) that has to be used accordingly in each situation. According to Robeyns (2003a), situations may fall into three possible categories for “which different procedures are needed: small-scale projects (whether empirical assessments or policy design), large-scale empirical assessments, and large-scale political and policy design” (p.42). While operationalising the CA has proven viable for small-scale projects, the larger the project, the more complex it becomes to incorporate the approach’s richness, for instance to include and aggregate each individual’s values, and define and understand the role of the government as well as other institutions and social actors.

In the ICT4D field, various authors have shown interest in operationalising the CA, such as Kleine (2007; 2009; 2010; 2011b; 2013), Gigler (2004; 2011; 2015), Johnstone (2007), Zheng and Walsham (2008), and Oosterlaken (2011) among others. Each of these authors has approached the challenge of operationalisation in different manners. Kleine’s choice framework has been chosen as the basis for this thesis, as will be further discussed and explained in section 3.4. This author chose to focus on agency and structure rather than capabilities, due to the difficulty of translating this concept into measurable indicators. Accordingly, this thesis focuses on agency rather than capabilities, and proposes an adaptation of Kleine’s operationalisation framework that integrates Freire’s ideas into the CA, in particular for the study of digital inclusion programmes, that will be presented in section 3.5. This effort contributes to the growing literature on operationalisation of the CA for small-scale initiatives (Ibrahim 2014).

## **2.3 Obtaining freedom through struggle: the pedagogy of the oppressed**

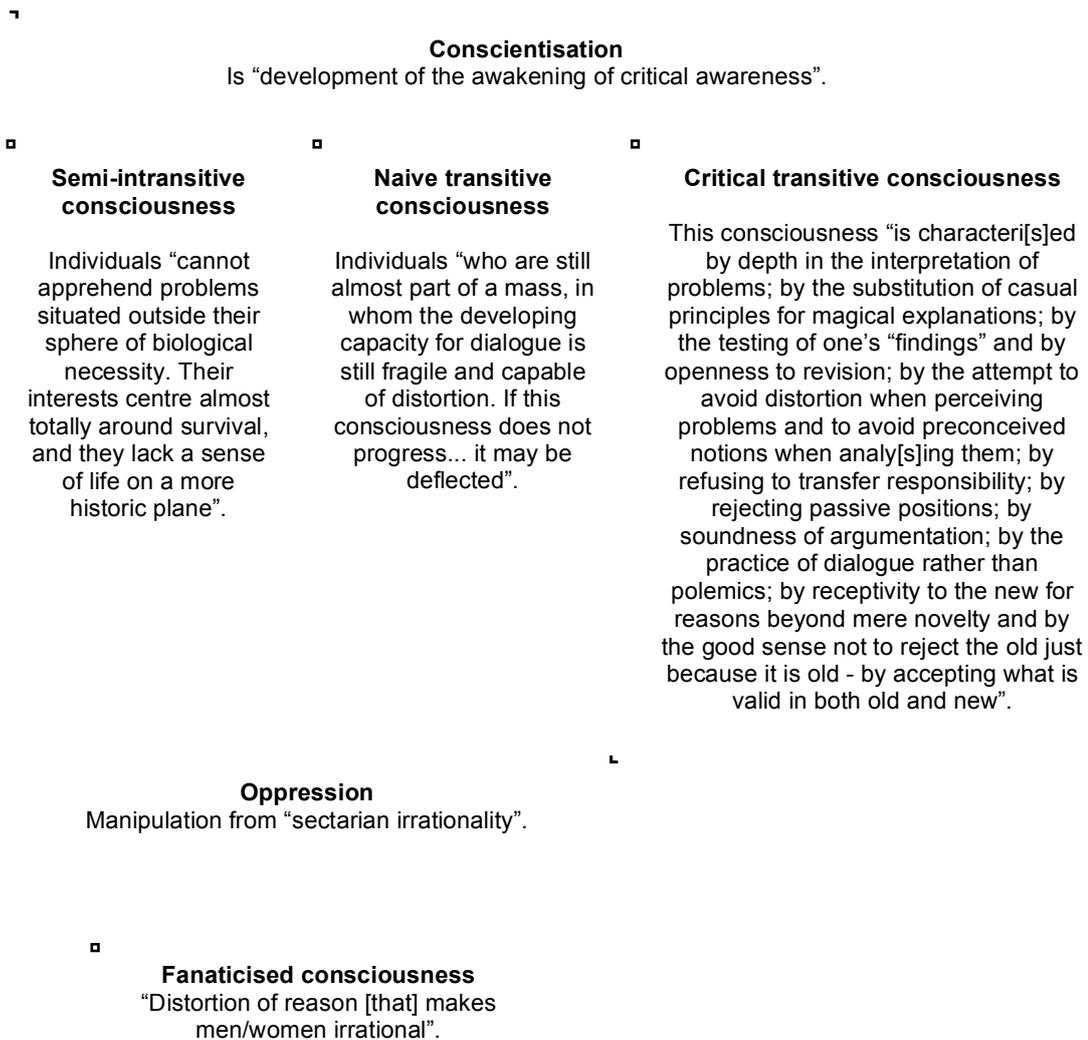
Paulo Freire's theory got the attention of larger audiences with his book 'The Pedagogy of the Oppressed' (Freire 1970b) and his ideas were further developed in his later books based on field experiences in agricultural extension programs and the formal education system in the city of Sao Paulo (e.g. Freire 1970a; 1974; 1976; 1998). His work, categorised as part of the constructivism and critical pedagogy movements, talked about the importance of critical thinking, both as a required element and as a desirable outcome of the educational process. His theory is also known as part of the "tradition of critical education that seeks to democratise the ways in which knowledge, teaching, participation, funding, and so much else, are now dealt with in education" (Au and Apple 2007, p.457).

Critical education remains a field of research in which issues including: the construction of identity through education (Coffey 2014); spatial relationships within education practices (Ferrare and Apple 2010); links between activism and social transformation with critical education (Rossatto 2014); and critical analysis of the practices of critical education (Amsler 2011); are approached and studied. After Freire's death in 1997, many scholars continued working with his theories and problem-posing education methodologies, keeping his ideas relevant and up-to-date to current issues (Gadotti and Torres 2009; Giroux 2010; Glass 2001). Also, Paulo Freire is considered by many as one of the fathers of Participatory Action Research (PAR), widely used in development research (Chambers 1994a; Cleaver 2001; Kesby et al. 2007; Parkinson 2009; Seale et al. 2004), which makes many argue his work is highly relevant to development studies (Frediani 2010; Gadotti and Torres 2009; Roberts 2015; Walker 2009). Nevertheless, Freire's ideas also have limitations, and these will be discussed. Further, there are ways of fruitfully combining his ideas with the CA. The sections below will explain Freire's Pedagogy of the Oppressed, in particular ideas that may propose ways to overcome some of the shortcomings of the CA.

### 2.3.1 Internalised oppression and conscientisation

Like the CA, Freire acknowledges how constraining environments may distort the individual's preferences, but, in contrast to the CA, he also explains how such adaptive preferences can be overcome. Freire focuses on the relationship between different groups of individuals and its impact on their lives and well-being, as a base element for his proposals on critical pedagogy. Adaptation is known in Freire's pedagogy (1970a; 1970b; 1974) as internalised oppression. According to Freire (1974) if a person "is incapable of changing reality, [s]he adjusts [herself] instead. [...] Gradually, without even realising the loss, [s]he relinquishes [her] capacity for choice; [s]he is expelled from the orbit of decisions" (p.5). The individual will adjust her expectations to her constraining circumstances, even without having a specific situation forcing her to do so. For Freire, "choice is illusory to the degree it represents the expectations of others" (*ibid.* p.6). The more a person chooses to satisfy others, the more she loses her ability to choose (Freire 1976, p.4). Therefore, if following someone else's will is not real choice, acquiring the ability to detect manipulation and assert her own values will enable the individual to make her own choices and gain freedom.

The degree to which the internalised oppression harms the individual depends on her level of consciousness. In Freire's terminology "Semi-intransitive", "naïve" and "fanaticised" consciousness are evident in individuals, which either lack evidence to sustain their choices or accept other people's arguments without scrutiny as evidence for their choices. "Oppression" is evident when individuals are being manipulated by others directly or indirectly, while "Fanaticised consciousness" is present in individuals who deeply believe their actions are correct, yet the arguments they use to support their validity are as irrational as their actions (see Figure 2-1). Conscientisation, then, "represents the *development* of the awakening of critical awareness" (Freire 1974, p.15, emphasis from original), namely, the process by which people learn to claim back their capacity for choice. Freire defined in detail the following kinds of consciousness as part of the process of conscientisation (Figure 2-1).



*Figure 2-1: Freire's different kinds of consciousness. Adapted by the author from Freire 1974, p.13-15.*

By doing and reflecting on doing, also called “dialogue” by Freire, individuals will improve their level of consciousness until they achieve a critical transitive consciousness. Dialogue will support the individual to gradually reclaim her ability to choose, to become responsible for her own development and to act towards addressing the constraining social structures that oppress her and others around her. This growing awareness will allow the individual to evolve her consciousness from lower to higher levels. The higher level, critical transitive consciousness implies that the individual has acquired the capacity to engage in a constant process of analysis of the information available in order to make her choices. Indeed, the more the individual uses this capacity in every choice she makes, the stronger her capacity will get, therefore, the stronger her critical transitive consciousness. Consequently, this stage is never achieved per se, and is a capacity that needs to be strengthened hence the transitive term in Freire’s concept. Thus, although

named and classified as one level, it represents a continuum, as individuals may have more or less access to information and/or apply this critical view to some/many layers of their lives. That is, due to the individual's complex nature, she may be simultaneously oppressor, oppressed and free in different areas of her life. The individual can be critical while making decisions about her work, and less critical at home, where she might constrain her choices to satisfy, for example, her husband.

Considering digital inclusion programmes, having clarity of how an individual loses her ability to choose, but also, how she can regain it, provides a useful framework to analyse the relationship between the intermediary and the students in digital inclusion programmes. Moreover, understanding the different kinds of consciousness provides a framework to study the individual's choices related the use of the computer and internet, to identify whether these reflect her own values or someone else's.

The capacity to develop a critical transitive consciousness may be acquired by any individual and Freire developed a specific methodology, which is explained in the next section. Being critical will help the individual to develop her reasoning or critical thinking. Consequently, she will be able to make her own choices, freer from manipulation, therefore improving her freedom. Hence the importance of being able to reason to be able to make choices that reflect what the individual values and has reason to value.

### **2.3.2 PPE: a concrete methodology to address adaptation**

Freire did not assume that the individual would spontaneously start conscientisation by herself. As a pedagogue, Freire was a critic of the educational techniques used in Brazil during the 1960s, seeing them partly responsible for causing oppression, as he believed authorities were imparting adaptive rather than critical education (Gadotti and Torres 2009, p.1258-1259). To Freire (1970b), adaptive education follows a 'banking process' in which students are seen as empty depositories that the teacher has to fill by adding information. This concept does not allow dialogue, because the student is subjected to the simple role of spectator. Therefore, to acquire conscientisation, Freire proposed the PPE, as "an antithesis to banking education" (Mejía 2004, p.67). In Freire's words:

The students - no longer docile listeners - are now critical co-investigators in dialogue with the teacher. The teacher presents the material to the students for their consideration, and re-considers her earlier considerations as the students express their own. The role of the problem-posing educator is to create, together with the students, the conditions under which knowledge at the level of the doxa [common or popular beliefs] is superseded by true knowledge (Freire 1970, p. 62).

The value of the problem-posing education lies in its ability to induce students to connect to the world beyond the classroom, to “foster reflection on freedom and inequalities, and pay attention to global processes that affect us all” (Walker 2009, p.336). Through dialogue, the students will acquire a new vision that will allow them to free themselves from the ‘banking’ teachers, freeing the latter in the process. From a digital inclusion perspective, McShay (2011) states that “[e]ducators must search for critical social theories that explain how technology can be used to help prepare students to become productive and reflective decision-makers who can participate effectively in an increasingly interdependent world”, such as Freire’s critical pedagogy (p.137). Aligned with his belief in education as a liberation process, Freire worked in adult literacy, agricultural extension programs and formal education practice, keeping as a focus the need for conscientisation to free all citizens, particularly the most vulnerable.

Consequently, considering that the digital inclusion case studies chosen for this thesis offer free training courses, the education component is one that has to be carefully considered. As Freire (1998) states, technological education should have a “balance that neither deifies nor demonises technology. A posture, that is, from those who consider technology from a critically curious standpoint. To educate is essentially to form. To deify or demonise technology or science is an extremely negative way of thinking incorrectly” (p.38-39). Thus, from this perspective, by offering a training course, intermediaries have the possibility to promote, or not, conscientisation. If they do not, in the worst-case scenario, the intermediary will purposefully use the training as mechanism of oppression, and in the least worst-case scenario, they will maintain the status quo. In this case, the intermediary will be losing the opportunity to strengthen the ability of their students to make choices that will help them achieve what they value and have reason to value, when using the computer and the Internet.

### 2.3.3 An old-school radical?

Freire was inspired by ideas on dialectics from philosophers such as Marx and Hegel (Giroux 2010; Sacadura 2014; Silva and Santos 2014), borrowing ideas about human beings, culture and consciousness from Hegel (Blunden 2013) and about praxis, alienation, dehumanisation and liberation via social transformation from Marx (Kress and Lake 2013). These ideas formed the basis for his beliefs that society was formed mostly, but not only, by oppressors and oppressed. Oppressors benefit from the oppressed, intentionally or unintentionally. Correspondingly, the oppressed are constrained either by oppressors or by constraining social structures that benefit the oppressors. The oppressor may be able to manipulate the oppressed, and it is possible to observe this when the choices of the oppressed benefit the oppressors more than they do themselves.

Freire differed from Marx and Hegel in that he did not share their deterministic vision of the future, as he believed “history [was] a *work in progress* – a path that is built as long as we walk” (Sacadura 2014, p.502, emphasis from original text). History was then created by the relationship between oppressors and oppressed, which could be changed as the oppressed freed themselves. This could only lead to conflict, as oppressors, unwilling to relinquish their power and control, would indirectly force the oppressed to struggle for their freedom. Individual freedom, either of the oppressor or the oppressed, was then the result of being able to see the world through critical eyes, which allowed them to understand the world and their own responsibilities, which encouraged them to actively participate in it (Freire 1970b).

Yet, “[t]he pursuit of full humanity [i.e. freedom], however, cannot be carried out in isolation or individualism, but only in fellowship and solidarity” (Freire 1970b, p.66). This attention to power relations and the role of collective action is what mostly differentiates Pedagogy of the Oppressed from Sen’s CA. While Freire addresses entrenched power and how it affects individuals, in particular how it oppresses the most vulnerable, Sen limits his understanding of power to agency freedom and well-being freedom as was explained in section 2.2.3. Neither of these two kinds of agency considers the effect of oppressing structures or even the impact that the adaptive preferences of the individual may have on them. As Burchardt (2009) indicates, the “definition of agency freedom in particular, and capability in general, needs to be expanded to include the conditions in which [individuals’] goals, aspirations and preferences are formed” (p.16). By introducing conscientisation as a

requirement for individuals to be able to critically express what they value and have reason to value, power is inherently being introduced into the CA. It also introduces a more nuanced view of collectives. Whereas Sen's CA only considers collectives when referring to a public opinion resulting from a social choice exercise, Freire explores the relations an individual may have with a collective, which could be oppressive or liberating. An individual may become a fanatic or sectarian and support oppressive individuals/collectives, an individual may challenge an individual or a collective, or an individual may come together with others, through conscious negotiation, to act together towards social change (Freire 1970b). Although Freire shares with Sen a hope in human beings, Freire acknowledges their capacity for becoming oppressors.

Then, in the case of digital inclusion programmes, if freedom cannot be achieved by individual action, but through collective action, then, it would be interesting to see how this is considered in the approaches used to introduce ICT (RQ1). As Gigler (2011) mentioned, the relation between ICT and development is only visible on individual empowerment, while changes in the wider social structures are not clear. Consequently, this thesis is also interested in studying the links between digital inclusion, development and social change, as indicated in RQ3 and RQ4.

Nevertheless, the radical view of society Freire describes, and his use of language in his writing, e.g. oppressor vs oppressed, or, banking education vs dialogical education, has been criticised for expressing binary relationships, instead of reflecting the dialogical discourse he praises in his pedagogy (Mayo 1999; Schugurensky 1998). Freire's use of language can be explained by his influence from Hegel and Marx, but in particular by the effect the military dictatorship had in Brazil in the 1970s, when *Pedagogy of the Oppressed* was written. The dictatorship was characterised by a lack of social movements, so calling for individuals to join in collective action was necessary to regain freedom. Nowadays, social movements are part of the social structures, making Freire's use of language inadequate. However, while some of his terms are binary, his theory is dialogical. This can be verified by the description of how an individual may be simultaneously oppressor and oppressed depending on the circumstances and the context they are in (Freire 1970b). Moreover, calling for collective action is still necessary to achieve freedom from inequalities, as many authors argue (Anand 2007; Evans 2002; Ibrahim 2006; Kabear and Sulaiman 2015).

Freire's Pedagogy of the Oppressed has also been criticised for being utopian. Freire's ideas over-rely on the capacity of the individual to acquire the critical consciousness that will enable her, in agreement with others, to conduct collective action and change the constraining structures that oppress them (Sacadura 2014; Torres and Freire 1994; Weiler 1996). This is considered utopian because it is not clear how to promote and maintain the conscientisation of all society. Although Freire introduced the teacher as the facilitator of the process of conscientisation, he did not propose how to scale up and include all society, or how to guarantee the process of conscientisation will continue and be maintained. If no structures are in place to facilitate peoples' conscientisation, the oppressed might be left without the necessary guidance to develop their criticality. How can they be responsible for their struggle and fight for their liberation from their oppression (Freire 1970b), as Freire indicates? This is a reason why Freire's ideas are taken to complement Sen, and not the opposite. The CA seems like the most adequate framework for development, as the CA's key idea is that "social arrangements should aim to expand peoples' capabilities – their freedom to promote or achieve what they value doing and being" (Deneulin and Shahani 2009, p.31). Intrinsically, the CA acknowledges the need for external support for the individual, in the form of social arrangements, which could be argued, is the role of the teacher that Freire describes. As described by Deneulin and McGregor (2010), there is a "need for institutional arrangements for negotiating socially coherent well-being outcomes and strategies" (p.514).

## **2.4 Development and conscientisation**

The CA is a conceptually rich approach that places human freedoms at the centre of the analysis. This is a strength for the analysis of digital inclusion programmes, because it forces researchers/practitioners to consider agency and social structures, rather than just ICT, as important for development analysis. This advantage has also been acknowledged by authors who have used the CA to analyse different ICT initiatives and their impact on human development: Johnstone (2007) indicates that the CA's focus on inequalities makes it adequate to analyse the digital divide; Kleine (2009; 2010; 2011b; 2013) uses the CA to understand the development impacts of different ICT initiatives; Gigler (2004; 2011; 2015) and Barja and Gigler (2007) apply the CA to study ICT and informational poverty; and Zheng and Walsham (2008) and Zheng (2009) apply the CA to provide a critical understanding of development to ICT4D practices, among others. As stated by Alkire (2007), using the CA is a way to

have “clarity of the objective” (p.117), which in this case is to focus on the impact on human development - namely on people’s freedom - that the process chosen to implement digital inclusion may or may not have.

Nevertheless, the CA has been criticised for its difficulties for operationalisation (Corbridge 2002; Devereux 2001; Robeyns 2000; Sen 1999c), an absence of attention to power relations (Corbridge 2002; Robeyns 2000; Stewart and Deneulin 2002), an over reliance on the ability of human beings to make reasoned choices (Alkire 2007; Corbridge 2002; Giri 2000) and a lack of attention on how to overcome adaptive preferences and its constraining effects on the individual’s development (Chan 2010; Evans 2002; Frediani 2010). In this context, in which freedom is the most important element of development, and considering the analysis realised above, Paulo Freire’s critical pedagogy brings important elements to complement some of the CA’s challenges. The capacity of these two bodies of literature to work together resides in the fact that Sen and Freire share many values, while having great differences. While Sen has been criticised for his lack of attention to power structures, Freire’s ideas start from a deep understanding of the root causes of constraining social structures. Also, while Sen over-relies on the role of institutions and democracy to promote development, Freire acknowledges the capacity of individuals to manipulate and use power for personal rather than collective benefit. Finally, while Freire limits his analysis to the individual and collectives, Sen assumes a vision from a wider perspective, that of social arrangement, that helps escalate Freire’s ideas.

Yet, is their shared values that have made it possible to combine Freire and Sen in this thesis. First, both Freire and Sen value freedom both as a means of living and as a goal of life. While Sen mentions capabilities as a way to improve the individual’s freedom, Freire mentions the importance of conscientisation – reflecting, doing and reflecting on doing. Both authors acknowledge the individual as an agent, and the possibility that individuals may adapt to the constraining circumstances where they live (adaptive preferences for Sen and internalised oppression for Freire). However, Freire suggests ways to overcome adaptation by a process of conscientisation. Conscientisation provides the CA with an explanation of adaptive preferences that pays close attention to power relations and offers a specific methodology to overcome them, namely, problem-posing education. For Freire (1998), the teacher, who should be committed to her own conscientisation, will be the driving force that, through dialogue, will help her students to rise from their

oppression. In this scenario, the teacher is no longer the 'owner' of knowledge, but the facilitator of a permanent discussion with the students, motivating them to use their personal experiences as inputs for the discussions and encouraging them to research on their own for more information and have their own opinions (Freire 1974). Different points of view are accepted as long as these are supported with the necessary evidence, as, by doing so, students will show their increasing critical awareness. If we consider how individuals having their own voice is important for Sen and for the social choices exercises required for public opinion, Freire's conscientisation also guarantees that individuals will have the capacity to engage in such exercises (Bifulco 2012), overcoming what Freire called a culture of silence (Glassman and Patton 2014).

The PPE methodology considers the teacher as facilitator of the process, leading their students to learn how to make critical choices that will benefit their development. If this is considered within a digital inclusion programme, these choices will aid the student to make critical choices in relation to her ICT usage. By doing so, she will benefit in her development, meaningfully appropriating the computer and the Internet. For this thesis, this provides a frame in which to analyse the relationship between students and the intermediaries of digital inclusion programmes, to look at whether their interaction is helping the students to make critical choices regarding their use of the computer and the Internet, i.e. RQ1.

The importance of context, particularly social structures, is also acknowledged in both Sen's and Freire's work. While Sen proposes that social arrangements may be an important input for the individual's development, Freire proposes an 'awakening' process through a PPE methodology. Although both agree that the individual should have this support, Freire did not indicate ways to scale up the role of the teacher. This thesis suggests integrating conscientisation as part of what social arrangements, in the form of digital inclusion programmes, should offer to individuals, when supporting their development. Finally, Sen and Freire mention the importance of participation and democracy, with the difference that Freire details how collective action has to be used as a means to achieve social changes, a collective made from critical individuals who are interested both in their own development as much that of their peers. Glassman and Patton (2014) explain that:

"Freire's formula of empowerment—the time and effort it takes to develop the initial functionings of reading and other basic skills used for basic gathering of information, and

increasing revolutionary self-efficacy through reflection on and awareness of current conditions within an expanding knowledge system—with the former providing the means for the latter. Teach an individual to read and you offer new possibilities for reading their world, empowering them to question the nature of their historical and social situation (Freire, 1970a). Oppressed populations become capable of questioning dictated capabilities when they realize first, that oppressors control proximal information sources, and second, that they have ability to reach beyond initial boundaries in reading and interpreting their world” (p.1358).

As a result, Freire’s understanding of oppression and the process by which an individual can ‘awaken’ is an important perspective, which helps to explain how to overcome adaptive preferences, address different power relations and acquire agency. Here it is proposed that it be considered within the CA, a human-centred understanding of development and social arrangements.

## **2.5 Space, mobility and gender**

Section 2.2.3 above, stated how the CA lacks depth in the analysis of social structures. For Kleine (2010), Sen accepted the interrelation between agency and structure, by accepting “that interpersonal differences (he lists ‘body size, metabolism, temperament’) and social conditions co-define a person’s ability to translate resources into capabilities” (p.121). These social conditions can be understood, as social relations among people that will produce and reproduce practices, enabling the constitution of the social system. Accordingly, driven by the data collected, some concepts seemed more relevant than others. First, both the location of the courses and where the participants lived seemed to influence the participants choices related to which digital inclusion courses to attend, but also impacted heavily on their portfolio of resources. For example, their access to services, their available time or the entertainment options they had, as will be analysed in Chapter 6, affected their geographical, cultural and time resources. For this reason, space and mobility were concepts that proved to enrich the analysis. Second, as a coincidence that will be further explained in Chapter 4, all adult participants of the digital inclusion programmes, were female, making gender an imperative aspect to be analysed to understand what these women were experiencing. Thus, the following sections will introduce the concepts of space, mobility and gender in the context of this study.

### *Space and mobility*

Space is a concept that is understood in very different ways by different authors. For Massey (1994), space, in its intimate relation to time, without which space would not exist, defines “space-time, as a configuration of social relations within which the specifically spatial may be conceived of as an inherently dynamic simultaneity” (p.3). As a social construct, space will influence and be influenced by those within it. Therefore, space “is as an ever-shifting social geometry of power and signification” (*ibid.* p.3), which exists only as a result of the “identities/entities, the relations 'between' them, and the spatiality which is part of them and their relations” (Massey 2005, p.10). Understanding space and its relation with the individual may reveal how different discourses around gender or class are being interpreted and represented in a particular context. This will also allow the identification of power structures, which, from a Freirean perspective, will facilitate the identification of the roots of unequal social relations, even if interactions between individuals do not explicitly show power struggles.

However, as individuals are not static, analysing space also requires the analysis of how individuals move from one space to another. Adey (2010) describes mobility as “something we do and experience almost all the time” (p.1). However, not all movement can be considered as mobility. Cresswell describes mobility as “a socially produced motion” (p.3), a meaningful movement (2006, p.21). In other words, a person needs to attach some meaning to that movement for it to be considered mobility. That meaning could be deconstructed in representations and practices, which, when entangled with physical movement, produce mobilities (Cresswell 2010). These representations – qualifying mobility as adventure or education, and practices – understanding mobility as walking or dancing, are results of different social constructed processes, and thus consequences of “power and relations of domination” (Cresswell 2010, p.20). The current relations between individuals will produce mobilities and, in turn, these mobilities will produce and/or reproduce new or existing power relations. Platt (2011) explains this issue by mentioning that some societies’ structures, for instance, divisions of class, may encourage or constrain people’s mobilities, leading to visible power struggles among different groups (p.41).

Being able to visualise power struggles through the analysis of space and mobility, has been imperative to this thesis. The data collected from the interviews of the participants of this study, showed that the spaces they inhabited and how they

moved from space to space, had great impact on their daily lives, and heavily influenced their choices, for instance, what digital inclusion programme to attend.

These concepts are also very useful from a Freirean perspective, because they take into account power structures and facilitate the identification and possible causes for these power relations to exist. From a CA perspective, having this political approach to space and mobility allows the discussion to go beyond physical movement. For instance, Nordbakke (2013) defines mobility, from a CA standpoint, as “the ability to choose where, when and which activities to take part in outside the home in everyday life” (p.166). This ability could be enhanced or constrained by the individual’s own agency and/or resources, such as available time or financial resources, or by external factors and/or social structures, such as weather conditions or the quality of the streets and sidewalks.

Within the ICT4D field, Kleine (2011a) used the concepts of space and time to identify different norms about the use of time and space that characterised different spaces. This analysis identified how different spaces can be gendered, and may impact its users accordingly. For instance, in her study some male users preferred the privacy afforded in cyber cafés while some women sought to use computers at the telecentre in pairs or groups. Accordingly, in this study, Kleine (2011a) found that the layout of the cybercafé offering cubicles made it easier to watch pornography and made the space harder to access with a buggy. Given the prevailing local gender norms and uneven distribution of care work, this made it a less welcoming place for women than the local telecentre with its open layout.

### *Gender*

Sen’s work on women (Sen 1992a; 2003; 2013) has shown that the CA is an approach that is sensitive to gender issues that are “not reducible to financial welfare, such as reproductive health, voting rights, political power, domestic violence, education, and women’s social status” (Robeyns 2003b, p.62). In Sen’s terms: “the issue of gender inequality is ultimately one of disparate freedoms” (Sen 1992b, p.125). Another reason why the CA is very appropriate for the study of gender and development is provided by Moser (2012). According to her, gender-based policy and programs have so far shown limited results, particularly because they approach gender as a women’s issue, instead of addressing problems from a

more general perspective that allows the analysis of society as a “complete social unit, taking into account all its social groups” (*ibid.* p.439).

Gender has been conceptualised as an example of social divisions that categorise individuals, placing some in better positions than others, here in particular due to their sex (Payne 2013). Men and women are born with biological differences (sex), but sociologists have argued that it is the social constructs around each sex that explain inequalities between them. Gender analysis studies the social constructs resulting from the interaction of the biological, the economy, society, the law, politics and culture, which influence and define how each sex is understood (Lagarde 1996). Abbott (2013) explains “gender identity is fundamentally ascribed at birth and structures all our experiences and the expectations that others have of us” (p.69). Beyond biology, these expectations will determine human interactions, shaping the institutional, relational and embodied aspects of social structures. Then, gender is understood as a social construction acquired over time, which will define what it means to that individual to be male or female within their determined social structure (Gregson et al. 1997).

Different societies interact based on different gender norms, resulting in different gender relations. Unequal gender relations are often the result of one gender having power over another, intentionally or unintentionally. For instance, within the workplace, offering different salaries according to gender is a reflection of unequal gender relations. In this thesis, the focus will be the subordination of women, as all adult participants of this study were women, as will be explained in Chapter 4, and details of this relationship in Latin America in particular will be now explained.

A simplified account of Latin American gender relations would state that at the point of independence of its countries, this continent was organised around powerful landowners, which controlled both the land and all human beings within it, including their family and employees (Besse 1996). According to Besse (1996), the growth of the cities during the 1930s and 1940s started to change women’s role in the family of the landowners, particularly toward the education of children. Whereas before, the head of the family had taken responsibility for decisions related to how to raise the children, in this period, as men were required to leave the home to undertake paid work, this decision making responsibility was given to women. At first, this empowered women, especially within the household, but as it was then seen as a responsibility which required high standards of morality, pressure started to fall on

the women's role, demanding not only a good education for the children but also a family structure that raised good citizens (Besse 1996; Chant 2003c; Friedman 2009), as "women's primary role [...was to be] reproducers of citizenry and transmitters of culture" (Sánchez Korrol 1999). This last was particularly supported by the Church, intimately related with the state, which supported, and still does, the family unit as the constituent of a good society, and therefore stressed the importance of having "good families" (Friedman 2009).

From the mid 1970s onwards, starting in Chile, some countries in Latin America adopted neo-liberal economic policies, privatising their services and incorporating standards associated with capitalism structures. As a consequence, women's participation in the labour market started to increase, as had previously occurred in European countries (Cupples 2005). Nevertheless, changes in traditional family values did not change dramatically and generally still remain constraining for women (Bruschini 2007; Cupples 2005; Friedman 2009). The result, as stated by Lagarde (2004), is "millions of women both traditional and modern ... are trapped in an unequal relationship between caring for others and self-development" (p.157).

These changes caused women from different classes to experience constraining gender roles in different ways. In general, women from middle and high-income families had the possibility to choose to work or not, as the extra income was not needed to support the family. As their responsibility was childcare, they could choose to use their new income to hire other women to help attend to their responsibilities to the household and in childcare. Conversely, women from low-income families, who have never had the choice to not work, had to face one more responsibility. Some authors have called this issue the double or triple burden (Laurie et al. 1997; Platt 2011). This term is used to reflect how women often are the ones responsible for domestic work, childcare and/or elder care and community work while participating in paid work, with little or no help from their partners. This situation was seen in examples provided by the women of this study, who were all adult female students and were the ones responsible for domestic work, childcare with some also responsible for their elder parents, as will be explained in Chapter 4.

According to Cupples (2005), in relation to Nicaragua, women from low-income families may rely on their mothers or daughters for help. In the particular case of daughters, this is also seen as a way to teach them the values they will need to have when grown, passing on these gender roles to the next generation of women.

This phenomenon has occurred in other regions as well as in Latin America (Wolf 1997). Considering gender is socially constructed, these interactions will maintain current gender roles (Gregson et al. 1997; Lorber 1991; Wolf 1997), which in a way may be interpreted as women themselves reinforcing gender inequalities, together with other factors including the media and public policies. This may be explained by exploring identity formation. When gender norms are internalised, women may incorporate the socially constructed roles of women into their identities. Rossan (1987) argued that “women who adopt the pervasive, long-lasting roles of wife and mother [...] add many elements from these roles, including the labels, to their core sense of self” (p.305). For Lagarde (2000; 2004; 2011), these constraining roles affect women’s identities and self-esteem, because they will link their self-satisfaction to their conflicting responsibilities of caring for others and their desire to be economically, socially and politically active, within our current capitalist societies.

Subsequently, understanding how gender relations are played out in a society may provide valuable information to identify possible adaptive preferences and oppressive behaviours, also indicating how empowering initiatives in some places may increase inequalities in others. Also, it is important to consider how some initiatives may provide temporary relief while others may address the roots of the gender inequalities helping to avoid re-occurrence. Molyneux (1985) defines as practical gender interests those that help “women’s positioning within the gender division of labour” (p.233) and strategic gender interests as those that challenge power structures, transforming current gender relations to “overcome women’s subordination [...] and/or] the removal of institutionalised forms of discrimination” (p.233). These interests are inherently related to the wider social structures, representing different groups of women as collectives. However, to facilitate the analysis in this thesis, the perspectives of each individual woman will be considered. Then, when a particular women’s need might be related to one of these interests, these will be named strategic or practical gender needs accordingly.

For instance, while some research has shown that having access to the job market gives women the opportunity to be financially independent, which benefits not only themselves but also their children and their household (Cupples 2005; Stichter 1997), some authors have also claimed that if paid work is added to other responsibilities, then it might only deepen the unequal division of labour and gender relations they face (Cupples 2005; hooks 1984; Wertheim 1974). This is aggravated by the fact that women still face inequalities in wages, benefits and occupational

mobility, as women still lack access to some prestigious careers and jobs, and are usually those performing precarious and informal activities (Bruschini 2007; Chant 2003a; Cupples 2005).

This is not to say that all women in Latin American countries face the same challenges, as changes in each society occur at different times and speed, for instance, various Latin American countries, such as Brazil, Chile and Nicaragua, have or have had female presidents. Also, there have been some improvements - all Latin America countries have included women's rights in their legislations, such as the right to divorce, and protection from domestic violence. However, "formal gains have been largely ineffective in improving the lives of the majority of Latin American women or in empowering them politically" (Besse 2004, p.583). In most countries, women still lack sexual and reproductive rights, in particular because of traditional family structures supported by the Church and other religious organisations (Friedman 2009). Accordingly, it is important to acknowledge that formally accepted rights, such as the right of employment, does not necessarily ensure effective implementation. Also, it is essential to analyse how specific situations affect each woman, as employment, for instance, may become a practical gender need instead of a strategic interest, if approached as a single initiative that does not address power structures.

So, when exploring gender from the CA perspective, this study has to make reference to specific social structures that Latin American women face, in combination with their own interpersonal differences. But also, from the perspective of Freire's pedagogy, the analysis should pay close attention to which women's needs are being addressed in order to show whether power structures are being challenged. As Robeyns (2003b) indicates, women's freedom should be seen through a range of capabilities, from mental well-being, bodily integrity and safety, to political empowerment, education and knowledge, mobility and religion, among others (p.71-72).

## **2.6 Conclusions**

Analysing digital inclusion from a CA perspective requires special attention to the individual and what she values and has reason to value. If Freire's Pedagogy of the Oppressed is incorporated into this, then oppression and conscientisation should

also be explored. For this reason, this chapter first introduced both theories and then explained how and why this research has chosen to integrate them. However, space, mobility and gender were concepts that the data showed were also needed to enrich the analysis; therefore, this chapter has also introduced these. This literature review will serve as a baseline to understand digital inclusion from a CA and Pedagogy of the Oppressed perspective, as will be introduced in Chapter 3.

# Chapter 3 Freedom and digital inclusion

## 3.1 Introduction

The intensive use of information and communication, facilitated by different kinds of ICT, has had extensive impacts in our society, changing the way we see education, leisure and the economy, among other daily activities. Several authors have named these impacts with different concepts. These include the 'Knowledge Society' - emphasising knowledge, facilitated by ICT (Fonseca 2010; Lanza 2002; Mansell and Wehn 1998; Mansell 2002; Wajcman 2004); the 'Information Society' - focusing on the impacts information has caused in society (Henwood et al. 2000; Loader 1998; Mahan 2007; Roncagliolo 2003; Villanueva Mansilla 2005); the 'Information Era' - stressing the importance of information, principally its availability and manageability, facilitated by new ICT (Castells 2001; 2005); and 'e-Society' – referring to how society is nowadays mediated by ICT (Zheng and Walsham 2008; Zheng 2009; Zheng and Stahl 2011). In addition to these concepts, Castells proposed the concept of 'Knowledge Economy' - addressing the role of knowledge as the new currency in economy (Castells 2001; 2005; Pinho 2000), also known as 'Information Economy' (Lanza 2002), 'Digital Economy' (Castro 2009), or 'Global Economy' (Carnoy 2000). Similarly, research focused on the link between ICT and development is, among other terms, known as ICT4D (Kleine and Unwin 2009).

As stated by Wajcman (2004), "[t]echnology is an intimate presence in our lives and increasingly defines who we are and how we live" (p.102). Computers and the internet are now part of the individual's resource portfolio, and an element of the social structures. Even for people who have never known or used ICT, the society or country where they live might be using them already. However, the impacts that these technologies have had on individuals' development have been varied. The following chapter will first introduce ICT as socially constructed technologies. Second, it will explore the causes for inequalities related to ICT. Third, it will introduce how ICTs have been used for development purposes. Finally, it will introduce how appropriation of digital technologies may support development and social change.

### 3.2 ICTs are not neutral

When dealing with ICT, it is important to understand the relationship between technology and social change. According to Henwood et al. (2000, p.8-9), there are three theories that address this relationship: 'technological determinism', 'technology as neutral', and 'constructivism'. The first proposes that technologies materialise and advance, transforming the society where they are disseminated. The second suggests that technologies are neutral and only gain meaning when people choose them and decide how to use them. Authors such as Bramley and Sinclair suggest that "any communications technology has both an inclusive and exclusionary potential; this is not inherent in the nature of the technology itself, but the social distribution of opportunities for access and use" (2011, p.8).

The third theory supports the notion that technologies are the result of a social construction process in which people's values will influence and be reflected in the design process as much as the usage outcomes. This theory argues that any technology is the result of social configuration, denoting that these are the result of a design process and technical content, with a continuum of input from their consumers' use (Castells 2001; Wajcman 1991; 2004). Considering our understanding of human beings as agents, technological determinism does not appear to be an appropriate approach because it disregards human agency, contradicting both Sen's and Freire's ideas of the human as a responsible being. In the same manner, if we bear in mind Freire's belief that every person has her own bias and that it emerges in their actions, to consider technology as neutral seems inaccurate, because human beings create technology: consequently, it will embody their biases. Therefore, 'constructivism' theory seems more suitable.

Authors like Cockburn (1997), Gurumurthy (2004) and Wajcman (2004) believe that technologies are malleable: they can embody power relations and exclusion. For this reason, the Brazilian social activist and scholar, Sergio Amadeu, defends locally produced hardware and free software, to avoid having foreign values forced into Brazilian culture (2010). That is, technologies are not neutral, raising the question of what unknown intentions are embedded in the technologies that may not necessarily be valuable or positive for the final user.

These arguments invite the user to approach technology and its usage in an informed way, which is what both Sen and Freire also state. These authors mention

that technological usage has to be accompanied by critical reflection, because we cannot assume that their use is automatically positive for the individual. For instance, Sen (2010b) reflected on the potential of mobile phones to serve as both freedom-enhancers and freedom-reducers. They are enhancing when they enable a person to be contacted and to contact others, but lessening when used to “plot terrorist activity, violate privacy, to conspire to commit nasty deeds” (p.2). In the same manner, Freire (1998) indicated the importance of having a critical use of information and communication technologies, such as television, which can overwhelm its users by the amount of information displayed, hence the importance of critically assessing its content (p.123-124).

Wajcman (2004) argues that “technology must be understood as part of the social fabric that holds society together; it is never merely technical or social. Rather, technology is always a sociomaterial product - a seamless web or network combining artefacts, people, organisations, cultural meanings and knowledge” (p.106). ICTs are a creation of human accomplishment, but their use has modified human capacities for action (Toboso 2011), such as making it possible to find out about breaking news across the globe almost immediately as it happens. As Wajcman explains: “machines work because they have been accepted by relevant social groups” (2004, p.37), and it is this permanent interaction, human-technology and technology-human, that has permitted the evolution of ICT.

Consequently, taking into account that the focus of this study is to reflect on how different processes may influence how different people choose to use the computer and the Internet, considering a constructivist approach will encourage the exploration of power structures hidden in the technology or in the processes of its diffusion/adoption. In the 2000s, Thomas and Wyatt (2000) explained that the initial assumption that inequalities in access and use of ICT were going to eventually disappear was caused by belief in the trickle-down perspective. These authors explain that “according to [this outlook], there may be inequalities of access and use during the early stages of a technology but it is assumed these disappear, or are at least much reduced, as technology becomes more widely diffused” (*ibid.* p.26). However, this view has been proven wrong, as will be explained below.

### 3.3 The complexity of the digital divide

Henwood et al. (2000) indicated, ICTs have not been evenly distributed, either among countries or within them. This situation is known as the digital divide, and it is understood in general terms as the difference between those who have access to new ICT and those who do not: that is, the asymmetry in ICT access (de Munster 2005; Henwood et al. 2000; Toyama 2010; Unwin 2009; van Dijk 2006). The most popular description of the concept is from Norris (2000), who studied this phenomenon from a political science perspective, adding other values and proposing a more elaborate concept that considered this divide as a:

“multidimensional phenomenon encompassing three distinct aspects. The global divide refers to the divergence of internet access between industrialised and developing societies. The social divide concerns the gap between information rich and poor in each nation. And finally within the online community, the democratic divide signifies the difference between those who do, and do not, use the panoply of digital resources to engage, mobilise, and participate in public life” (p.4).

This concept goes beyond access and includes ICT usages and citizen participation, expanding the notion of digital divide to show various layers of possible digital inequalities. Since the first time this term was used, back in 1998 by the United States of America National Telecommunications and Information Administration (NTIA), until now, research has shown that this phenomenon is much more complex.

Research into the causes of this divide has shown a diversity of explanations. For instance, some of the causes for digital inequalities are: differences of Information Technology (IT) infrastructure, hardware, software and/or connectivity (Sciadas 2003; Thomas and Wyatt 2000); characteristics such as age, gender, race and education level (Basu and Chakraborty 2011; Gunkel 2003; Kleine 2011a; Van Deursen et al. 2011; van Dijk and Hacker 2003); power over design, creation and production of technologies and/or software (Amadeu 2010; Gurumurthy 2004; Hafkin and Huyer 2008; Hilbert 2011; Spence 2010); different levels of ICT skills (Gripenberg 2011; van Deursen and van Dijk 2011; Walton et al. 2009); differences in individuals' preferences towards technologies (Barrantes 2007; Thomas and Wyatt 2000) and unequal cognitive skills (Fonseca 2010; Garcia et al. 2006; Genatios and Lafuente 2006; Lafuente and Genatios 2006; Pischetola 2011), among others.

Another approach has been to examine the digital divide from a development studies perspective, considering the effect of inequality in the analysis. Gerster and Zimmermann (2003) reflected on how ICT may reduce poverty, focusing on information rather than just on the technologies, identifying dimensions such as connectivity (availability of the relevant services), affordability (the capacity of the users to pay for the services), and capabilities (skills relevant to the effective use of the services). Trying to find a term that reflects the complexity of the phenomenon, authors such as Cahill (2000) and Kleine (2013) have opted to use the term 'digital continuum'. The digital continuum may be represented as a scale where one extreme is complete exclusion, while the other is complete inclusion, and each individual's condition may be placed in different positions on the scale.

Similarly, media studies' scholars have also investigated the digital divide, from a media convergence perspective (Brandtzæg et al. 2011; Sanz and Turlea 2012; Schneider and Gräf 2011). Henry Jenkins (2006) defined media convergence as the

“flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behavior of media audiences who will go almost anywhere in search of the kinds of entertainment experiences they want. Convergence is a word that manages to describe technological, industrial, cultural, and social changes, depending on who's speaking and what they think they are talking about” (p.2-3).

The advent of new digital technologies changed the way in which communication was understood, produced and consumed. What was once considered by the field of media studies as a dichotomy between medium and message (Murray 2003), was essentially altered by new digital technologies, which blurred the boundaries between different forms of communicating (Chaffee and Metzger 2001). These changes transformed how individuals related with the media (Jenkins 2006), which was not uniform to begin with. According to Couldry (2011), “broader stratifying factors which shape the spheres of action of different types of people in contemporary societies”, caused that traditional media, such as print, television and radio, never to be equally distributed or consumed by all individuals. Accordingly, various authors have argued that the asymmetries related to access and usage, among others, observable in digital technologies, already existed in relation to traditional media (Couldry 2011; Maxwell and Miller 2011).

Yet, the analysis of the digital divide from a media studies perspective does unveil other causes for the existence of the digital gap. For instance, considering that

media convergence focuses on content flow across different media platforms, authors argue that the digital divide may be widening due to a lack of understanding of the integration of old and new media (García Canclini 2008); due to a lack of literacy skills that will allow individuals to produce and use multimodal and new media texts as well as new media appliances (Alexander 2008; Jenkins 2004), skills named by some authors as ‘transliteracy’ (Thomas et al. 2007); and due to the uneven connectivity and access to many and varied composing tools that different composers experience (Jenkins 2006).

Additionally, analyzing the digital divide from a media convergence’s perspective highlights the importance of the individuals’ role as a producer of content. Before the digital revolution, the media studies field was focused on ‘mass communication’ (and the field had that nomination too) (Chaffee and Metzger 2001; Stenport et al. 2014; Sullivan and Jiang 2010; Vie 2008), where individuals were considered passive consumers of content. New technologies, in particular Web2.0, changed this relation, allowing individuals to be both consumers and producers of content (Deuze et al. 2007; Jenkins 2006; Schneider and Gräf 2011; Stenport et al. 2014). This change allowed individuals to experience a new sense of power within a sector where media producers were used to being the gatekeepers, deciding what information was worth transmitting, how to package it and to whom to distribute it (Chaffee and Metzger 2001). The change of the individual’s role, from consumer to producer, has caused a “reconfiguration of media power and a reshaping of media aesthetics” (Jenkins 2004, p.35). Information consumption today “assumes a more public and collective dimension” (Jenkins 2006). Individuals no longer trust blindly big media corporations, and many prefer to consume content from collectively constructed sources (Deuze et al. 2007; Jenkins et al. 2013). Nonetheless, the opportunity individuals have to influence the way information and communication flows through different media, is hindered if they do not possess the necessary skills, access, connectivity or motivation, among others. It is imperative to enable individuals and grassroots movements to benefit from old and new media as tools to promote equality, to avoid only few segments of society profiting from ICT innovations (Castells 2012; Dwyer 2010; Jenkins et al. 2013). Moreover, some media studies authors believe old media can also be used to promote the use of new media, for instance, studies have used digital TV (Dos Santos et al. 2006), and community radio (Megwa 2007), as a way to share the benefit of ICT to individuals who may not receive this information in any other way, encouraging its use.

However relevant the implications raised by the analysis of the digital divide from a media convergence perspective, or the benefits of using old media to bridge the digital divide, it would be impossible to consider all different kinds of media, both old and new, in the study presented on this thesis.

As indicated in Chapter 1, this thesis is interested in exploring meaningful appropriation, conscientisation and social transformation. However, to limit the scope of the study, one device –the computer-, and one ICT –the internet- have been chosen. This choice was based on the chosen case studies, i.e. two organisations, CDI and JC, acting as intermediaries offering basic ICT skills courses to vulnerable populations. Their training used only computers and focused on teaching its functionalities and those of the internet. Accordingly, the research questions were framed to explore how intermediaries may support a meaningful appropriation of the computer and the internet (RQ1), what is needed to achieve this meaningful appropriation (RQ2) and the relation between appropriation, conscientisation (RQ3) and social transformation (RQ4). Framing the research questions in this manner will limit the data collected to the relation of the individual to the computer and the internet, and will not reflect how she might/or not relate to other old and new media, such as the television, radio or mobile phones. Nevertheless, considering that the basic ICT skills courses are designed from the perspective of someone who has never used the computer or the internet before, it could be argued that many students opting for these kind of courses fall into this category. Exploring how the intermediaries support this first contact with ICT is more important than understanding how students' relation with other media on their own time changes because of this interaction. This is not to say it is not important, on the contrary, considering the important role media has on individuals, for example the impact that television has in Brazilians' lives (Becker and González de Bustamante 2009), it is here suggested that future research should be focused on the impact that digital skills training has on the individual's relation with both old and new media in her everyday life.

To summarise, the birth of the concept of the 'digital divide', and the phenomenon it describes, was initially the result of the uneven distribution of digital ICT. However, research has shown that this is a more complex phenomenon, especially as the focus has shifted from the technology to the benefits individuals may obtain from information and communication. Different dimensions of this phenomenon range from issues related to social structures (e.g. technological infrastructure),

interpersonal differences (e.g. age), portfolio of resources (i.e. different levels of education) and agency (i.e. motivation and aspirations), making it difficult to classify individuals as 'haves' or 'have-nots'. If media convergence is also considered, dimensions such as the relation between different media, and the important role of the individual as a producer, have also to be considered. Moreover, due to permanent technological innovation, attaining full digital inclusion is not a realistic goal. Nevertheless, working towards improving individuals' digital opportunities may be considered an action towards improving their development, efforts known as digital inclusion as will be explained below.

### **3.4 ICT4D from a capabilities approach perspective**

Digital inclusion is defined as “the effective participation of individuals and communities in all dimensions of the knowledge-based society and economy through their access to ICT, made possible by the removal of access and accessibility barriers, and effectively enabled by the willingness and ability to reap social benefits from such access” (Aleixo et al. 2012, p.222), where the social benefits have to relate to what the individual values and has reason to value.

Research in this field has shown contrasting results. Some authors argue that in order to achieve development outcomes, ICT use should reflect effective or “empowering” uses (Gurstein 2003; Hinrichsen and Coombs 2013; Pangrazio 2014; Shapiro and Hughes 1996). Others, such as Gigler, argue, “there is not a direct and causal relationship between ICT and development” (p.21), as impacts can be only traced back to the individual's empowerment. Kleine (2010), argues, that some ICT uses, which may be considered to be in the personal use category, under a closer look, might prove to be instrumental in changing how people see themselves, which then can lead to empowering outcomes. For instance, she mentions that for one female participant in her study, being able to “take virtual tours of some of the German cities she was not able to visit in person” (p.685) allowed her to partly fulfil a lifelong dream thus to a degree “achieving her chosen development outcome” (p.686).

Van Dijk (2006) explained that one of the issues is that the meaning of development varies from project to project therefore their focus tends to vary. For instance, some may focus on technological opportunities, life chance and freedom, capital (economic, social and cultural), resources, position, power, participation, capabilities and skills

(*ibid.*). Not having clarity on the conceptual meaning of development has been criticised, as a reason why ICT4D projects fail to address social inequalities (Kleine 2013; Oosterlaken and Hoven 2011; Zheng and Walsham 2008). Accordingly, using the CA to analyse digital inclusion programmes, focuses the analysis on whether ICT will indeed improve the individual's development. The positive impacts that ICT may have on the life of the individual may depend directly on what she values and has reason to value. Yet, as well as individual values, there are also another two elements that have to be considered: opportunities and critical thinking.

The importance of working on digital inclusion relies not only on eliminating inequalities but also on allowing people access to those opportunities that they value and have reason to value. As Busch (2011) states, "bridging digital divides [working on digital inclusion] is not just about getting access - it is more about what access can actually accomplish with respect to improving people's lives by providing real choice" (p.342). However, choice can be affected by adaptive preferences, or by having too many options. Having plenty of choices is irrelevant if not aligned to the individual's values and, even if relevant, "sometimes more freedom of choice can bemuse and befuddle, and make one's life more wretched" (Sen 1992b, p.59). Then, critical thinking will help the individual to critically assess the information and options available, to be able to make choices that will be aligned with what she values and has reason to value. This will diminish the impact of adaptive preferences and support the choice process.

Few authors have proposed specific frameworks, based on the CA, to evaluate ICT4D initiatives. Two frameworks will be presented and analysed here, as they bring interesting elements that are valuable for this thesis, Gigler's (Barja and Gigler 2007; 2004; Gigler 2011) ICT Impact Chain and Kleine's (2007; 2009; 2010; 2011b; 2013) Choice Framework. First, Gigler (2004) and later, Barja and Gigler (2007), used the CA to analyse digital inclusion from the perspective of poverty. The analysis was based on the question: "What role does access to information and communication through ICT play within the structural causes of poverty?" (p.15). They conclude that, considering that we are living in a society where "information is not only a source of knowledge, but also a special source of advancement of economic, social, political and cultural freedoms" (Gigler 2005, quoted in Barja and Gigler 2007, p.16), development could be promoted by allowing citizens to participate in such society. That is, to be part of the knowledge society, the individual needs to be able to use information and communication that will serve her

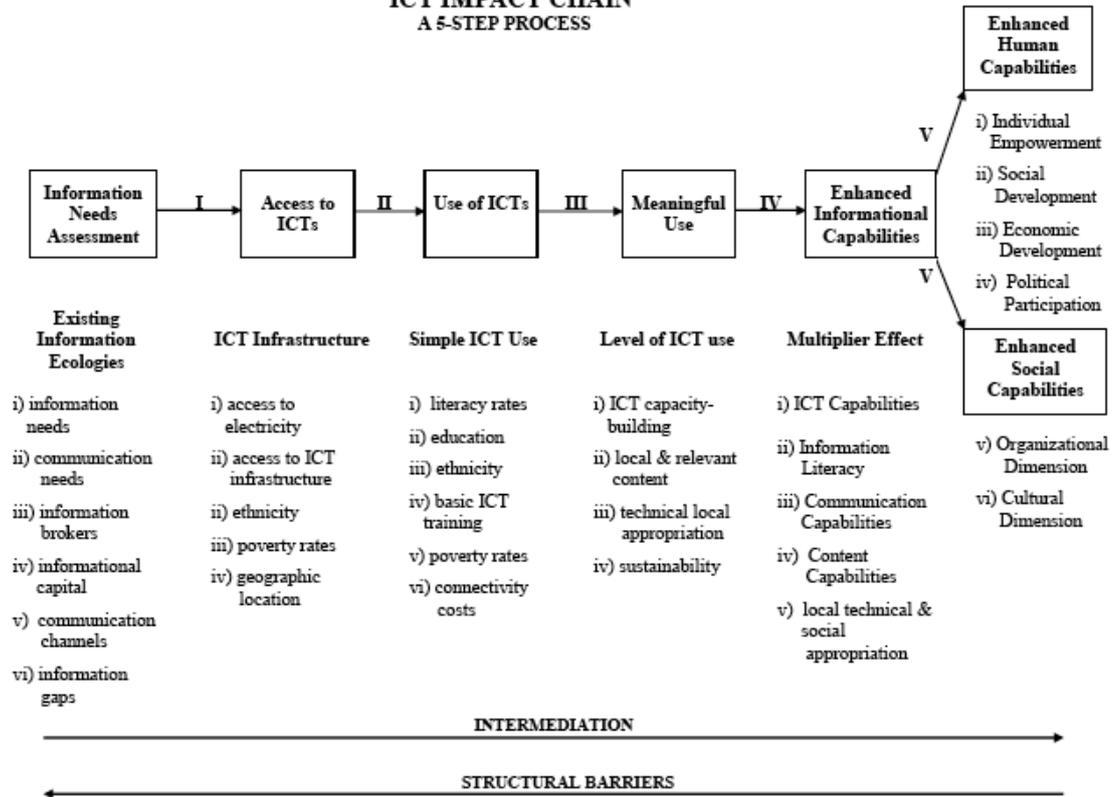
as inputs to pursue doings and beings she values and has reason to value: what Gigler (2011) defines as 'informational capabilities'. In his terms:

"[I]nformational capabilities' refers to the combination between a person's existing livelihood resources in terms of information (informational capital) and his/her agency (ability) to strengthen these assets and to use them in such a way that the use of information can help a person to transform his/her options in life in order to achieve the 'beings' and 'doings' a person would like to achieve" (p.8).

The absence of information and communication or the capabilities to use them may be considered a type of poverty, which is defined by Barja and Gigler (2007) as the "lack of the basic capabilities needed to participate in the society" (p.15). Their research supports the argument that information and communication are at the core of these technologies, and it is their relationship with knowledge that makes them instrumental for freedom.

Gigler's informational capabilities concept was the result of a study that intended to find out what was necessary for an ICT project to generate positive impacts on its beneficiaries (Gigler 2011). His research resulted in a framework (Figure 3-1) that, based on the CA, pictured a process of five steps, necessary for promoting human and social capabilities, in which both intermediaries and structural barriers influence the sequence permanently. Development organisations are defined as intermediary organisations whose aim is to serve as enabling factors by providing their beneficiaries with the necessary support in order to appropriate the technologies. These initiatives may be governmental, from civil society or from various other organisations. How these intermediaries introduce ICT varies. According to Gigler, some focus on operational and formal information skills, offering a fixed curriculum to their students, while others interact with their students and consider their context (where they are, their needs and expectations, or their available resources) to offer them customised support (*ibid.* p.9)

**ICT IMPACT CHAIN  
A 5-STEP PROCESS**



*Figure 3-1: ICT Impact Chain, a 5-step process (Gigler 2011, p.16)*

The value of this framework for this thesis is on the gap it identifies in the literature. Gigler states “the framework emphasises that a successful mediation process by an effective and local intermediary is required before ICT can have a positive contribution towards expanding the livelihoods of the poor” (2011, p11). Gigler (2011) mentions that while intermediaries that offer customised support seem to have greater success, what constitutes a ‘successful mediation process’ is not clear. This is the reason why this thesis is focused on the intermediaries’ role, as expressed in RQ1.

Second, Kleine (2007; 2009; 2010; 2011b; 2013) also proposed a framework to analyse ICT’s impact on development. According to this author, the choice framework “could be used to map and analyse ICT4D development processes” (Kleine 2011b, p.120). The choice framework was inspired by: ‘the process of empowerment’ by Alsop and Heinsohn (2005), and, ‘the sustainable livelihood framework’ by DFID (1999). On the one hand, for Alsop and Heinsohn (2005), empowerment “is defined as a person’s capacity to make effective choices; that is, as the capacity to transform choices into desired actions and outcomes. The extent or degree to which a person is empowered is influenced by personal agency (the

capacity to make purposive choice) and opportunity structure (the institutional context in which choice is made)” (p.3). Based on this understanding, Alsop and Heinsohn proposed a framework (Figure 3-2), which, according to Kleine (2010) “begins to capture the way individuals use their agency, based on their resource portfolio, to negotiate social structures to obtain choices which may lead them to their desired development outcomes “ (p.121).

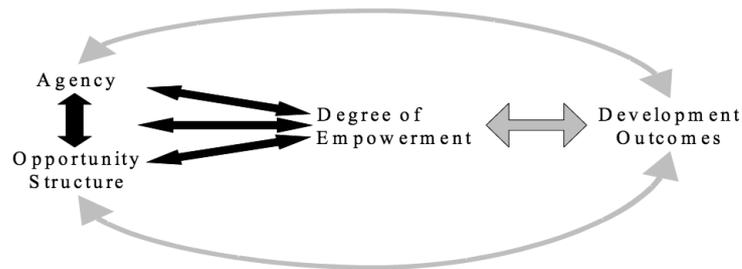


Figure 3-2: The process of empowerment (Alsop and Heinsohn 2005, p.6)

On the other hand, the ‘sustainable livelihood framework’ developed by DFID (1999), is a tool that “presents the main factors that affect people’s livelihoods, and typical relationships between these” (p.1). The framework (Figure 3-3) aimed to focus development practices on people, by providing a summary of the most important issues, their interactions and other processes that may affect their livelihoods.

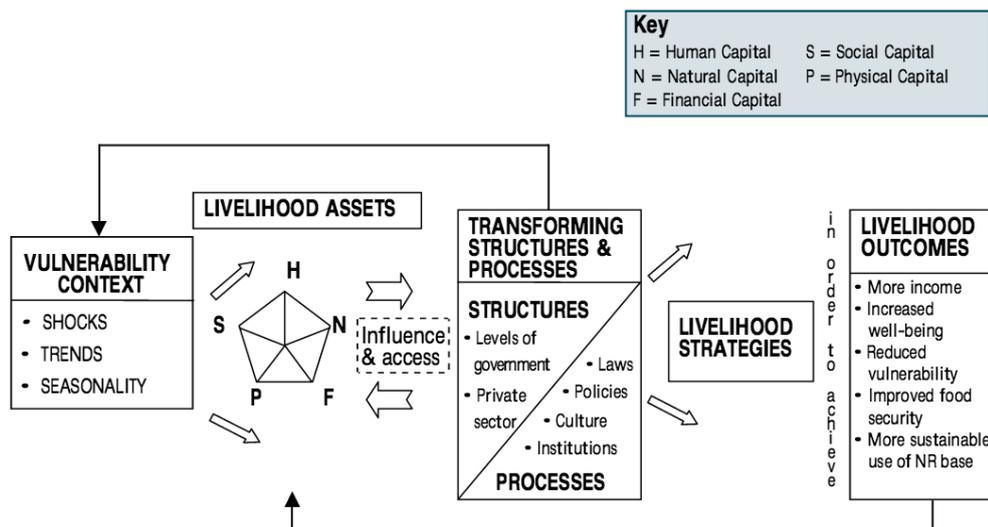


Figure 3-3: Sustainable livelihoods framework (DFID 1999, p.1)

For Kleine (2010), the “idea of a capital portfolio and elements of its visual representation” (p.122), were the main points taken from this tool in order to

propose a framework that would link ICT4D and the CA. Consequently, the choice framework (Figure 3-4) provides a tool for mapping the different elements that may influence development outcomes. This framework may also be used to plan and implement development projects, as it allows a clear visualisation of what elements would have to be part of the project.

Kleine's framework has been the base operationalisation framework used in this thesis. This framework has been cited over 120 times in the ICT4D literature. Her understanding of the dimensions of choice and agency as a portfolio of resources, have already been explained whilst introducing the CA. While this framework makes explicit the role of social structures, this thesis also introduces conscientisation as a requirement for development: the following section will introduce the framework used for this research.

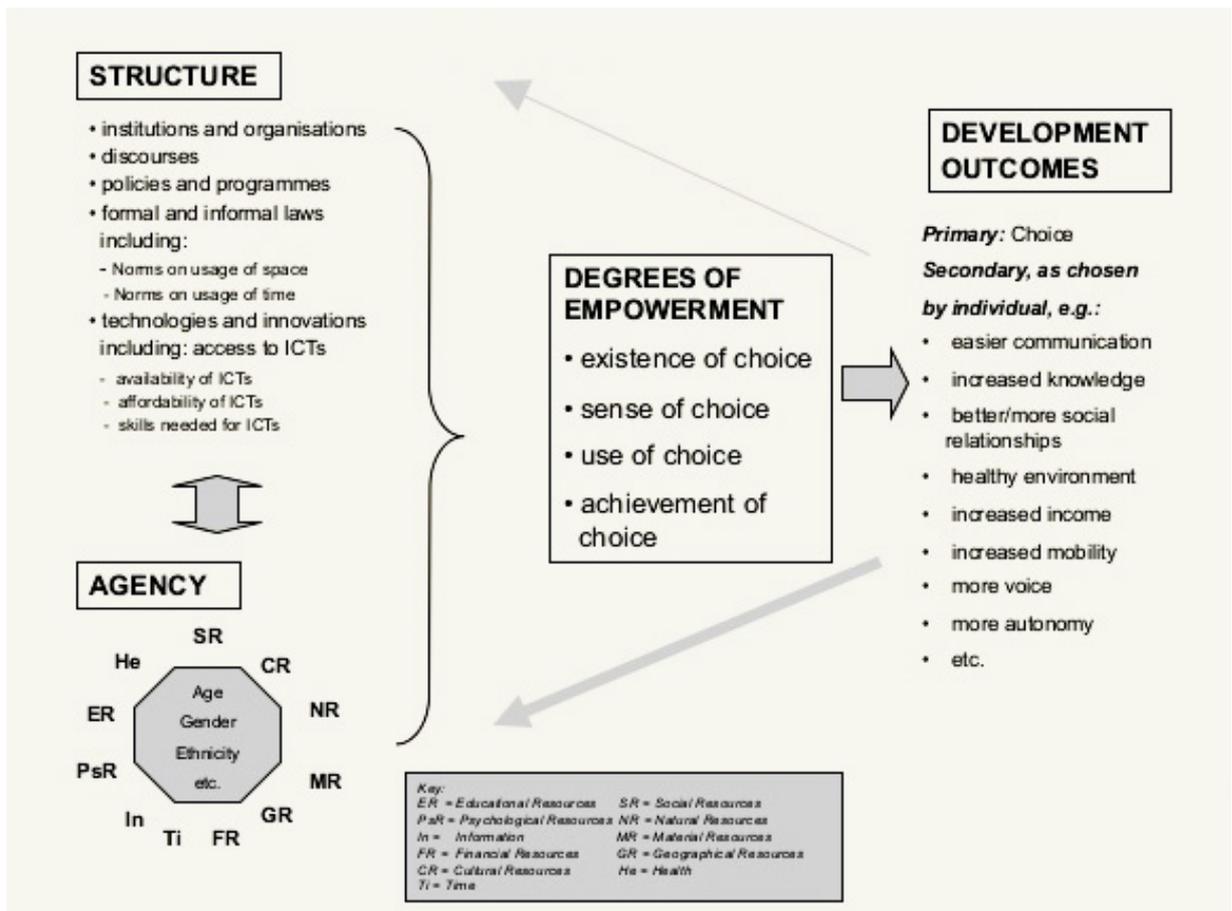


Figure 3-4: The Choice Framework (Kleine 2013, based on Alsop & Heinsohn 2005; DFID 1999; p.122)

### 3.5 Appropriation for development

Most research related to the digital continuum has focused on the material aspects of the phenomenon and on the most elemental skills required to operate ICT (van Deursen and van Dijk 2011; van Dijk and Hacker 2003; van Dijk 2006). However, even if material access remains a problem in many places in the world, due to cost and lack of infrastructure and hardware, the complexity of the digital continuum should not be ignored. Research on the relationship between ICT and education has explored different ways that individuals may improve their interaction with ICT. Some focus on information and ICT or 'information literacy' (Andretta 2005; Haras and Brasley 2011; Irving 2011; Weiner 2011; Whitworth 2011); on literacies for the knowledge society or 'e-literacy' (Brandtweiner et al. 2010; Martin 2003; Setiawan 2012); on skills for all kinds of media or 'media literacy' (Helsper and Eynon 2011; Pawanteh and Rahim 2011); on skills to use and interchange between different old and new media or 'transliteracy' (Thomas et al. 2007); or on how to read, write and learn with ICT or 'digital literacy' (Bawden 2008; Gui and Argentin 2011; Hinrichsen and Coombs 2014; Scoralick-Lempke et al. 2012).

Authors such as Mansell and Wehn (1998), Gonzales (2008) and Gigler (2011) argue that having the skills to use ICT and/or access to the software/hardware and infrastructure are not enough to guarantee an effective use of ICT. Mansell (2010) urges to reflect on how technologies are socially constructed:

"Norms, values, conventions and aspirations for the societies within which we live are changing, but they are not changing autonomously in response to the technologies of the Information Society. They are changing in response to human actions and decisions that are ongoing, contested and uneven in their outcomes. This is so despite the persistence of the voices of those who promote the singular, universalising vision of the best of times. Acknowledgement of this within the corridors of power may open up greater opportunities to admit 'evidence' from those who do not share the narrow focus of the economists and mathematicians on information processing and control systems" (p.180).

Considering the nature of the Internet, digital inclusion efforts should "emphasise values aimed at enhancing human wellbeing and inclusivity, without presuming that inclusivity in a homogeneous Information Society will be valued by everyone" (*ibid.*, p180). That is to say, although not everyone will value and have reason to value being able to develop software or write content for a blog, for instance, inclusion efforts should open up this choice for the individual. Using Kleine's (2010)

dimensions of choice, inclusion efforts should focus on supporting the individual with notions about what the computer and the Internet can do, i.e. existence and sense of choice, whether the individual chooses or not to use and achieve choices based on these notions.

For some authors, the problem begins with the term inclusion itself. According to Cabral and Cabral (2010), inclusion refers only to the transfer of some specific content to others, while a better term would be appropriation, as this recognises the active role of the person, acknowledging, in the case of computers and the Internet, that learning should go beyond digital skills to encompass learning about all the possibilities that may present, being able to use them on their own terms to solve their problems. Various authors support the idea that appropriation is the only way for ICT to promote development (Cabral and Cabral 2010; Camacho Jiménez 2001; González 2008; Rivoir 2009; van Dijk 2006).

Camacho (2001) affirms that a person will have appropriated ICT the moment she realises and uses the information and communication resources that ICTs provide, as one more source/tool for solving her problems. These arguments in favour of appropriation have a strong component of freedom: that is, allowing the individual to use ICT in the way they might consider most suitable. Drawing both on Sen and Freire, appropriation seems to be an option that will allow an increase in the individual's freedom – freedom which, according to these authors, has to be accompanied by reasoned choice and critical thinking in order to embody the individual's values, and not be a representation of constraining adaptive preferences. Thus, how the intermediary can support this kind of appropriation of ICT is one of the interests of the present thesis (RQ1).

Overdijk and van Diggelen (2006) define technological appropriation as “a process of social construction in which the actions and thoughts of the user are shaped by the technology, while the meaning and effects of the technology are shaped through the users' actions” (p.1). Taking a step further, van Dijk (2006, 2012) conceptualised appropriation as a circular process of four phases – motivation, physical and material access, digital skills and usage. This approach takes into consideration social structures, technology innovation and ICT usage<sup>4</sup> (Figure 2-6).

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<sup>4</sup> van Dijk has continued to develop this work and in 2014, together with van Deursen, they renamed this model as Resources and Appropriation Theory (van Dijk and Van Deursen 2014)

According to van Dijk (2006), considering continuous technological innovation requires understanding appropriation as a never-ending cycle, as technological innovations will continue to appear. In summary, these phases are (van Dijk 2006, pp.224-230; also, van Deursen and van Dijk, 2009, p. 895):

1. Motivation: lack of motivation due to:
  - a. no need or significant usage opportunities;
  - b. no time or liking;
  - c. technophobia;
  - d. lack of money; or;
  - e. lack of skills.
2. Physical and Material Access: Physical access to ICT among different demographic categories such as income, education, age, sex and ethnicity.
3. Digital Skills: different levels that have to be addressed in sequence.
  - Operational skills: the skills to operate computer and network hardware and software.
  - Formal information skills: the ability to understand and to handle the formal characteristics of a computer and a network, such as file structures and hyperlinks.
  - Substantial information skills: the ability to find, select, process and evaluate information in specific sources of computers and networks.
  - Strategic skills: the capacities to use information as the means for specific goals and for the general goal of improving one's position in society.
4. Usage: actual use of ICTs, measured by:
  - a. usage time;
  - b. usage applications and diversity;
  - c. broadband or narrowband use; and;
  - d. more or less active or creative use.

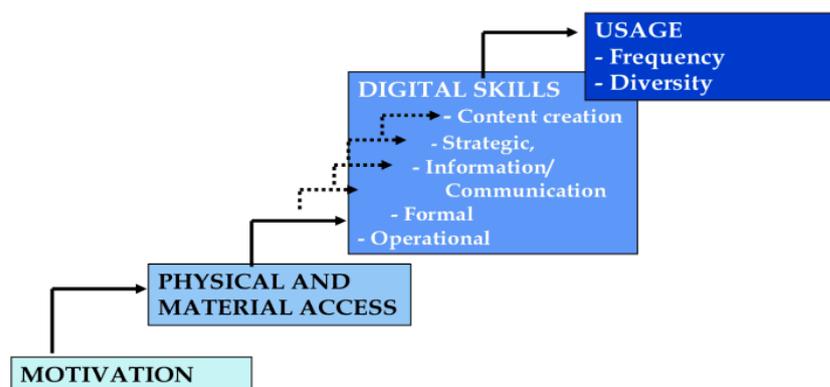


Figure 3-5: Four successive kinds of access in the appropriation of digital technologies (van Dijk 2012, p.61)

The first dimension, motivation, considers elements that may be related to personal aspirations and limitations related to time, education or financial resources, which

could be caused by social structures or interpersonal differences. These in turn may be related to the individual's agency and/or her adaptive preferences, as these may be either encouraging or constraining her ability to choose. The second dimension, physical and material access, describes what was conceptualised in this thesis as some of the elements of the individual's portfolio of resources. It explicitly considers material resources (i.e. computer and the internet *per se*), geographical resources (i.e. location and physical access), cultural resources (i.e. age, gender and ethnicity), and financial resources (i.e. income). The third access, digital skills, focuses on educational resources specific to ICT usage. Finally, the fourth dimension, usage, may be seen as what was defined in the CA as achieved functionings.

When a new technology is introduced, each individual may have different levels in each dimension. Considering that appropriation is a process rather than a single event, to appropriate technologies the individual has to identify her lack of access in one or more dimensions and overcome them. As some of this lack may be caused by her own adaptive preferences and/or by constraining social structures, consciousness may be a requirement for new technological adoption. Namely, by acquiring critical transitive consciousness, the individual may be able to identify how constraining social structures and/or her adaptive preferences were limiting her access, for which she may decide to initiate collective action to address social structures that limit her and her community's use of ICT.

Therefore, in this thesis, digital inclusion is understood as a process that aims to overcome digital inequalities through the promotion of digital appropriation and conscientisation. The purpose of proposing the following framework (Figure 3-6) is to integrate all the different elements that have been mentioned and support both the data collection and its interpretation. This framework guided the work conducted with the partner organisations during fieldwork. Also, this framework has been used to analyse and interpret the data collected. The availability of data regarding these elements, or its absence, may be interpreted as the individual experiencing empowerment or oppression accordingly.

The left arrow, connecting the individual and the structure, represents the relationship between the individual and the social structure, when it is not mediated by the intermediary. Conversely, the right arrows represent this mediation. The role of the intermediary is to guide the individual into a process of knowing better her

social structures, which is why it is placed in-between the structure and the individual. Inspired by the choice framework (Kleine 2010; 2011b; 2013), the individual is represented by her portfolio of resources, and, to facilitate the definition of the structure and the intermediary's offer, both have been represented by different dimensions, each related directly to each resource in the portfolio. This idea is the result of the participatory exercises executed during fieldwork, as this technique proved to be the best way to explain structure to partner organisations.

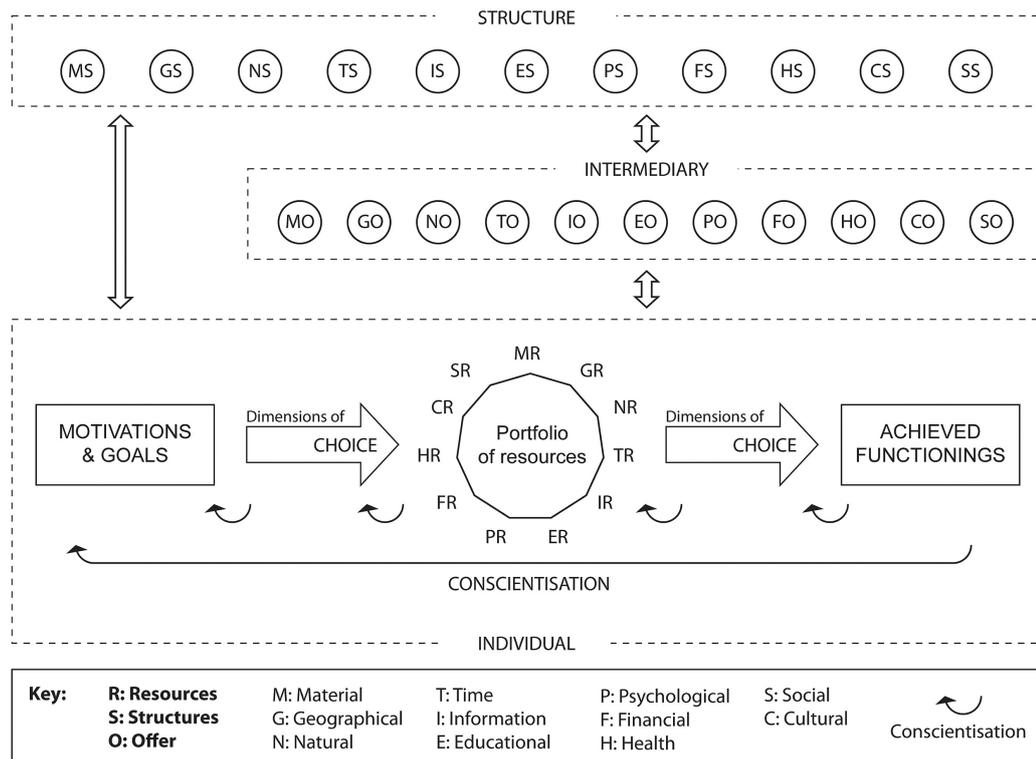


Figure 3-6: Appropriation for Development Framework. Developed by the Author based on Kleine (2013), Gigler (2011) and van Dijk (2012).

The lower rectangle of the figure, based on van Dijk's (2012) digital appropriation, represents the process by which the individual will transform her resources, constrained or enabled by the social structure, into functionings. Inspired by Freire, this process is represented by a continuous process of reflection and action – conscientisation, which, according to Freire has to occur permanently. Also, the four dimensions of choice have been included in the process, as appropriation could not occur unless the individual makes choices that lead to her development.

### 3.6 Conclusion: freedom, appropriation and conscientisation

Later, the digital continuum was introduced. This led to the analysis of initiatives that attempt to overcome digital inequalities, showing how appropriation, together with conscientisation, may support the individual to improve her ability to make choices that will lead to her development. Finally, a framework inspired by Kleine's (2007; 2010; 2011b) choice framework, Gigler's (2011) ICT's impact chain, and van Dijk's (2012) appropriation of digital technologies, was proposed as a tool for data collection, analysis and interpretation. This framework has helped to structure this thesis (Figure 3-7), where the analysis in Chapter 6 and Chapter 7 aims to set a base for responding to the different research questions, as an understanding of the impacts of the structure and the intermediaries' practices is required to study what the role of the intermediary would best be like (RQ1) and how this might/or not, be connected to conscientisation (RQ3) and social change (RQ4). Finally, Chapter 8 analyses the different ICT usages achieved by the individual and relates back to the analysis of the previous chapters to respond RQ2.

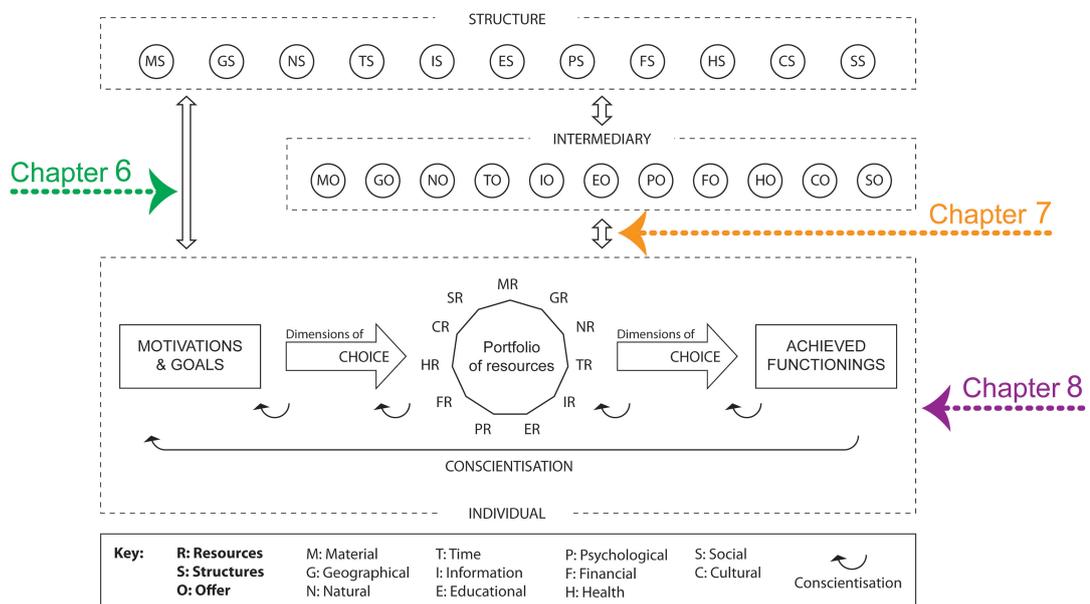


Figure 3-7: Appropriation for Development Framework showing its relation with the chapters of this thesis. Developed by the Author based on Kleine (2013), Gigler (2011), van Dijk (2012).

# Chapter 4 Fieldwork and data collection

## 4.1 Introduction

Authors such as Alkire (2007) and Robeyns (2003a) believe that the CA has to be operationalised according to the context of each study. However, it might also mean that the framework being used is appropriate for the context because it has been adapted to fit it. For this reason, this chapter will present first my positionality as a researcher, and second, how this research was designed to fit the theoretical framework introduced in Chapters 2 and 3. Finally, some ethical concerns will be addressed.

## 4.2 Researcher positionality

Reflecting on my own positionality as a researcher is necessary before defining a methodology. I am a young Latin-American woman who, after finishing my undergraduate degree, lived in Brasilia, Brazil, for six and a half years. There, I studied, worked, and became involved with voluntary work. Due to the nature of my last job in Brazil, before starting my PhD course in the UK, I was able to travel across Latin America and Europe, learning not only about Brazilian culture, language and traditions, but also from other countries. Those years helped me to define who I was professionally and personally, while learning how to be what I call a multinational citizen.

While working during the daytime in an international development project, I was also a volunteer in a digital inclusion organisation, CDI in Brasilia, in my free time. CDI is a digital inclusion NGO committed to Freirean pedagogy. My professional experience with development and volunteering experience with CDI were the basis of my PhD research proposal. With CDI originating in Brazil, it made sense to trace their work in this country. I am fluent in Portuguese, and my understanding of Brazilian cultures and traditions allowed me to relate easily to my partner organisations and others who were involved in the research. Having said this, it is important to reflect critically on my personal attachment to CDI's work. CDI is a worldwide NGO with several independent offices in Brazil and abroad, each with

some autonomy, as will be explained in section 4.5. Since I wanted to avoid over-familiarity, I was able to establish contact with a different CDI office from the one I had volunteered in in Brasilia. This meant I had to interact with people who I had never met before. Nevertheless, choosing CDI Campinas was not a random choice. Similarly to CDI Brasilia, CDI Campinas was known to be particularly committed to the Freirean pedagogical practices I was interested in studying.

Being a foreigner caused a double impact. On the one hand, being a student from the UK immediately accredited my work as a researcher; however, on the other hand, it increased suspicion about my motives, particularly from CDI's staff. This was addressed by having a meeting just with CDI's staff, in which they had the opportunity to ask as many questions as they wanted. Also, to facilitate collecting data from participatory observation, and to give something back, I opted to behave as one of the team, supporting them with the design of posters and flyers, teaching some courses and giving a hand in any event they organised during my stay in Campinas. However, it is important to reflect upon how this may have impacted this research. As will be explained in section 4.4, although I offered to conduct participatory research with the two organisations involved in this study, only CDI accepted, which meant I spent more time with this organisation than with Jovem.com, the second organisation. This was also caused by the fact that CDI had a bigger team and more activities taking place which I could attend and observe. Additional efforts were undertaken to keep the analysis critical for both organisations. For a reflection on this and other methods used to collect data, refer to section 4.4.3.

Being a woman helped enormously during interviews as, by coincidence, all my adult participants were women, which allowed us to have very open conversations about gender relations. Conversely, my gender limited my mobility during my stay in the city, as I was advised not to walk alone or use public transport after sundown. The neighbourhood where I was staying did not have food stores, restaurants or coffee shops I could reach safely walking, so I had to organise my schedule accordingly. Only during my last month in the city, when I had achieved a good level of familiarity with some friends, was I able to enjoy some evenings, sleeping over at other people's houses. This caused me discomfort, and also made my stay in Campinas emotionally challenging, but provided me with an inside view of other people's experiences, in particular women, of living in that city.

Finally, my physical complexion and ethnicity was, surprisingly, helpful. Being short in stature and my youthful complexion helped me to establish horizontal relationships with all those I interacted with, even though they knew my nationality and level of education.

### **4.3 Research philosophy**

In the same manner in which the researcher's positionality was explained, it is necessary to explain the epistemological and methodological approach used in this study. Epistemology is the theory of knowledge, which explains how knowledge is acquired, considering in particular the methods used, their validity and its scope (Carter and Little 2007; Hughes and Sharrock 1980). Positivism, mostly a quantitative tradition, and constructivism, a qualitative interpretative approach, are the main epistemological approaches (Henwood and Pidgeon 1992). While positivism stresses reality can be described by universal laws of cause and effect and objectively defined facts (Henwood and Pidgeon 1992); constructivism contends that reality has to be represented through the eyes of the study participants, giving special attention to "the importance of viewing the meaning of experience and behaviour in context and in its fully complexity" (*ibid.* p.16). This approach values the perspective of the study participants, their experiences and their own interpretations of their world. As explained in Chapter 3, individuals may have many options available from the internet, but is their choices which will determine whether this options are or not used. Hence the importance of valuing the study participants' perspectives to understand how a methodology may be influencing their decision making. Also, considering all individuals are agents, even if their adaptive preferences limit their own agency, it is imperative for me, as a researcher, to treat them as the agents they are, bringing to the fore their own understandings of the world. For these reasons, this study follows an epistemological constructivist approach.

Choosing this approach implies also determining specific methods and provides a tool for delimiting the scope of the study. In the case of methods, research using the CA has been executed with both quantitative and qualitative data, as detailed in Chapter 2. Robeyns (2003a) stated that qualitative methodology resulted in more descriptive studies, obtaining much more depth in the analysis. Then, considering the focus on individual's own perspectives, and the purpose of this research to

understand in-depth processes such as which elements are part of the system, how they relate to each other, and the consequences of those interactions, a constructivism epistemological approach was enacted, using in-depth qualitative analysis with a small group of people.

Qualitative methodology is a term that serves as an umbrella for several methods. Very few studies just adopt a single perspective, but instead triangulation is used (2006). Considering that Sen proposed the CA as an alternative to other approaches, to be able to see a situation via a wider informational basis (Sen 1999c, p.86), a triangulation approach with different methods, mainly qualitative with some quantitative elements, was used in this study.

Freire's problem-posing education (PPE) is considered to be the father of participatory action research (PAR) (Chambers 1994a; Cleaver 2001; Kesby et al. 2007; Parkinson 2009; Seale et al. 2004), therefore, the possibility of using PAR for this research was also considered. PAR researchers "recognise the existence of a plurality of knowledges in a variety of institutions and locations" (Kesby et al. 2007, p.9). This kind of research values democracy, social justice and emancipation (Gilbert 2008, p.104), as do both Sen's and Freire's ideas. However, because PAR implies action, and this research is mostly an evaluation rather than actively proposing changes, research for this thesis was confined to action research using participatory methods, only including the philosophical values from PAR. Namely, members of both organisations were considered as partners, becoming both researchers and beneficiaries from the process/study being executed, seeking to level the power relations between the individuals involved (Chambers 1994a; 1994b; Gilbert 2008; Kesby et al. 2007; Reason 1994). As Clive et al. (2004) indicate, "researchers working within this frame [namely, PAR] are charged with being sensitive to issues of power, open to the plurality of meanings and interpretations, and able to take into account the emotional, social, spiritual and political dimensions of those with whom they interact" (p.536). Using participatory methods is also beneficial when using the CA. Frediani (2008) explored the connections between the CA and participatory approaches and concluded that the CA "contributes to the application of participatory methods by providing an evaluative framework that can overcome the limited application of participation as mere tools leaving the root causes of poverty unchallenged. Meanwhile participatory methods contribute to the capability approach by offering a variety of thoroughly developed and researched tools and techniques" (p.2-3).

Participatory research has received some criticisms over the years, some have argued that instead of empowering communities, it has become a tool to force project legitimacy (Cleaver 2001; Kothari and Cooke 2001; Kothari 2001; Mosse 2001). Mosse (2001) refers to this by stating “participatory approaches and methods also serve to represent external interest as local needs, dominant interest as community concerns, and so forth” (p.22, emphasis from original). This may occur because not all the relevant people participate or are represented or because all those involved may not participate actively or freely, as “the very act of inclusion, of being drawn in as participant, can symbolise an exercise of power and control over an individual” (Mosse 2001, p.142). Fortunately, when I arrived in the field, I realised CDI had embedded in their practices a culture of participation, both in their activities within the organisation and in their relationship with their partner organisations. Decisions were taken by collective agreement and responsibility was shared among all those involved. Even small things, like the organisation of coffee breaks during meetings, are done in a collective manner, in which all participants contribute food and drinks. CDI’s coordinator indicated that this was a challenge as it required great commitment and it was time consuming. Also, the lack of familiarity of some participants with horizontal relationships meant sometimes people pulled away from participation or collective agreements were not achieved.

Nevertheless, as this culture was under construction, this facilitated immensely the use of participatory approaches, as these were already the culture this organisation wanted to move towards. On the other hand, JC had a very hierarchical, vertical structure, which allowed for little participation. Decisions were taken mostly by the coordinator, in consultation with her immediate superiors at City Hall, but not with her own team. Instead of seeing this as a limitation, I preferred to see it as an opportunity. As I was conducting participatory workshops with CDI I offered participatory workshops with JC but they explained that they had no time or human resources to engage with such processes. So I suggested that the research objectives and methods agreed upon at the workshops with CDI would be used for both organisations, to which both agreed.

Hence, even though participation may offer an opportunity to promote empowerment and to level power relations, the observational nature of this research required for me to avoid as much as possible changing practices at the classrooms, although my presence itself in the classroom was already a change, as will be explained in section 4.4.3.

Referring to the scope of this research, opting for an epistemological constructivist approach meant that the research participants' stories would also influence the content of the analysis. This influence can be seen in this research in at least two ways. First, as was explained in Chapters 2 and 3, a specific theoretical framework was defined prior to the fieldwork. However, some concepts, such as space, mobility and gender, presented in section 2.5, were only included after fieldwork, inspired by the data collected. On the one hand, adding these concepts enhances the analysis of the study. On the other hand, having added these concepts only for the data analysis means data was not collected specifically, for example, to understand gender issues in depth. It is important to clarify this issue so as to explain why this thesis is not a space/mobility/gender study *per se*, and to consider the limitations the analysis of these concepts may present to experts in each of these areas.

Second, defining development as what individuals value and have reason to value, implies asking what individuals value. Different people may define their values in different manners, and it could be argued that some values represent higher-level aspirations. This thesis considers the individuals' values just as they reported them during their interviews and surveys. This decision was taken considering my epistemological position, so as to report what the participants said and their views. This means that the values considered in the analysis within this thesis are not all at the same level. However, I chose to have this variety in order to avoid interpreting the participants' values, which I believe I could not do without imprinting my own world view into them.

Considering this research philosophy, the following section will introduce the research design – the operationalisation of the conceptual framework and methodology - that will subsequently be the basis for introducing the different methods used during fieldwork.

#### **4.4 Research design**

Because this thesis is interested in the impact of the methodology a programme uses to promote digital inclusion and its corresponding impact on the individual's computer and internet appropriation, this research used a longitudinal design to enable changes to be tracked over time. However, before initiating any data collection process, some work with the organisation was conducted, not just to allow

participation and agree on the methodology and methods to be used, but also to do some research about the organisation and the context, which facilitated my understanding of the location in which the study was taking place. Together with each organisation, two courses were chosen. Also, considering not only students were part of the study, but also the organisation, two different methodologies for data collection were designed.

#### **4.4.1 Methodology for data collection**

Before the start of fieldwork, a baseline examination was conducted. Following the proposed operationalisation (see section 4.4.2), an initial review of documents and archives was conducted to get to know both intermediary organisations and the social structures in the city of Campinas, so that I had a basic understanding of the location and organisations with which I was going to be working. Initial meetings with the coordinators of CDI and JC aimed to clarify the purpose of the research and the objectives for both partners. During these meetings, interest in the research was expressed and support was offered within each organisation's capacities. Also, it was agreed that, due to the importance of the research to each organisation's staff, initial meetings with them were also to be conducted, aiming to build rapport (for a full detail of all the activities conducted during fieldwork, see Appendix 1).

In CDI's case, I met specifically with the pedagogy team (four members of staff), while with JC, I met with the pedagogy coordinator and the social-worker coordinator. CDI's staff, in true Freirean style, 'bombarded' me with a wide range of questions, from personal matters - who I was, what had I done before being a researcher - to more academic matters - why was I interested in the topic, what would be the benefits of this work for me and the organisation, what was being expected from them and how they could benefit personally from engaging with the research, and so on. It was overall a very intense meeting for me, but it did ease their anxiety, after which I had a very good relationship with them.

The CDI team indicated that they wanted to open the invitation to all members of the CDI network so that a variety of views could be considered, which I was glad to hear and agreed. Conversely, JC's meeting was shorter. They offered to support my work, but asked not to be involved in any design or data collection, as they did not have a big team and were already overwhelmed with work.

The initial workshop was held at CDI's headquarters (see Plate 4-1), lasted one full-day and one half-day, and included the participation of members of CDI's staff, local coordinators of CDI's partner institutions, teachers and one volunteer (9 participants). The first day of the workshop (15<sup>th</sup> February 2013) consisted of a discussion about my research and the theory informing its design, namely my theoretical framework, giving the participants the opportunity to comment and, together as a group, ground the concepts in real case scenarios: for instance, when discussing the portfolio of resources, participants started to propose how to operationalise them, e.g. psychological resources such as self-esteem and leadership. This was followed by a mapping exercise, to identify all monitoring and evaluation (M&E) tools being used at that time, their objectives and methods of collection and analysis. It was agreed that a questionnaire was the best way for them to collect data, as it facilitated the standardisation of data among all CDI's courses, it was straightforward and all students were familiar with questionnaires, and this approach did not demand as much time from their staff as interviews or other methods would take. It was then requested that I use this method too. Afterwards, a comparison exercise was done where previous theoretical concepts were matched with current M&E tools/questions.



*Plate 4-1: Initial Workshop at CDI's Headquarters. Credit: Author*

It was agreed that participants would send me all current M&E tools, and that I would then develop a questionnaire based on these tools and circulate for comment. The second day of the workshop (22<sup>nd</sup> of February 2013) consisted of a discussion about the questionnaire and ended by agreeing that participants at these meetings would act as focal points for any question or requests I might have.

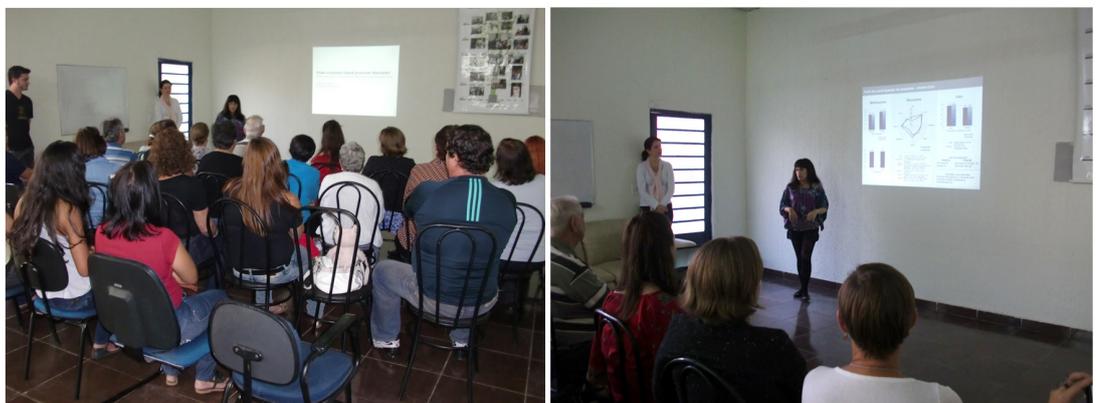
The mid-term workshop (6<sup>th</sup> June 2013) was also held at CDI's Headquarters (see Plate 4-2). Members of the focal point group were invited (not all of them attended)

as well as the teachers, coordinators and CDI's staff involved directly with the two CDI courses being researched (12 participants). A summary of the activities completed was presented, together with the challenges faced and what had been done to address them. Teachers of the two CDI courses presented their own opinions and reflections on the process and proposed adjustments. Changes were discussed and agreed as a way of updating the collection tools for the second phase of the study.



*Plate 4-2: Mid-term Workshop at CDI's Headquarters. Credit: Author*

After consulting with CDI's coordinator, it was agreed that the students should be able to see the results of the research, presenting some reflections and allowing students to ask questions. From both schools participating, only Eufraten organised a presentation meeting with the students (17<sup>th</sup> July 2013). It was held at Eufraten's auditorium (see Plate 4-3) and included the participation of family and friends of the students, with teachers and staff from Eufraten (20+ participants). Due to limited resources and lack of leadership, a results presentation was not possible at EEE.



*Plate 4-3: Presentation of results at Eufraten. Credit: Author*

A results/final workshop (24<sup>th</sup> of July 2013) was organised at CDI Headquarters (see Plate 4-4). CDI's Coordinator asked for this meeting to be exclusive only to those involved in the research, rather than the entire CDI network, as the initial workshop had been. All CDI's members of staff and three members of their Board participated, plus the two teachers from the two courses researched (10 participants). Preliminary findings were presented and analysed jointly. There were opportunities for questions and discussion. It was concluded that, although they wanted to apply the tool, the NGO's needed to find the adequate human and financial resources to be able to implement it, therefore having to wait until they had more resources (refer to Appendix 2 for a letter of appreciation received from CDI).



*Plate 4-4: Presentation of results and feedback meeting with CDI. Credit: Author*

With JC, three results presentations were organised. The first was directed to the students of HM Telecentre (see Plate 4-5). Other commitments of the students from ECEE Telecentre did not permit us to have a similar presentation. The second presentation was a results/final workshop (15<sup>th</sup> July 2013) with the fellows and staff of JC. Initial results were presented and these were discussed with the fellows. Third, JC's Coordinator asked to have a smaller meeting to present the results to

JC's staff and the Head of the *Secretaria Municipal de Cidadania, Assistência e Inclusão Social* – SMCAIS (Municipal Secretary for Citizenship, Assistance and Social Inclusion). This meeting (17<sup>th</sup> July 2013) was held at the offices of SMCAIS. The Head of SMCAIS posed various questions and asked for suggestions on improvements. It was concluded that they would consider the results of my research in the restructuring of the program, planned to occur in the following months (refer to Appendix 3 for a letter of appreciation received from the SMCAIS).



Plate 4-5: Presentation of results at HM Telecentre. Credit: Author

In relation to the students, the data was collected in two phases. Phase A, at the beginning of the course, aimed to capture the individual's original motives to seek a digital inclusion course, her initial portfolio of resources, and the functionings she expected to achieve after the course. These enabled me to set a baseline to track changes for the individual. Phase B, after finishing the course, intended to collect data about motives, resources and functionings to compare them to phase A. It is important to remember that at this point, the individual's experience with the course was still fresh, so it does not reflect how the individual would behave months after finishing the course. This comparison was especially important to answer RQ2, which refers to the individuals' resources. However, as the support of the intermediary is also a focus of this thesis, participant observation was conducted throughout the courses to see how this was being implemented.

#### **4.4.2 Participatory operationalisation of theoretical framework**

The theoretical framework produced prior to the fieldwork was introduced in an initial two-day workshop, as explained in section 4.4.1. At this workshop, I presented the CA and Freire's theories and how I was proposing to integrate them. Together with

the participants, the theoretical framework was operationalised. What was agreed is presented as follows:

*What the individual values and has reason to value*

This was understood to be the base for an individual's motivation to use ICT in the first place. This may reflect some adaptive preferences, but what is valuable for this research is how these perceptions might change due to the course taken by the individual.

*The individual's portfolio of resources*

Representing the individual by her portfolio of resources was a concept that participants of the workshop understood and appreciated. What interested them the most was the possibility of relating each resource to specific services from the intermediaries and corresponding social structures. For this reason, both the intermediary and the structure have replicated the 11 resources proposed by Kleine's (2013) portfolio (refer to Figure 3-5). It is important to clarify that discussions during the Initial Workshop eliminated two resources, as these were considered irrelevant for this particular study, these were health and natural resources. The data collected in phase A had various incomplete sections, mostly those related to financial resources. This was discussed during the mid-term workshop where it was decided to eliminate this resource in phase B.

<b>Resource</b>	<b>Operationalisation in this study</b>
Material resources	Ownership or access to hardware and software. Ownership or access to Internet.
Geographical resources	Ease of access to the location of the ICT course, in terms of infrastructure –roads, sidewalks–and closeness to the individual’s home. If transport was necessary, ease of the mode of transport chosen–public or private.
Informational resources	Number of information sources available to the individual.
Financial resources	Available income: personal income minus the basic expenditures (only used in phase A).
Time resources	Variety of activities being conducted during the individual’s free time. The group explained that usually participants on the courses have limited free time, so we intended to find out what that free time was being used for.
Psychological resources	Personal skills and characteristics related to: being able to listen to others, teamwork, leadership, planning, self-confidence, self-esteem, plan for the future and being responsible.
Educational resources	A list of skills was presented, inspired by van Deursen and van Dijk’s (2009) list of digital skills and the EqualSkills Syllabus from the European Computer Driving License Foundation (ECDL Foundation, 2011), which is a basic program that seeks to provide basic computer and internet skills to its participants. This list was revised and the group agreed on all its items, asking for them to be used (see Table 4-2 below).
Cultural resources	The concept of ‘cultural capital’ was very difficult for the group to accept, so they chose to focus instead on elements that might constrain or enhance the individual due to cultural beliefs. These elements are discourses around age, gender, race, religion, level of education and leadership roles, which are then internalised by each individual in different ways.
Social resources	The group acknowledge the importance of social capital, and identified the kinds of groups that may exist where CDI works. The following were identified: religious groups, community organisations, political parties, and activist groups.

*Table 4-1: Operationalisation of the individual's portfolio of resources.*

As mentioned above, educational resources were operationalized using van Deursen and van Dijk’s (2009) list of digital skills, as shown below:

<b>Education resources</b>	<b>Operationalisation for this study, list of skills as defined by van Deursen and van Dijk (2009)</b>
Operational skills in using a Computer	List and compare different types of computer (i.e. personal computer, laptop computer etc.)
	Identify and understand different components: system unit, monitor, mouse, keyboard.
	Start the computer and log on securely using a user name and password. Shut down the computer properly.

	<p>Understand functions of a mouse: select items, move items, issue commands to computer, and use it accordingly.</p> <p>Understand that the keyboard is a mode of data entry and a method of giving commands to the computer, and use it accordingly.</p>
Operational skills in using the Desktop	<p>Understand what a computer desktop is, and locate, recognise and use its elements: different icons, files and taskbar.</p> <p>Select and activate common desktop icons.</p>
Operational skills in using a window	<p>Identify parts of a window, such as the title bar, scroll bars, scroll bar markers, status bar, menu bar, ribbon, toolbar.</p> <p>Collapse, expand, resize, move, scroll up and down and close a window.</p> <p>Switch between open windows.</p> <p>Know the main types of storage media, such as: internal hard disk, USB Flash drive, DVD, online file storage.</p> <p>Understand the function of different types of applications, such as word processing, spreadsheet, database, presentation, and recognise common file types and associated icons, such as .doc, .xls, .mdb, .jpg, .mp3.</p>
Operational skills in using internet browsers	<p>Understand what the internet is and its different services, such as the World Wide Web (www) and email.</p> <p>Open websites by entering the URL in the location bar.</p> <p>Navigate forward and backward between pages using the browser buttons.</p> <p>Save files on the hard disk.</p> <p>Open various common file formats (e.g. PDFs).</p> <p>Bookmark websites.</p> <p>Change the browser's preferences.</p> <p>Use text or images with hyperlinks.</p> <p>Print a web page.</p>
Operational skills using Internet-based search engines	<p>Enter keywords in the proper field.</p> <p>Execute the search operation.</p> <p>Open search results in the search result lists.</p>
Operational skills operating Internet-based forms	<p>Use the different types of fields and buttons. Submitting a form.</p>
Formal skills for Document Creation	<p>Open a word processing and/or database and/or presentation application.</p> <p>Change and apply text formatting: font types, font size.</p> <p>Copy, cut, move text, insert basic formulas (when appropriate) and insert images within a document.</p>

	<p>Print a document from an installed printer using output options (i.e.: entire document, specific pages...).</p> <p>Save and name a document in an appropriate file.</p>
Formal skills for using Email	Know about different email accounts: internet Service Provider (ISPs) Accounts, Webmail.
	Understand the make-up and structure of an email address.
	Send emails, with or without attachments.
	Receive emails, understanding the security risks (virus).
Formal skill used to navigate on the Internet	Use hyperlinks embedded in different formats, such as text, images, or menus.
	Understand the concept of an online (virtual) community. Recognise examples like: social networking web sites, internet forums, chat rooms, online computer games, blogs.
Formal skill in maintaining a sense of location while navigating	Not becoming disoriented when navigating within windows, documents or websites.
	Not becoming disoriented when navigating between windows, documents or websites.
	Not becoming disoriented when opening and browsing through search results on the desktop or web.
Information skills used to locate required information	Choose a website or a search system to seek information.
	Define search options or queries.
	Select information on websites or in search results. Understand the dangers (scam, phishing, hacking...).
	Evaluate information sources.
Strategic skills	Develop an orientation toward a particular goal.
	Take the right action to reach this goal.
	Make the right decision to reach this goal.
	Gain the benefits resulting from this goal.

Table 4-2: Operationalisation of digital skills. Based on: van Deursen, van Dijk 2009

### *Funtionings*

This represents the actual ICT usage: what applications are being used (i.e. different software) and for what purposes (i.e. leisure, work, learning, among others).

### *Social structure*

Each context where people live may have different characteristics that may constrain or enhance the individual's portfolio of resources, which also will ultimately increase or decrease her capabilities and freedom. To be specific, various individuals may attend the same course but their own interpersonal differences and the social structures they experience daily will influence what each will gain from that course.

<b>Structures</b>	<b>Operationalisation in this study</b>
Material structures	Are the basic services (internet, water, electricity, etc) available? What are their costs? ICT services and infrastructures?
Geographical structures	What are the transportation services like in the region? What are their costs? What public or private services are available?
Informational structures	Are there any local media groups? For instance: community radio, community web page, other information web pages, printed journal, local systems for information transfer, among others.
Financial structures	Socio-economic situation of the region. Basic need costs (only used in phase A).
Time structures	Are there times during the day when it might be too dangerous to walk outside?
Psychological structures	Safety of the place? Crime? Opportunities for personal growth?
Educational structures	How many schools are available? What level of education is offered (primary, secondary, university)? What are their costs?
Cultural structures	What is the community understanding of discrimination or injustice? Does it exist? How? To whom? Are there any cultural reasons why an individual may be praised (i.e. earn a college degree, be the leader of an NGO)?
Social structures	Does the community have associations (religious, political, etc)? Are there any laws/policies/etc related to ICT or information that may affect this community? What is the government doing about digital inclusion in this region? Are there any hidden rules on how people should behave? Whom do they have to reach for advice? Are there any peer pressure situations?

*Table 4-3: Operationalisation of the social structures.*

### *Intermediary's offer*

Digital Inclusion programs offer different products and services to the individual. These will affect the individual by changing both her resource portfolio and her agency, which will also ultimately increase or decrease her capabilities and freedom. To be specific, an individual will approach a digital inclusion initiative with a portfolio of resources in phase A, which will be altered, by a combination of the person's own interpersonal differences, social structures and the course taken, into a portfolio of resources in phase B.

<b>Offer</b>	<b>Operationalisation in this study</b>
Material offer	What kind of hardware and software is on offer to the students? In what conditions? Do you give them permanently or temporarily? Who has access to these computers (students, previous students, family?)
Geographical offer	Do you offer the students any support for transportation? Where is your centre located? How did you choose that location?
Informational offer	What media do you use to promote/communicate what the organisation offers? What messages are you trying to communicate? For what reasons?
Financial offer	How much does the course cost? If it is free, why? Do you have any specific requirements so an individual may access the course for free? (only used in phase A)
Time offer	How long does the course last (time per class and the whole course)? Is the lab open all the time? At what times is the lab open for students or the general public?
Psychological offer	Do you focus on the individual's life skills and/or cognitive skills? If so, how and why do you focus on them?
Educational offer	What skills are taught in the course? In what depth?
Cultural offer	Is the culture of the community considered in any way in the course? How and why? How are discourses around gender, race, and class considered, if at all, in the organisation's offer?
Social offer	Do you encourage group work during the training? Do you promote contact/relations with other groups/institutions? As an organisation, do you work with any other organisations in the community? Do you promote any actions in common?

*Table 4-4: Operationalisation of the Intermediary's offer.*

#### **4.4.3 Methods for data collection (mixed methods)**

The participatory exercise conducted with CDI facilitated the design of a questionnaire to be applied with the participants of the ICT courses. It was agreed that I would collect the data using that tool as a way of testing its validity, so CDI could potentially use it as a pattern for all their courses. However, it was discussed with the group at the workshop that a questionnaire was not going to provide enough data for my PhD study. Accordingly, it was agreed that I would conduct interviews and participant observation in parallel with the questionnaire, and would share my insights from this data with CDI at the end of the data collection.

Keeping this in mind, during the first lesson of the ICT courses, the teacher introduced me and justified the reasons for my presence. I mentioned the objective of the study and made clear that anyone had the right to participate in the study or

to decline to do so, and even, if they – as a group – did not feel that I should be studying their course, they had the chance to choose that too. Finally, I invited the students to ask me any questions they had about me, my research, or anything they felt curious about. This allowed us to have a more informal initial conversation with all four groups, which was followed by a thank-you from the teacher, who immediately started the lesson. All four groups agreed to participate in the study.

In summary, 4 different courses were observed, two *CDI Comunidade* from CDI (Eufraten and EEE) and two telecentres from JC (ECEE and HM). During these courses, participatory observation was conducted and fieldnotes taken. Students from these four courses responded to questionnaires and were interviewed (audio recordings available) at the beginning and at the end of the course, a total of 35 interviews and 37 questionnaires in phase A and 28 interviews and questionnaires in phase B, i.e. 28 complete datasets. Interviews were conducted with teachers of those courses (4), coordinators of those courses (4), CDI's team (5), other CDI teachers (5), JC's team (4), other JC Fellows (9), and interviews with speakers from the Digital Culture Week event (5) (for a complete profile of the interviewees, refer to Appendix 4). Also, photographs were taken, with permission, from the surroundings of the 4 course locations, and fieldnotes reflecting on the different activities were also recorded (for a detailed list of activities and data collected, refer to Appendix 1).

Additionally, various activities of CDI and JC were observed. As part of my fieldwork, I was able to undertake participant observation of all the activities in which CDI was engaged and some of JC. With CDI I was a participant on the 'Social Educator Program', made up of sixty hours of training, four hours per week, which is a requirement for all new teachers and new members of staff, as an introduction to CDI's aims and values. I also participated in one lifelong learning training session (ten hours), three CDI network meetings (five hours each), two meetings at the 'Forum da Cultura Digital' (two hours each) and activities of the four-day event 'Semana da Cultura Digital', and supported CDI in two campaigns related to external issues (children's rights and citizens' rights to better transport – one day each). With JC I was able to observe the weekly training their Fellows received. Fellows were divided into two groups, and received the same training, either in the morning or in the afternoon (4 hours each). The following sections provide detailed information about each method used to collect the data.

### *Semi-structured interviews*

According to Clive et al. (2004), “interviews are... social encounters where speakers collaborate in producing retrospective (and prospective) *accounts* or *versions* of their past (or future) actions, experiences, feelings and thoughts” (p.16, emphasis from original). The data collected is not a literal reflection of reality. It is impossible to know what the truth is. An interview represents a subjective interpretation of reality, constructed by the interviewee and interviewer (Miller and Glassner 2011, p.131-133). This represents how the individual sees her experience, and how she chooses to represent it to the interviewer.

The type of interview used was a semi-structured interview, which differentiates itself from a standardised interview in that the interviewer, while using an interview guide as a standardised format, has the freedom to alter the sequence of the questions and ask for more information (Gilbert 2008, p.246). This format allowed me to have the flexibility to omit a question in cases where previous questions had already solicited the required answers, and allowed me to introduce other questions to understand better what the interviewee was explaining to me (see Interview Guideline in Appendices 5, 6 and 7). Interviews were conducted before or after the lessons, at the course locations, for the comfort of the students and to avoid intruding into their private lives and responsibilities. All interviews were recorded with the interviewees’ consent. This allowed me to pay attention to their body language instead of focusing on taking notes. This method was also used while interviewing members of staff from CDI and JC, teachers and coordinators (see Appendices 8, 9 and 10).

### *Questionnaires*

Questionnaires are also known as surveys. According to Gilbert (2008), surveys are an “invaluable source of data” (p.183) about attributes (personal and socio-economic characteristics), behaviour (what the individual says she has done, is doing, and may possibly do in the future), attitudes (how the individual say she feels) and beliefs (valuation of an issue). Surveys allow the collection of data in an organised systematic way, through face-to-face interaction, telephone, postal questionnaires or online surveys (*ibid.* p.183). As explained above, a questionnaire was designed at the initial workshop to collect data about motivations and material, geographical, information, financial, time and cultural resources, following what the organisations were used to using as M&E tools. The organisations were used to having one questionnaire for enrolment and another for collecting other data,

accordingly, the questionnaire for phase A was divided in two (see the Initial (1 and 2) and Final Questionnaires in Appendices 11, 12 and 13).

Questionnaires allowed me to gather general information about the participants, which was later coded according to the different elements being studied. This method was especially useful for this study as it allowed the creation of a visualisation tool to compare data from the initial and the final phases of the study, among different participants and different courses. This data analysis approach will be further explained in section 4.4.4. Questionnaires were applied during the first lesson, phase A, and the final lesson, phase B. For questions referring to the physiological and educational resources of the students, the help of the teachers was requested. Accordingly, the teachers supported the data collection of these resources (see Questionnaire used by teachers in Appendix 14). This practice meant extra work for the teachers but, during the mid-term meeting, the teachers expressed finding the questionnaire very useful to evaluate their students, something they usually did intuitively, to find out strengths and weaknesses in each student and ways to help them. A questionnaire facilitated a more structured evaluation.

#### *Participant workshops*

Participant workshops can be seen as a form of focus group, because they intend to promote a conversation among a “small group of individuals, usually numbering between six and ten people, who meet together to express their views about a particular topic” (Gilbert 2008, p.227-288), but with the specific characteristic that the purpose is not just to talk about the topic but to reflect and produce specific results, such as a research plan detailing activities, responsibilities and deadlines. Using the format of a focus group allows the researcher to record the interactions between individuals such as the identification of different power relations; promotes an environment of discussion that allows for reflection and improvements; and encourages a learning experience for all the participants (Gilbert 2008; Seale et al. 2004). This technique was applied during the initial workshop to define the research objectives and methods of data collection; in the mid-term workshop to follow up on data collection and make adjustments to the tools; in the mapping workshop to identify the organisations’ offer of services; and in the final workshops to present results and discuss implications for the future.



Plate 4-6: Mapping CDI's offer - participant workshop. Credit: Author

From all these workshops, the mapping exercise was considered by CDI's staff as the most beneficial as it brought immediate benefits to their work. Participants were asked to reflect on the definitions of the terms 'portfolio of resources' and 'intermediary offer' (section 4.4.2), and mention all products and services CDI was offering. Divided initially into groups and then working in plenary, the group arrived at an extensive list, which, according to them, made them realise how much they did without realising (Plate 4-6). The fundraising team then used these results to enrich their presentations and highlight this variety of activities as one of CDI's distinctions from other NGOs. This exercise was also interesting because it started a discussion within CDI's staff about their mission and objectives, and how their activities were related or not to their intended impacts. This discussion continued but will not be addressed in this thesis, as it lies beyond the scope of the present work.

### *Participant observation*

When researchers want to “understand how the cultures they are studying ‘work’, that is, to grasp what the world looks like to the people who live in [it]” (Seale et al. 2004, p.218), they may use participant observation. This method, sometimes also called ethnography, refers to the active observation a researcher will conduct in the field. Notes taken during fieldwork are known as fieldnotes (Gilbert 2008; Seale et al. 2004).

During my time in Campinas, I had two field diaries, one physical and one digital. The physical diary was a notebook that I used to write down reflections, especially when I was in situations in which I had no access to a laptop. I also used this notebook to reflect on the experiences of the day and write down initial interpretations. The digital diary was held on a laptop. As CDI refurbishes laptops and desktops, they lent me a laptop I could use during fieldwork. This laptop was less conspicuous than my MacBook. Then, as students already knew I was going to be listening to their lessons, after two sessions I realised they were more comfortable when I was working on the laptop. While writing in the notebook meant that I was writing about them, working on the computer opened other possibilities: for instance, checking my email. Also, I was using a computer, as they were, which helped me to blend in a bit more. For these reasons, I started a digital field diary as well.

### *Secondary data*

The term ‘secondary data’ is used to refer to data that has not being collected for the purpose of this research, but whose contents may be useful for understanding the situation at hand. This kind of data can be documents in the form of public records (i.e. governmental reports and statistics), private records (i.e. reports of an individual or organisation), personal records (i.e. letters, photographs) or the media (i.e. journals, radio) (Gilbert 2008). Considering this researcher’s interest in understanding the social structures of Campinas and Brazil in order to relate these to the individuals’ agency, various sources were researched to gain an overview of these conditions. This research is summarised in Chapter 5.

### *Reading the world – community immersion*

Inspired by CDI’s methodology, further explained in section 4.5.2, I decided to perform a community immersion exercise. For CDI, this refers to consciously walking around the community and taking photographs of positive and negative aspects. These images are then discussed to problematise issues the community is

facing and highlight strengths that the community possesses to face those issues. Accordingly, I asked the four teachers working closely with me in this research to walk with me around the neighbourhoods close to the location of the courses, as these were where the participants came from. During these walks, I was able to chat with the teachers about the neighbourhoods' positive and negative aspects, which gave me a wider understanding of the challenges and opportunities that the course participants faced daily. The images taken and the conversations with the teachers were also used in the triangulation process of analysing the data.

#### **4.4.4 Data analysis approach**

The CA, complemented by Freire's Critical Pedagogy, has been chosen as the conceptual framework for this thesis, to inspire the research design, data collection and interpretation. In particular, it will be used "to explain particular observations" (Gilbert 2008, p.27) and data collected in the field. In Gilbert's (2008) words, by "focusing analytically on particular themes, patterns or processes in our data, we attempt to infer conclusions about social relationships, processes or causalities that have a broader significance" (p.81).

Data analysis observed the following stages:

- Data from questionnaires:
  - Questions were designed to produce a numerical result (0 to 5).
  - These results were uploaded into a number processing program.
  - Various questions represented a specific resource from the individual's portfolio, so data from each resource was processed to produce a numerical value (specific calculation procedures are explained in Appendix 15).
  - Results were then represented in spider-web diagrams (see example in Figure 4-1). The spider-web allows for multiple sets of data to be displayed, in this case eight resources, each with two data points, allowing an overall look of the portfolio of resources and its changes.

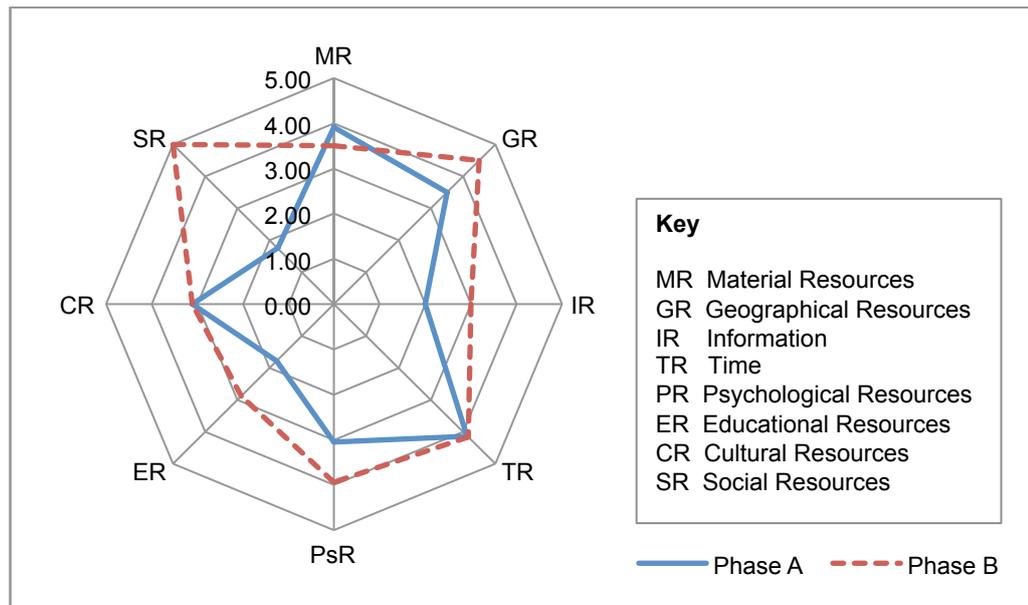


Figure 4-1: Example of a spiral web mapping: Each resource, calculated from data on the questionnaires, is placed on the web to visualise changes over time simultaneously.

Developed by the Author.

These diagrams reflect the responses obtained from the students' questionnaires, which represent a self-evaluation of their own resources. Some individuals might have taken more or less time to respond accurately to the questions or might simply have been more or less self-critical with their answers. It is equally likely that the individuals would similarly be more or less self-critical during both rounds of surveys. Nevertheless, these data are a subjective picture of their reality, how each of them saw their own lives, therefore their importance.

The interpretation of these diagrams is based on the data of the questionnaire itself, data from the interviews and from observations. By combining these three sources of data (data triangulation), it can be inferred if the changes are related/not to the intermediaries' support, and how much the social structures enhanced or constrained the intermediaries' efforts. Whether the amount of change is relevant or not, is one feature of this tool that would need to be addressed in future research. Currently, it is linked with each individual's case, meaning, for some individuals, even a minimum change may be of great significance for her development, whilst for others it might not be, as will be seen in Chapter 8.

- Data from interviews:
  - Interviews were conducted in Portuguese. Data from the 28 datasets from the students was transcribed in Portuguese and translated only as required for this thesis.
  - NVivo software was used to code the text. A first round of analysis was conducted to code text related to each resource of the individual's portfolio, the individual's motivation and ICT uses, and to indicate whether data was from phase A or phase B (initial and final). This allowed me to read through the text and identify other themes to code. The second round, open coding, was conducted to allow for themes to be suggested by the data. After this round, codes were revised, re-grouped and/or re-phrased. A third round was conducted to try to find specific themes resulting from the code organisation process, to verify that each theme had sufficient data to make it relevant.
  - A fourth phase was conducted to reflect on the data coded and this supported the identification of main themes, which resulted in the three empirical chapters of the present thesis.

## **4.5 The case studies**

### **4.5.1 Selection of cases and sampling of participants**

My research was interested in digital inclusion practices due to personal experience with CDI in Brasilia. Their work sparked my interest in conducting research to find out how their application of Freire's 'Pedagogy of the Oppressed' was impacting their students. According to Yin (2009) a "case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p.18). Using a case study research approach permitted the study of digital inclusion in detail, exploring the interactions between the individuals' interpersonal differences, the intermediary's offer and the social structures, allowing the evaluation of different combinations, examining which ones were enhancing or constraining the individual's development from the CA's and Freire's perspectives.

CDI-Campinas was chosen as a case study as it is known as one of the offices most advanced in applying Freire's methodology, serving as a reference point for others in the CDI Network. Also, being located in Campinas, a city that faces an interesting

combination of growth and entrenched inequalities, as will be explained in Chapter 5, makes it a very interesting case. Moreover, thanks to the CDI-Brasilia coordinator, with whom I had worked as a volunteer previously, I was able to contact CDI-Campinas to explain my research, in which they agreed to participate.

There have been some critiques about the validity of case study methodology, but Flyvbjerg (2006) identified and analysed five common misunderstandings, which, instead of disadvantages, may be seen as strengths of this approach. The first, and most relevant to this study, is the critique that case studies cannot produce context-independent knowledge that can be used to produce theories. What a case study does is to collect data about the situation in relation to the context in which it is occurring: this is called context-dependent knowledge. However, Flyvbjerg (2006) argues that if “predictive theories and universals cannot be found in the study of human affairs [then] concrete, context-dependent knowledge... [is] more valuable, than the vain search for predictive theories and universals” (p. 224). Certainly, what is expected from this case study is knowledge derived from a specific situation, resulting from the analysis of the interaction of all the elements studied.

Nevertheless, to ground the results more firmly, a second case study was also part of the study, as a way to have data to compare and contrast results. The second case study was chosen whilst in the field. Thanks to CDI-Campinas coordinator, I was able to participate in a meeting of the *Forum da Cultura Digital de Campinas* (Campinas Digital Culture Forum), where I met various representatives of organisations working with digital inclusion. However, only the programme Jovem.com offered basic ICT training as CDI did. Fortunately, after introducing myself and explaining my research, this organisation also agreed to participate.

As indicated by Yin (2003), “the better and more numerous the rivals that can be investigated in this manner, the stronger your case study will be - whether the bulk of the evidence supports the originally hypothesised intervention or not” (p.122). Similarities and differences between both cases are detailed in section 4.5.4. Due to limitations of time and resources, the number of cases was limited to two. Then, the decision to use a second case study enabled me to compare two different methodologies, to identify which actions were having more impact on the individual. In this thesis, data collected will be analysed using the theoretical framework presented in Chapters 2 and 3. As stated by Yin (2003), theoretical concepts may be used as a guide for the design, data collection, analysis and interpretation of the

results. This reliance on theory corresponds to a typology of case study research called explanatory (Yin 2003).

In short, this study followed the two organisations/case studies, focusing on two training courses each, involving every student in the research as a sampling strategy (Table 4-5). However, as mentioned above, because of the longitudinal nature of the research – with two data collection points – although there were more than 28 participants, the final number was less, as some participants did not finish the course and others decided not to respond to all the questions. Incomplete datasets have not been considered for the interpretation of the data.

	CDI		JC	
	CDI Comunidade Eufraten	CDI Comunidade EEE	Telecentre ECEE	Telecentre HM
Teachers	1 A-M	1 A-F	1 A-M	1 T-M, 1 T-M (occasional assistant)
Number of students and profile	11 (1 T-F, 1 T-M, 9 E-F)	13 (1 C-M, 3 T-M, 4 T-F, 4 A-F, 1 E-F)	6 (6 A-F)	7 (4 T-F, 1 T-M, 1 A-F, 1 E-F)
Time of the course	08.45 – 10.15, once a week	14.00 – 16.00, once a week	09.00 – 11.00, twice a week	14.00 – 16.00, twice a week
Duration of the course (total)	22.5 hours	30 hours	28 hours	20 hours
Special considerations	Eufraten targeted their services to the elderly. However, if others wanted to participate, they would accept them if there were vacancies.	EEE was located near by a Prison, and is surrounded by small factories. Students came from residential locations nearby.	ECEE was a cultural centre, which offered a diversity of services, such as theatre and a small library.	HM was located in a building which needed maintenance but there was no budget for it.

Table 4-5: Profile of the case studies and their schools. Age range: child - C (1-10 years old), teen - T (11-20 years old, adult - A (21-50 years old), elder - E (51+ years old). Sex: female – F, male – M.

#### 4.5.2 CDI

##### *History*

Founded in 1995, CDI is considered one of the largest NGOs specialising in digital inclusion in the world, acting in Latin America (Brazil, Mexico, Venezuela, Colombia, Ecuador, Peru, Chile, Argentina, Uruguay), Europe (United Kingdom, Spain,

Portugal) and one small fundraising office in the United States. In Brazil, it is present in 17 states. The sum of these offices, called regionals in Brazil and international offices abroad, is known as the CDI Network. As a whole, there are 715 CDI – related spaces of digital inclusion worldwide (CDI Campinas 2013a). This organisation started in Rio de Janeiro, establishing computer labs built up using donated equipment. However, as mentioned by Jacobi (2002), “it was observed that the equipment could be used in a more productive way if it were accompanied by a pedagogical practice that effectively could generate qualitative change in this universe of exclusion, particularly in the digital divide. So the idea of “creating *Escolas de Informática e Cidadania* – EICs [Citizenship and Informatics Schools] emerged” (p.165).

After five years of working, in 2000, CDI, in partnership with the *Núcleo de Informática Aplicada à Educação*, NIED (Nucleus of Informatics Applied to Education) of the University of Campinas (Unicamp), produced a *Proposta Política-Pedagógica* – PPP (Political-Pedagogical Proposal). The aim of the PPP is to serve as a guideline for the work of all CDI offices, which orients not only the planning of the educational activities, but also the content, form and manner in which knowledge should be built (CDI 2005b). This PPP was the result of a common effort of representatives of all the offices and NIED, through several participatory workshops, interviews and document sharing, as recalled by the Director of CDI Campinas during her interview. Their work was inspired by Paulo Freire’s pedagogy, by data from fieldwork with different EICs and by the systematisation of all the teaching materials used in the CDI Network (Baggio 2000). CDI is, by far, the civil society organisation with the most telecentres in the country, representing two-thirds of the total telecentres run by NGOs (Teixeira et al. 2013, p.96).

As the CDI Network grew larger, its management model changed to one of a social franchise, in which each office has a contract with the headquarters, with the aim of maintaining the quality of work of the Network (Mueller 2005). Each regional and international office, and each EIC, nowadays called *CDI Comunidades* (Community CDIs) also has some independence. They are supposed to be sustainable, autonomous and self-governing, following the PPP, which is in continuous revision with the participation of the entire Network. This independence allows each office to execute projects that relate to their own realities, but that also implies that each can be more or less loyal to the PPP. This situation means that although all offices communicate the same methodology, each implements it in very different ways, and

prioritise different elements. As Ventura and Darbilly (2004) mention, the success of one office does not guarantee the success of others, because although all follow the same PPP, each has autonomy on how it will be implemented. For instance, CDI Porto Alegre, at the city of Porto Alegre, has received strong criticisms from Oliveira (2011), who believes CDI's discourses – mission, vision, objectives – reflect only capitalist objectives, such as entrepreneurship and economic development, instead of Freirean objectives, such as emancipation and social movements. In her view, this CDI office focuses mostly on economic development rather than challenging those already in power as Freire suggested in his ideas.

Consequently, some consultation was conducted before choosing which office should be the one used for the present research, which led to the selection of CDI Campinas as a case study. This office is considered by the Network President and founder Rodrigo Baggio and other Regional Directors from Sao Paulo, Minas Gerais and Brasilia as the most faithful to the PPP and Freire's pedagogy, usually leading the discussions about the PPP and serving as an example to the Network on how to implement it.

#### *Organisational structure*

The PPP proposed to implement each *CDI Comunidade* in a bottom-up manner, by establishing partnerships with local associations, whose responsibility is to run and sustain ICT classrooms (Neri 2003). CDI Campinas embraces this proposal, but also applies participatory approaches in their internal working policies. The staff (ten employees) are divided into teams with specific responsibilities, but all participate in key decision-making processes, such as the allocation of resources or salary plans. This is with the aim of having more horizontal power relations. As indicated by CDI's Director during her interview, "this is a learning process, with mistakes and successes, but worth trying because we need to be the example for our partners". The first team is the Administrative and Fundraising team, which is responsible for human resources, administrative tasks, communications and fundraising. The second is the Information Technologies services team, which focuses on ICT uptake from donations, formatting, recycling and reallocation of equipment and maintenance. The third, the pedagogical team, is responsible for training the teachers and monitoring their teaching in-situ at least once every two months. CDI Campinas also has a very active Board, made up of volunteers, which helps with fundraising and proposal writing and is responsible for strategic decisions, such as hiring personnel.

CDI Campinas works through a network of 26 *CDI Comunidade* located in Campinas borough and six neighbouring municipalities (Sumaré, Paulínea, Hortolândia, S.J. Boa Vista, Vargem Grande and Jundiaí), all with a variety of formal and informal settlements. Their mission is to “promote social inclusion through the use of ICT as tools for the exercise and construction of citizenship” (CDI Campinas 2013), and their objectives are defined by four axes: (i) Community Immersion - understanding and engaging with their communities; (ii) *CDI Comunidade* as a reference point, establishing the computer labs as places for the community and not just for IT training; (iii) Network formation - learning how to work in partnership with others, to better use our strengths and weaknesses; and (iv) Acting Students - motivating the students to become agents of change.

To establish a *CDI Comunidade*, a partnership contract has to be signed between CDI Campinas and a local social institution, which could be an NGO, a Neighbourhood Association or similar, as long as it is legally recognised. CDI commits to provide twelve to fifteen computers, which will be installed in a room that the partner must provide. Also, CDI will train a person to act as a teacher in this computer lab, whereas the partner has to hire this person.

Finally, CDI will provide lifelong training, assistance and support to these teachers, but will also require that someone from the partner organisation act as local coordinator, in order to divide responsibilities throughout the implementation of the computer lab and the training sessions. Coordinators get initial and lifelong training as well. Each lab offers free internet access and free ICT & Citizenship training courses to all their beneficiaries. These vary depending on the partner organisation. This means that the partner organisation is free to offer the courses to their direct beneficiaries, who may be children, young people and/or elderly people, but they can also open their doors to their communities.

Monitoring and evaluation is also part of the activities. The pedagogical team will have bi-monthly face-to-face meetings with both the coordinator and the teacher of each *CDI Comunidade*, mostly to discuss difficulties in implementing the PPP and to work out solutions together. Coordinators and teachers fill out reports to gather information about attendance and dropouts for each course offered; while students complete questionnaires about their overall satisfaction with the courses, which generally return positive results. Annually, the quality of CDI’s support is also evaluated. CDI produces annual reports, which are shared among all partners and

donors, and are also used for fundraising purposes. CDI receives donations from private organisation (e.g. DELL, Pirelli), public entities (e.g. projects promoted by the Ministry of Culture), and individuals (e.g. people who voluntarily give donations). CDI also raises funds by refurbishing and re-selling computers and laptops, also received as donations.

### *Methodology*

Based on Freire's ideas, the objectives of CDI's Political-Pedagogical Proposal (PPP) are to engage with the students in debates, training and other activities and to make them more aware and conscious of their own realities, so that they can promote collective action in their communities to change their local realities (CDI 2005a; 2005b). Students, however, enrol in the courses with the intention of learning how to use ICT to be able to find better jobs to improve their incomes. CDI introduces ICT in the classroom while discussing other issues related to citizenship. Throughout the course, students will widen both their ICT skills and their understanding of how ICT may be used to support the improvement of their own well-being. For example, students may learn how to access information about health or education, and, how to make complaints or to follow current events. According to CDI, by putting some of these activities into practice, they will gradually be more motivated to become engaged citizens (CDI Campinas 2008).

In practice, the PPP translates into a five-step-methodology (CDI Campinas and CDI São Paulo 2012):

- |                          |  |
|--------------------------|--|
| Reading the World:       | Teachers and students will use the technologies available to become aware of their surroundings and to better understand the reality and the community in which they live.                           |
| Problematising:          | Teachers and students will discuss their findings from the first phase, identifying and analysing problems, their possible causes and opportunities for action and social mobilisation.              |
| Creating an Action Plan: | Teachers and students will prepare an action plan that will allow them to solve one (or part of one) of the problems previously identified, by themselves and/or with the help of their communities. |
| Executing:               | With everything planned, they will have to implement their plan.   |
| Evaluating:              | Finally, they will reflect on the intervention performed and the appropriation of technologies throughout the process of digital inclusion.  |

Implementing this methodology is not an easy task for the teachers, and CDI Campinas says they are aware of the challenge. In an interview, CDI Campinas' Director mentioned: "our work is not only to provide access and ICT skills, it is to promote citizenship". For this reason, they provide lifelong training to continually support their teachers not only with technical skills, but also skills to address social problems, such as drug addiction or prostitution. Although teachers are not expected to address these issues personally, they are trained to know how to direct the student to the relevant institutions or who to contact to provide support to the student.

Moreover, CDI Campinas' work is facing some challenges to continue its activities. CDI's Director mentioned that while access to funds is more difficult every year, it is equally challenging to:

*...keep up with technological innovations and new ways to be a citizen... Today young people in Brazil are showing their dislike of the current politics: they protest on the streets, break things, you see. We are living in a time of social transformations, and it is our job to keep up if we want to do our job of changing the world (Elsa, Coordinator, CDI).*

In other words, CDI Campinas' philosophy places their work of promoting citizenship above ICT skills training. Even though ICT access might be solved as a problem, they still believe work has to be done to promote ICT usage that enhances citizenship.

#### *Influencing public policies*

CDI has been influencing public policies since its foundation. From 2001 onwards, CDI has celebrated 'Digital Inclusion Day' as a public event to raise awareness among both the population and the government. In 2003, the Digital Inclusion Map study, produced in partnership by CDI and *Fundação Getúlio Vargas* - FGV (Getulio Vargas Foundation) (Neri 2003), was instrumental in influencing the *Instituto Brasileiro de Geografia e Estatística* - IBGE (Brazilian Institute of Geography and Statistics) to include digital inclusion indicators in the national census. Also, CDI's work has been recognised by international organisations, such as the World Economic Forum, which acknowledges it as one of six organisations highly qualified to combat digital exclusion, and the United Nations Development Programme, which recognises it as one of the most relevant digital inclusion initiatives worldwide. It has also won several international awards and recognitions (CDI 2005a). In 2013, CDI Headquarters in Rio

de Janeiro, won third place in the Skoll Social Entrepreneurs' Challenge, and it was invited to participate again in 2014.

Regarding CDI Campinas, as a regional office, they are also very keen to participate in political discussions. In 2011, together with the Municipality of Campinas and the University of Campinas (Unicamp), CDI participated in the creation of the *Forum da Cultura Digital de Campinas (Campinas Digital Culture Forum)*, as a way to comply with their role as an NGO to influence public policies (CDI Campinas 2013b). This space is intended to bring together different actors who are interested in digital inclusion to debate the future of their actions and how to continue to support the use of ICT for social inclusion. Also, CDI's team is always participating in local and regional discussions about digital inclusion and citizenship. For instance, CDI Campinas was very active in promoting conscious voting during the latest referendum in Campinas on 5th October 2014. This referendum asked the population whether two regions of Campinas, Ouro Verde and Campo Grande, should become/not Administrative Districts. This status allows each region to have greater autonomy and budget, which would have greatly benefited these highly populated regions. This referendum occurred simultaneously with the election of President of Brazil. As part of their initiatives, CDI used their mailing list to share information about the advantages and disadvantages of giving status of administrative districts to the mentioned regions and also discuss what the different candidates were offering. The topic was also discussed during face-to-face meetings and all teachers were advised to discuss the topic with their students during class.

Finally, the greatest attempt CDI Campinas has made to try to influence digital inclusion policies was the nomination of its Board President as a candidate for the *Comitê Gestor da internet no Brasil - CGI.br* (Brazilian internet Steering Committee) Board. The CGI.br is the committee responsible for internet governance in Brazil. The group is formed by open elections, and CDI Campinas wished to become the representative for the Third Sector Organisations. They had the support of other CDI regionals to assume this role and to represent the CDI Network. As CGI.br is a national organisation, CDI Campinas's President of the Board wished to influence public policies at national level. Even though he was not elected, this shows the commitment of this particular office to their role in influencing public policies.

## The research sites

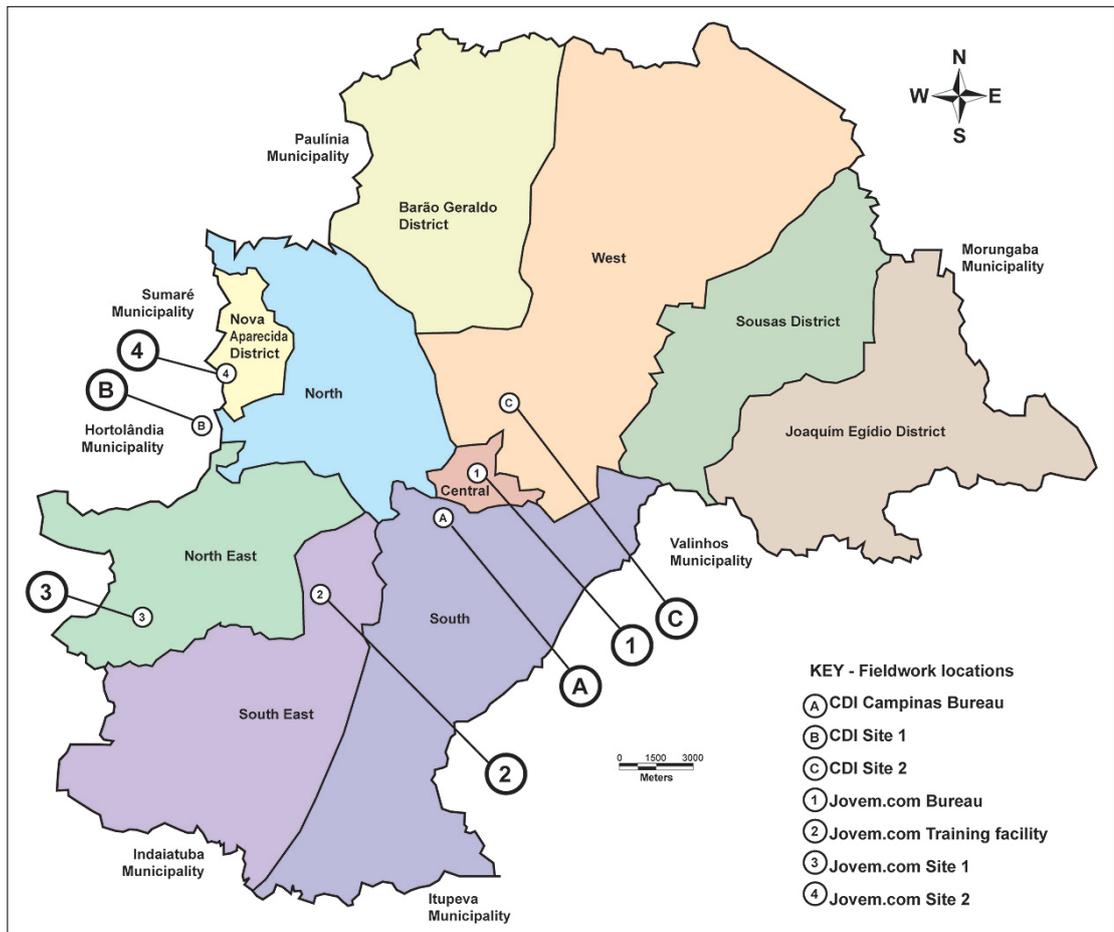


Figure 4-2: Map of Campinas showing CDI's and JC's fieldwork locations. Developed by the Author

CDI Campinas was involved from the start in the definition of the research tools. We agreed that any results from my research would also serve them as an internal small evaluation process. For this reason, the selection of the two sites was based on: being in different sub-regions in Campinas (one poorer than the other) (see Figure 4-2), having different time periods (morning and afternoon courses), teachers with different amounts of time with CDI (recently started and two years of experience) and having different relations with the partner organisation (one very strong and one having some difficulties, even considering termination). Having so many different differences in the context in place does represent a challenge when analysing the results. However, drawing from the CA, no two individuals are equal, even if they come from similar backgrounds and attend the same course. Therefore, interpretation of the data will consider these differences in the context and the individuality of each participant.

### 4.5.3 Jovem.com

#### *History*

In 2006, the *Secretaria Municipal de Cidadania, Assistência e Inclusão Social* – SMCAIS (Municipal Secretary for Citizenship, Assistance and Social Inclusion) launched a program to promote “social inclusion and digital citizenship, by offering scholarships for young people aged 15 to 29 years old, [for a maximum of two years] who will receive educational training to be able to promote digital inclusion to communities of territories with great social vulnerability” (Jovem.com 2013). The first phase of this program was focused on the digital inclusion of small groups of youths. To implement this phase, JC sub-contracted CDI Campinas, who trained the students using their methodology.

However, the program wanted to expand its activities and to reach more citizens, which led to its second phase. As detailed by the Coordinator of the Program, their team worked on the restructuring of the program and started the official process of selection of partners for implementation, but CDI was not able to continue with their partnership due to a missing document in their application. Just as the project was about to start, a new Mayor was elected and cut the program’s budget, forcing the program to continue with limited resources. The Program’s Coordinator recounted how some of the changes proposed in the restructuring, such as the hiring of qualified teachers to support the young people in the courses to be offered to the community, had to be sacrificed due to lack of financial resources. Such cuts impacted on the way the program has been conducted since 2010. During fieldwork, the program offered scholarships to young people from 15 to 29 years old, who, in return, become responsible for running a telecentre. Their two main tasks are administration of the telecentre – registering users and gathering data about hours of usage – and IT training – advertising the courses, registration and teaching the courses. There were approximately 120 fellows hired, placed individually or in couples in 37 telecentres, spread out in the most marginalised areas of the city.

As indicated above, CDI was involved in the definition of the program and when it was time to remodel, the challenge for JC was, in a way, to scale CDI’s work to be able to provide their services to a wider population. A lack of financial resources hindered the restructuring, which meant that the Programme’s team had to find ways to adapt to the available resources. Nevertheless, as stated by the Program’s Coordinator, CDI’s influence, particularly their Freirean approach, was still a part of their philosophy. Both

organisations stated that their aim was to promote the use of ICT as a tool for citizenship development and they also shared ideas on how to implement them. However, NGOs and governmental programs have different challenges to face and this has also to be considered when comparing the two case studies.

### *Organisational structure*

JC is a program that belongs to the SMCAIS, which in turn is part of the Campinas City Hall. It has a small staff of four employees, each with a specific role: Coordinator, Administrator, Social Worker and Pedagogical Supervisors. This program also works through computer labs, which are installed in available spaces inside other public services buildings, such as hospitals, schools or social assistance points, all under the management of Campinas City Hall. In order to set up a lab, the receiving institution needs to have interest and available space. Also, one of the local employees needs to work as a local coordinator of the space. These computer labs offer free internet access and free basic ICT training courses, which are provided and monitored by the fellows. To become a fellow, young people need to go through a selection process. The criteria for selection are that they must be 15 to 29 years old, be resident in Campinas Municipality, be enrolled at school or recently graduated, be unemployed<sup>5</sup>, be from a family with an income of no more than three minimum wages, and be interested in the area of digital inclusion (Jovem.com 2013). Those selected will receive an initial week long training in how to teach the course, and later on, weekly training sessions that intend to strengthen their own capacities: for instance, courses about social relationships, citizenship and career development. Fellows' responsibilities include conducting workshops, where they teach basic ICT skills, and monitoring the use of the computers at times where there are no courses, known as free-access time.

For monitoring and evaluation, members from the team will have face-to-face supervision meetings with the fellows every two or three months, and the latter have to produce weekly reports about the number of people accessing the computers per week and courses given. JC will produce an annual report, which is then handed to the SMCAIS. JC is totally fund by the SMCAIS.

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<sup>5</sup> It is not uncommon to have teenagers already working to support their families, therefore the program aims to provide an alternative work opportunity which provides the teens with an income but most of all with training that may encourage them to follow higher education.

### *Methodology*

This program defines its practices based on its Methodology Strategies. Its activities are guided by a “non-formal participatory education, which intends to construct collective knowledge and self-determination of the individuals through a learning process, considering their autonomy, the construction of their identities and project of life, and social and community participation” (Jovem.com 2013, p.5). Its goal is to motivate the fellows to become content multipliers in their role of teachers in the telecentres. In practice, the program offers weekly trainings to the fellows to support their roles as administrators and IT trainers in the telecentres. The sessions are in three areas (Jovem.com 2013):

(i) Digital culture:	Definition of the concept of digital culture and its utilities, examination of new ICT and online services, and IT training in specific tools. Amount of time: 50%.
(ii) Citizenship and social development:	Personal growth training, globalisation and its impact on the job market and career development. Amount of time: 25%.
(iii) Telecentre management	How to run a Telecentre, planning of activities and how to produce Reports. Amount of time: 25%.

The Social Worker and the Pedagogical supervisors prepare the courses in advance, sometimes asking for the support of external organisations to provide specific training to the fellows, such as CDI. This training course for the fellows was also observed as part of this research.

### *Influencing public policies*

JC is also a member of Campinas Digital Culture Forum. However, their participation is limited to participating in the debates, because they are part of the local government and do not have decision-making power. Other participants of the forum were either presidents or owners of their organisations. However, they reported trying to influence the City Hall internally, not just to keep their program going, but also to create a law that supports their activities, which in turn will allow them to expand.

As mentioned above, during the last restructuring process, their budget was reduced, forcing them to adapt. The Programme’s coordinator mentioned that they are aware that this has caused some negative impacts on the quality of their work, so they are currently negotiating with the new Head of the SMCAIS to restructure

the program for a second time, to include lessons learned, also pointing out the importance of a supporting law for their initiative in the long term.

#### *The research sites*

After discussing the aims of this research and my intention to approach it in a participatory way, JC's team were keen to participate in this study. They wanted to include any conclusions of this study as input to the restructuring process. They based their selection of the two sites on: being in different sub-regions in Campinas, having different time periods (morning and afternoon courses), fellows who had had different amounts of time in the program (recently started and about to finish the program), and having labs in different conditions (one newly refurbished and one not) (see Figure 4-2).

#### **4.5.4 Similarities and differences between CDI and Jovem.com**

The two case studies share characteristics, partly because CDI was involved in JC's first phase, which was using CDI's methodologies. However, as the second phase of JC started, changes were made that altered its methodology and practices away from CDI's practices (see Table 4-6).

	<b>CDI Campinas</b>	<b>Jovem.com</b>
Sector	Third sector – NGO	Local Government - Municipality
Hardware	From donations, refurbished and relocated. E-waste is recycled.	New equipment.
Software	Partnership with Microsoft, but they also introduce free and Open Source software.	Microsoft, but they also introduce free and Open Source software.
Partners	Smaller NGOs or local associations, which are legally recognised.	Public services such as hospitals, schools and cultural centres.
Local Coordinators	Members of the partner institution. Receive an initial 20 hours of training and are welcome to participate in the lifelong trainings offered.	Members of the public service. They act as volunteers (although they do not volunteer themselves), and they do not receive any training or payment.
Teachers	Hired by the partner to manage the computer lab. Receive an initial 60 hours of training and are expected to complete 10 hours of training from the lifelong training offered per year.	Hired through a selection process. Youth from 15 to 29 years old, so-called fellows. Receive an initial 40 hours of training and then 4 hours per week of training for as long as they stay in the two-year program (some leave earlier).
Pedagogic approach	Based on Freire's ideas, their Political-Pedagogical Proposal (PPP) has the objective to engage with the students in debates, activities and others, to make them more aware and conscious of their own realities while learning ICT skills, so they can promote collective action in their communities to change their local realities (CDI 2005). The teachers follow a five-step methodology: (1) reading the world, (2) problematising, (3) creating an action plan, (4) executing, (5) evaluating.	Their programme aims to motivate the fellows to become content multipliers in their role of monitors at the telecentres. The fellow receives initial and weekly training in the three strategic axes: (1) digital culture, (2) citizenship and social development, and (3) telecentre management. To monitor the course, fellows are directed to follow a guide workbook, which includes exercises such as typing and formatting text.
Offer	Free internet access to the public of their choice and free ICT skills courses. Level of courses depends on the teacher's capabilities.	Free internet access to anyone in the community and free basic ICT skills courses only.

*Table 4-6: Similarities and differences between the case studies.*

## **4.6 Ethical concerns**

The issue of ethics was approached from two perspectives: first, as a concern based on the theoretical framework of the research, and second, as a more general issue of how to be ethical in the different research procedures being executed. Referring to the first perspective, Freire devoted his book, "Pedagogy of freedom: ethics, democracy and civic courage" (1998), to the analysis of ethics and the appropriate behaviour that a teacher should have in order to be ethical. Freire critiques the common way of understanding ethics from a perspective of the "law of

profit. Namely, the ethics of the market” (*ibid.* p.21). He considers human ethics imply that a person must try to live what she is preaching and promoting, by always respecting the human being’s real choice and freedom.

Other authors also share this concern. Gilbert (2008), for instance, believes that having ethical behaviour is “a matter of principled sensitivity to the rights of others. Being ethical limits the choices we can make in the pursuit of the truth” (p.146). Human dignity will always come first. Moreover, the researcher has to agree to be accountable for all her actions. However, ethical concerns are also the result of a social construct, so ethical issues should always be discussed within the group being researched and updated over time (Ryen 2011; Seale et al. 2004).

Freire’s ideas, as much as other authors’ views, were used to theorised the ethical concerns. Yet, to put these into practice, some ethical guidelines were followed. Although there are “no international agreements or regulations of ethical standards in research” (Seale et al. 2004, p.231), Royal Holloway, University of London (2012) has specific Research Ethics Guidelines (guidance notes, a code of good research practice and ethical approval forms, among others), which were used as standard protocol for the present research, in combination with the universal rules found in the literature review. Accordingly, after discussing ethical concerns with both organisations, various actions were agreed and conducted to address them. First, all participants were debriefed about the nature of the research and given the option to participate. They also signed a letter to prove their informed consent. For participants under 18 years old, an extra step was incorporated. They were asked to discuss the matter with their parents/guardian and provide a letter of consent signed by them and their legal guardian (refer to Appendix 16 for example of a letter of consent). Second, all data that can serve as identifiers was coded to protect the confidentiality of the participants, for instance, names have been changed, using pseudonyms to maintain secrecy, and details that may make them recognisable have been removed.

Third, trust was obtained from all participants, with them all willing to participate. Only one participant refused to be interviewed, and the total number of complete datasets was 28 because various participants dropped out and did not finish the course. Fourth, all interviews were conducted during daytime and at the location of the courses to guarantee the participants’ and my safety. Fifth, I was able to share the results and discuss them with the participants and the organisations while in the

field. This gave me the opportunity to gain feedback but also enabled us to reflect together on the meaning of the data. After these presentations, participants agreed to have their data published if their identities were kept confidential. Finally, I was able to get involved with both organisations as a volunteer, offering the research as a project evaluation. I was also able to teach and conduct design work for the organisations as part of this volunteering role.

#### **4.7 Limitations of the research**

As a multidisciplinary study, I had great bodies of literature to inform and enrich this research, some previously unknown to me. For instance, the term used in Latin America for the ICT4D field is 'Knowledge Society'. Thus, learning about ICT4D was also part of the literature review process. This process may have been limited by a language barrier, as English is not my first language. However, it needs to be said that being fluent in English and Portuguese and a native Spanish speaker has allowed me to enrich this thesis with literatures in the three languages.

However, from the literature review (Chapters 2 and 3), it became evident that the research design was going to limit the study and its findings. Trying to collect data, according to the CA, in order to have a comprehensive and complete informational basis for the analysis, was not going to be possible. On the one hand, studying digital inclusion considering all available technologies was a very complex and extensive area that could not be researched in one thesis. Moreover, considering that the importance of ICT is the information and communication functionality, and what this allows people to do and be, other media – such as TV and radio - could also be considered, if all technologies were to be included.

On the other hand, mapping each individual's portfolio of resources, and the context where each of the individuals live, considering every social structure – and what opportunities these present and how these may constrain the individual - was not going to be possible in the available time and with the resources available for this thesis, beyond the fact of the difficulty of operationalising this endeavour.

Therefore, these situations limited the design of this research in two ways. First, the research questions limited ICT to computers and internet. This enabled me to explore in depth how different participants were interacting with these technologies.

Yet this also limited the collection of data related to other media and ICT. For instance, although there were questions about usage of TV, radio and mobiles, no more information was collected about how these technologies were being used and how this usage may/or may not influence the relationship of the individuals with the new technology they were learning at the ICT courses, i.e. the computer and the internet.

Second, because the research questions were designed to explore the relationship between individuals and the computer and the internet, other issues occurring in the participants lives, which could have been interesting to explore, became invisible. For instance, when asking about social and cultural resources, questions aimed to reveal whether cultural beliefs or social capital was enabling or constraining ICT usage. Questions were not designed to explore issues about gender, race, politics or other power relations in themselves. As mentioned in section 2.5, issues related to space, mobility and gender became important because of the data collected, not because the questions were designed to investigate these issues. Although race and politics were mentioned in some interviews, these were isolated cases. To be able to include these issues in the thesis, more data would have needed to be collected, which was not possible due to limited time and resources. In sum, questions were designed to limit the scope of this thesis, and themes that were included after the data was collected, such as gender, respond to the need of valuing the participants' voices, following a constructivist epistemology to knowledge acquisition.

These two situations limited the present research, but also offer an opportunity for future research into those issues that have been purposefully excluded. For instance, the relation of digital inclusion and media convergence, or, analysing digital inclusion through an intersectionality perspective.

I am also aware that the data collection itself could be improved in future research. Comments gathered from the results workshops conducted with CDI and JC confirmed that the visualisation tool is, indeed, very powerful, in particular to inform partners and donors about the impacts of the course in the students. However, to make the data collection and data processing accessible to the limited time and human resources these organisations have, the best alternative would be to have the assistance of software. While in the field, I explored the possibility of carrying out the research using Microsoft Access, a software CDI had a license to use and had

already installed in all their computers. I would recommend for future research the simplification of the process to a level that could be adopted by practitioners in the field, enabling them to conduct evaluations inspired by the CA and the 'Pedagogy of the Oppressed', rather than performance assessments.

Nevertheless, the real power of this tool is when it is combined with data collected from qualitative methods. The combination of both sources of data allows a detailed interpretation of the changes, which is not possible just with the information collected on the questionnaires. On one hand, this can be resolved by having the teachers, who observe the students throughout the courses, to be part of the interpretation of the data. On the other hand, if no qualitative data are available, there is a risk that this tool is used without it. Further research is necessary to determine the usefulness of this tool in these scenarios.

## **4.8 Conclusions**

The methodology and methods designed and used for this research aim to provide data to explore different approaches to digital inclusion, in particular, if applying Freire's pedagogy is better at promoting meaningful appropriation of ICTs, than other traditional approaches. To respond to the four research questions which were proposed in Chapter 1, the tools offered in this chapter collected data about the intermediaries' practices (RQ1) through interviewing members of staff, observing their activities and revising secondary data, such as their reports and other documents. Referring to data about the students' portfolio of resources (RQ2) was collected using semi-structured interviews, questionnaires and observation. To respond to the questions about conscientisation (RQ3) and social change (RQ4), data was collected about social structures through immersion walks, observation and secondary data. Chapter 5, will present a general context about Brazil and Campinas, using data collected from secondary data sources, while Chapters 6, 7 and 8, compare the data collected, using triangulation as a method for data analysis, to respond to the four research questions.

# Chapter 5 Brazil and Campinas

## 5.1 Introduction

Research conducted for this thesis took place in Campinas Municipality, located in the State of Sao Paulo, in Brazil. Economic development indices drew international attention towards the country, as it became one of the fastest growing economies in the world, together with Russia, China and India between 2000 and 2012 (Drèze and Sen 2013). Many countries measure their development based on economic growth. But, as Freire (1970b) states, “to determine whether or not a society is developing, one must go beyond criteria based on indices of ‘per capita’ income [...] as well as those which concentrate on the study of gross income” (p.143). The Capabilities Approach is aligned with Freire’s statement, explaining that although monetary value allows quantifiable measurements, it only represents one aspect of the individual and not all of her complexities (Sen 1987; 1999b; 2010a). For that reason, the CA contextualises in which respects economic growth should be considered. According to Sen (1999c), ‘economic facilities’ represent one of the five instrumental freedoms an individual has the right to enjoy. Although it is important to keep in mind that economic development does not guarantee human development, having the financial means to participate actively in the world we currently live in, where monetary transactions are needed in exchange for products and services, may be instrumental to enjoy other freedoms, such as quality housing or education.

In this respect, Drèze and Sen (2013) reflected on the steady growth of Brazil’s GDP (gross domestic product) over the last decade until 2011. While growth has placed this country as the sixth largest economy in the world by nominal GDP (Portal Brasil 2013), inequalities have not been reduced at the same rate. Drèze and Sen point out that Brazil’s governmental initiatives to evenly distribute the benefits of this growth to all citizens have been primarily through social programs. In other words, these authors state that economic growth is beneficial to all citizens if mechanisms of redistribution of these benefits are in place. While Brazil has shown some progress, much is still to be done, as it remains one of the most unequal countries in the world.

Brazil's growth was, among other things, due to the reinvigoration of the agricultural sector, the growth of some industrial sectors, and in particular, the growth of the commerce and services sector, which made possible the employment of large numbers of people with low schooling levels, who were formerly unemployed (Gaulard 2011; Portal Brasil 2013). Greater access of citizens to the labour market has stimulated the internal market, which in turn facilitated further growth of the economy. However, authors warn that even though Brazil has seen some improvements in its social services and infrastructure, it continues to be one of the most unequal countries in Latin America and the world, and there is still much to be done to bridge the gap between rich and poor (CEDLAS and The World Bank 2013; Drèze and Sen 2013; Gaulard 2011). In addition, Campinas municipality has a complex social structure. This municipality's GDP, Gini index and ICT penetration are above national averages, but nonetheless, uneven distribution among its population is visible through a variety of other social indicators and the great diversity of social projects attending to the poorer and most vulnerable.

This chapter provides a brief introduction to the economic, social and ICT situation to understand the social structures present in Brazil and Campinas. The aim is to provide a summary of the secondary data revised for this thesis, which is necessary in order to have some context for understanding the analytical chapters that follow. Also, according to the CA, context has to be part of the study of development, as what individuals' value and have reason to value, as much as what they are able to accomplish (achieved functionings) is impacted by the context where they live.

## **5.2 Country overview**

Brazil is a democratic republic run by a presidential system, with a political-administrative organisation, which is based on the indissoluble union of twenty-six States, 5.570 Municipalities and the Federal District, Brasilia. Each of these entities has autonomy – they act as self-governing units with individual constitutions and laws, based on the principles of the Federal Constitution (Presidência da República do Brasil 1988). Campinas, the municipality in which the present research is based (see Figure 5-1), is located in the South-East Region, the most populated region of the country, in which 42.0% of Brazil's citizens are concentrated. This municipality itself is the third most populated municipality in the state and the fourteenth in the country (IBGE 2012b). Campinas's government is organised by an elected *Prefeito*

(Mayor) and twenty-three thematic secretariats. Campinas is divided into five administrative regions – Centre, North, South, West, East – and four districts. Three of the four locations visited during fieldwork were located in this municipality, while one was in another municipality, Sumaré, extremely close to the Campinas municipality (refer to Figure 3-2). The selection of these four locations was explained in the previous chapter.

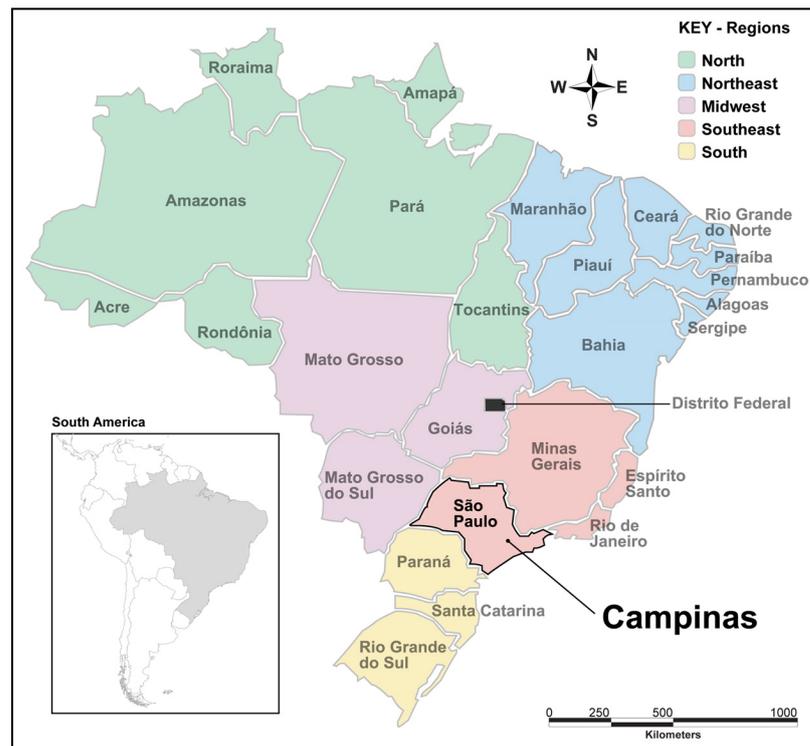


Figure 5-1: Brazil - regional division and location of Campinas.

The constitution of 1988 consolidated Brazil as a democratic country after twenty-one years of dictatorship, promoting decentralisation of government institutions and responsibilities and recognising and amplifying social participation and citizens' rights. This constitution provided the legal framework that encouraged the creation of community associations, social movement organisations and other citizens' groups (Avritzer 2002; Matijascic 2015). Improved participation and decentralisation initiatives have taken place in Brazil, mostly by strengthening local institutions at municipal level (Fleury 2003). However, while these mechanisms have spread and grown in numbers and popular acceptance, research has shown that their existence is not synonymous with their effectiveness (Avritzer 2009; Avritzer 2011; Garrossini 2010; Longhi and Canton 2011; Pintaudi 2004). For instance, Longhi and Canton's (2011) study revealed that even people who are engaged with participatory

institutions have different conceptions of citizenship, and that this becomes a barrier to the participatory process. For instance, while some thought citizenship meant solidarity with one's neighbour, others related citizenship to having a government providing public services and citizens monitoring their efficiency. More research is necessary to fully understand the relationship between citizen participation and efficiency in Brazil.

### **5.3 Social indicators: achievements and challenges**

Brazil has been transformed from a less-developed country to the sixth largest economy in the world by nominal GDP (Portal Brasil 2013), and the seventh largest according to the World Bank (2015a2015). The economic crisis of 2008 impacted the Brazilian economy, slowing the GDP growth over 2011 and 2012, decelerating from an average of 7.5% to 2.7% in 2011, and to 0.9% in 2012 (World Bank 2015a). Economic activity, mainly from the internal industrial sector, seems to be responsible for Brazil's GDP growth and current deceleration, as many industries have been affected by the crisis, one of the causes being that their goods have been replaced by cheaper products imported from China (Salvadori-Dedecca 2015). Concurrently, inequalities, in particular income-related inequalities, have increased, as will be discussed in the following sections.

#### **5.3.1 Employment and income inequalities**

Before 2011, income distribution had been improving for over two decades, as a consequence of increased employment, better income-related public policies and greater public expenditure (Gaulard 2011; Salvadori-Dedecca 2015). The decades that followed the 1988 constitution were marked by high investments in the industrial sector, which improved the country's economy while worsening income distribution. However, slowly, employment allowed individuals to access the market, activating a positive cycle of greater production, greater consumption and greater employment. According to the IBGE, levels of unemployment between March 2005 and December 2014 declined from 10.2% to 4.3%. Yet, current deceleration has impacted on levels of unemployment, which has risen since January 2015 to July 2015 from 4.3% to 7.5% (IBGE 2015, p.15-16).

In this respect, the *Instituto de Pesquisa Econômica Aplicada* – Ipea (Institute of Applied Economic Research) indicates that the poorest ten percent of the population have shown greater income growth (14% of growth in their real income) than the richest ten percent (8.3% of growth) (Campello and Neri 2013). Still, these rates have not been great enough to significantly overcome the existing uneven distribution of wealth among all different social-economic groups (Matijascic 2015; Salvadori-Dedecca 2015; Soares and Sátyro 2009), as 11% of the population remained below the US\$2 poverty line in 2009 (World Bank 2015a 2015), 21.4% according to the CIA (2013), or 6.3% in 2011 by official sources<sup>6</sup> (Campello and Neri 2013).

As mentioned above, greater employment mostly impacted on consumption expenditure among individuals and households, which is measured worldwide using the Gini index. The Gini index is intended to represent the income distribution within a country, by using consumption expenditure as a proxy, where 1 (100) represents total inequality and 0 is perfect equality. Brazil has shown a reduction of its Gini index in the past ten years, from 0.588 to 0.5267 (World Bank 2015b), but still remains one of the most unequal countries in the world, ranked 135<sup>th</sup> out of 149 countries<sup>7</sup>, and tenth out of the twelve South American countries<sup>8</sup> (World Bank 2015b). Figure 5-2 below compares the Gini index from the top fifteen and the bottom fifteen out of 149 countries.

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<sup>6</sup> Data from 2011 indicates that Brazil had 3.4% of its population in extreme poverty, 6.3% in poverty, and 49.1% in vulnerable conditions. Extreme poverty is defined in Brazil as those individuals living on a monthly per capita family income equal or less than R\$70.00 (USD22.74, USD0.76 per day). Poverty is defined as those living on more than R\$70.00 and less than R\$140.00 (USD22.74 – USD45.58, USD1.52 per day), and vulnerable as those living on more than R\$140 and less than R\$339.00 (USD 45.58 – USD110.13, USD3.67 per day) (Adapted by the author from data of Campello and Neri 2013).

<sup>7</sup> This ranking was made using data available from 1992 until 2013 (Adapted by the author from data of the World Bank 2015b).

<sup>8</sup> Data used for this ranking was not updated for every country. Data from Uruguay, Peru, Ecuador, Bolivia, Paraguay, Brazil, Colombia was from 2012. Data from Argentina, Chile was from 2011. Data from Venezuela was from 2006. Data from Suriname was from 1999 and data from Guyana was from 1998.

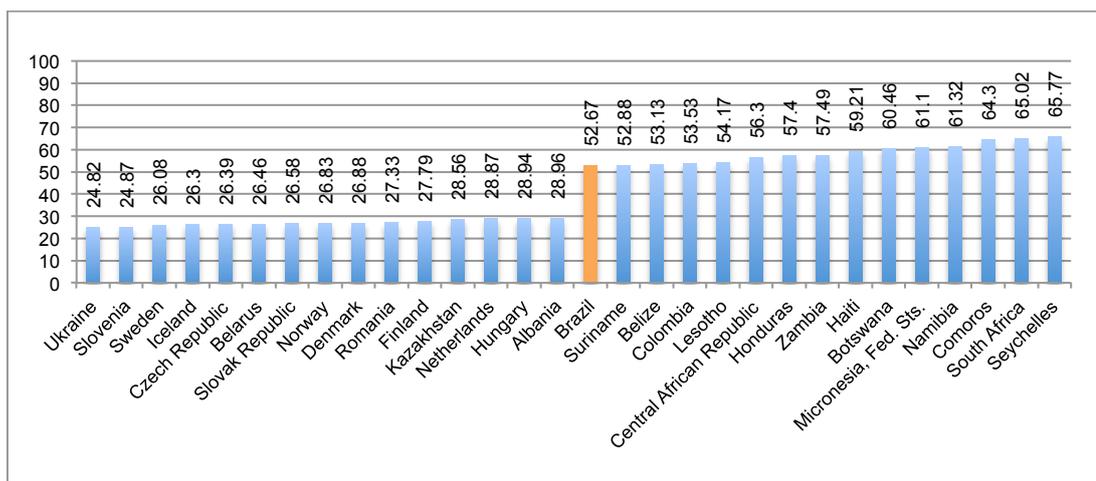


Figure 5-2: Comparing Gini Index - top fifteen and bottom fifteen ranked countries. This rank was calculated using data available from 1992 until 2013. (Adapted by the author based on data from World Bank 2015)

Consumption expenditure has also been affected by cash transfer policies, such as social security, unemployment insurance and the “*Bolsa Familia*” (Family Grant), which will be explained in the following section.

### 5.3.2 Programa Bolsa Familia: relieving poverty

Initiatives related to improving income distribution in Brazil started after the 1988 constitution, at municipal level, particularly through cash transfer programs. In 2003, the Federal Government assumed the responsibility for these actions and unified all initiatives in the *Programa Bolsa Familia* - PBF (Family Grant Program, grant received by at least seven participants of this study) (Matijascic 2015; Salvadori-Dedecca 2015; Soares and Sátyro 2009). This initiative is a conditional cash transfer program that aims to combat poverty and extreme poverty while fostering human capital. To be eligible, a household must prove that it has a per capita family income equal to or below one minimum wage<sup>9</sup> and that its children are enrolled and performing well at school (Campello and Neri 2013; Matijascic 2015; Paes-Sousa et al. 2011). This cash transfer program is directed towards those most vulnerable. The budget is limited and there is no guarantee that all those in need will receive the benefit. Also, inefficiencies in managing the program, poor regulation and control, and the immensity of the country mean that many citizens in great need have not applied to this program or have failed to present the required documentation (Castro

<sup>9</sup> According to the Employment and Work Ministry in Brazil, the minimum wage is R\$788.0 (Ministério do Trabalho e Emprego 2015), or USD256.82, or £173.87.

et al. 2009; Matijascic 2015; Soares and Sátyro 2009). By 2014, the program reached 13.6 million people in Brazil, i.e. 26.5% of the total population of this country (Matijascic 2015).

Besides *Bolsa Família*, the Campinas Municipality provides its population with other social aid programs, such as: *Viva Leite* (Viva Milk), families receive free milk once a week - this was being claimed by one participant; *Renda Cidadã* (Citizenship Income) similar to *Bolsa Família*, it is a cash transfer for citizens of the State of Sao Paulo); *Ação Jovem* (Youth Action) is a conditional cash transfer to young people older than 16 years old to support them in finishing their high school studies without having to engage in paid work - being claimed by one participant; *BPC Idoso* (BPC Elderly), a cash transfer to citizens older than 65 years, with some kind of disability, whose per capita family income is less than a quarter of one minimum wage. These aids may be seen as part of the social structure in the form of financial structures supporting families' income, education and health.

In 2011, the PBF became part of the *Plano Brasil Sem Miséria – PBSM* (Brazil Without Misery Plan), which aims to widen current social programs, such as the PBF, and incorporate new initiatives tackling social inequalities in areas such as electricity, child labour, security of food and nutrition, family health and social housing, among others (Ministério do Desenvolvimento Social e Combate à Fome no year). As the PBSM is currently being implemented, it was not possible to find any academic work published about it.

### **5.3.3 Investments in social services**

Considering the participants of this study live in the most vulnerable regions of the city of Campinas and reported having issues with access to some social services, the following section will overview the situation related to these services in Brazil, as a way to provide some context on the causes of some of the challenges these people face daily. The inequalities are still considerable and represent a major challenge for Brazil, especially from a CA perspective, which considers a wider informational basis to evaluate development.

Social investments were prioritised after the 1988 constitution in areas such as education, health and social services (Matijascic 2015; Salvadori-Dedecca 2015;

Soares and Sátyro 2009). According to Salvadori-Dedecca (2015), Brazil has experienced improvement on some social indicators while others have worsened. Employment rate, the ratio of families without sanitation, and access to higher education are some of the indicators, which have improved at a faster rate for richer populations than for poorer populations (Salvadori-Dedecca 2015).

Regarding education, provision of this service has improved for all ages, but it is still far from being universally available to the whole population, particularly at higher levels of education, for instance, university level (see Figure 5-3). Apart from infrastructure challenges, lack of teachers specialising in particular areas such as physics, chemistry and biology, and education quality standards are mentioned as further problems faced by the education system (Matijascic 2015).

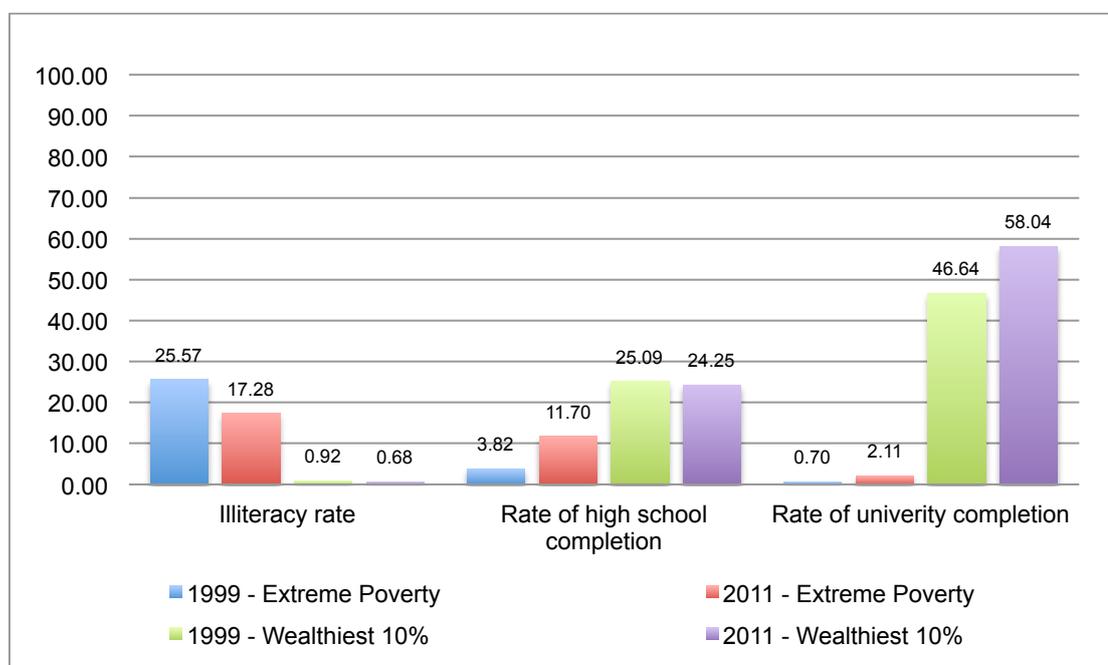


Figure 5-3: Variation of education indicators (1999-2011), from people in extreme poverty and people representing the wealthiest 10% (Adapted by the author based on data from Salvadori-Dedecca 2015)

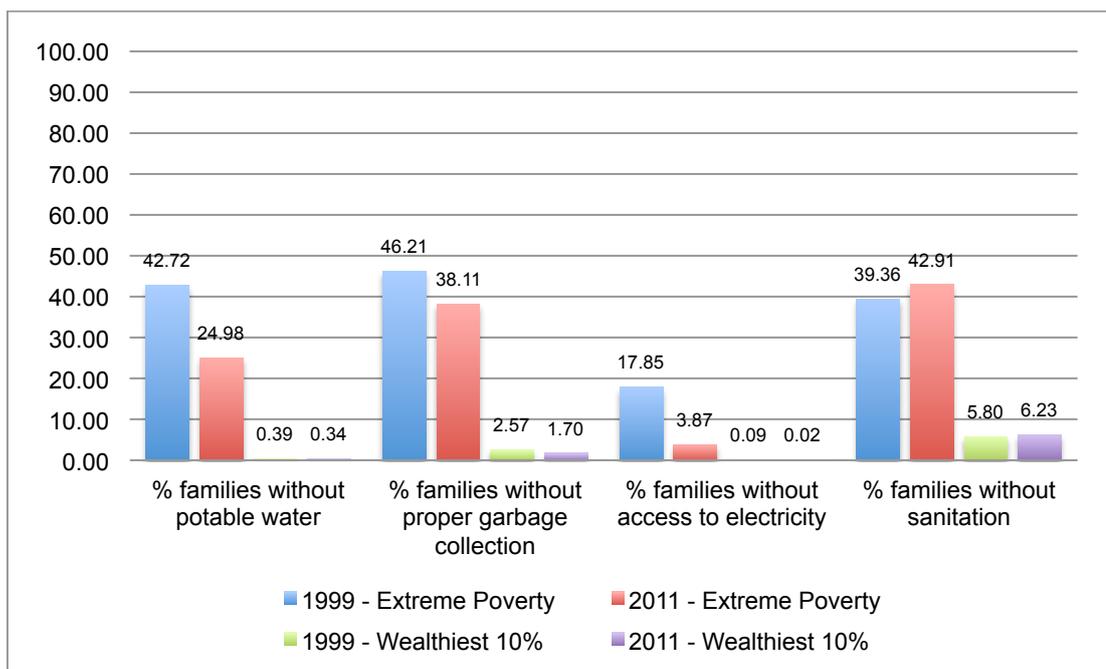


Figure 5-4: Variation of social services indicators (1999-2011), from those in extreme poverty and the wealthiest 10% (Adapted by the author based on data from Salvadori-Dedecca 2015).

Provision of public services has also increased, the main challenge being to improve its quality and coverage in remote areas. The creation of the *Sistema Único de Saúde – SUS* (Single Health System) has been one of the biggest accomplishments of the past decades, as it now provides free health care to all citizens (Matijascic 2015). However, other services have not shown much improvement. Services such as electricity and potable water are almost universal for the wealthiest 10% of the population (see Figure 5-4), while still very restricted for the poorest populations, showing great inequalities.

Authors explain that current social investments have been heavily focused on cash transfer programs – the PBF, retirement and unemployment security - to the detriment of investments to improve the quality and coverage of social services (Matijascic 2015; Salvadori-Dedecca 2015); therefore failing to change the current unequal social structure in a more meaningful way than providing cash transfers. From 2011, the IBGE (2012b) started to collect different sources of data to measure poverty in a multidimensional way, with monetary and non-monetary indicators, which are:

- Educational delay: children from 6 to 14 years old not attending school, people aged 15 or more who are illiterate and people over 16 with incomplete elementary schooling.
- Quality of households: residents in households with certain conditions, such as unstructured walls, roofs made from materials other than tile, slab or wood, occupation of more than 2.5 people per bedroom.

- Access to basic services: residents in households with lack of access to general water, sanitary services (or septic tanks) or the electric network and without collection of waste.
- Access to social security: poor people ten years or older who do not contribute to Social Security, whose household income per capita is less than half the minimum wage, whether or not they are receiving income from other sources, such as social programs.

Access to basic services and educational delay are the indicators with the highest results, and 58.4% of Brazilians lack at least one of these (see Figure 5-5). Although this figure is high, it is still an improvement from the 70.1% shown in 2001. The IBGE indicated in their study that income, and these non-monetary indicators, show that 22.4% of the population may be considered vulnerable, although there are regional differences, with higher levels of vulnerability in the North and Northeast regions (45.8% and 50.8%, respectively) and lower levels in the Southeast and Southern regions (11.9% and 11.3%, respectively) (IBGE 2012b).

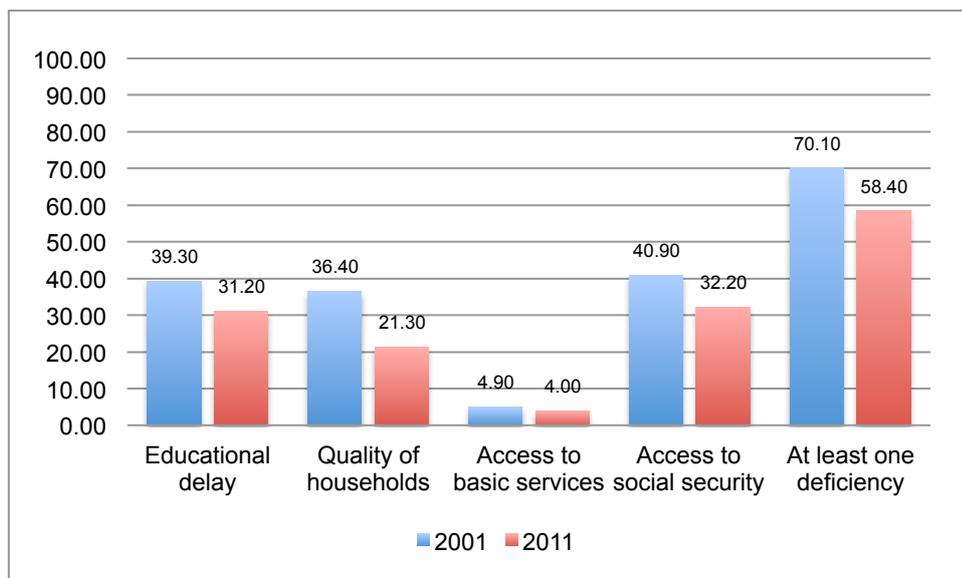


Figure 5-5: Percentage of people, according to their social deficiencies, 2001-2011 (Adapted by the author based on data from IBGE 2012b)

While this multidimensional measure shows 22.4% of the population as people living in extreme poverty, data considering only income based indicators estimate that only 3.4% of the population lives under this condition (Campello and Neri 2013). Gaulard (2011) comments that although Brazil has seen some growth, new approaches will have to be put in place if this growth is to be sustained, particularly because people who could be employed, for instance those with low schooling levels, are already in the labour market. Above all, some authors mention that even being employed is not a guarantee of a better quality of life, because most of these employees are currently

sub-employed. Weak enforcement of labour rights has allowed companies to pay low rates for long hours with few or no benefits, such as social security and retirement plans, generating large numbers of sub-standard jobs (Cunha and Oliveira 2001; Phillips and Sakamoto 2012). These, accompanied by the limitations of cash transfer benefits in addressing inequalities, represent the challenge that Brazil faces ahead. As one of the richest countries in the world, but also one of the most unequal, Brazil has to adapt its public policies if it wants to promote a more even distribution of benefits. *Plan Brasil Sem Miséria*, mentioned above, may be seen as a strategy in this direction, but currently it is not possible to foresee its outcomes.

#### **5.3.4 Particularities of the city of Campinas**

Campinas has always had an active labour market, but the economic expansion experienced since the 1950s transformed the former coffee-growing region into one of the most important industrial growth poles of the State of Sao Paulo, Brazil and Latin America. This growth attracted large migration flows of unemployed, impoverished and poorly educated citizens from rural areas, causing a five-fold increase in the population in the last five decades (IBGE 2003; Salvadori-Dedecca 2015; Simão 2009). Similarly to the rest of Brazil, the commerce and service sector offered several labour opportunities, particularly jobs which required only low schooling levels (Bruschini 2007; Cunha and Oliveira 2001; Phillips and Sakamoto 2012).

In terms of GDP, IBGE ranks this municipality as the eleventh richest at national level (0.97% of Brazil's GDP), and sixth in the South East region (1.76% of the South East's GDP), but when GDP *per capita* is considered, Campinas does not reach the rank of the hundred richest municipalities (IBGE 2012a). Simão (2009) indicates that Campinas's Gini index increased from 0.524 in 1991 to 0.560 by 2000. By 2003, the IBGE ranked Campinas with a Gini index of 0.42 (IBGE 2003). Considering that the national Gini index is 0.526, Campinas may be considered above average. However, the improvement on the inequalities index may have been caused by the increase in jobs and the apparent growth of the city, both in spatial extent and population. Yet, "the model of wealth distribution in the municipality is also extremely concentrated, with a large contingent of workers underemployed, underpaid and placed precariously in the labour market" (Cunha and Oliveira 2001, p.374).

As Campinas accommodated the new populations that started to migrate in the 1950s, its urban fabric changed. New neighbourhoods and informal settlements appeared, due to the constant demand for low-cost properties, driving some to move to the outskirts of the city, where the land was cheaper. In 1949, the Sao Paulo State Government created the *Companhia de Desenvolvimento Habitacional e Urbano* – CDHU (Housing and Urban Development Company), to be in charge of urban development, aiming to structure the state's and its municipalities' urban growth. However, in 1967, the increasing demands for affordable housing and the rising formation of 'favelas' changed CDHU's mission: it became the state's government body to provide housing for low-income populations. Favelas are described by Fernandes (2007, p.203) as "self-constructed precarious, vulnerable and insecure habitats in [...] irregular and clandestine land subdivisions, irregular housing projects, front-and-back houses, as well as [...] on] public land, steep hills, preservation areas, water reservoirs and riverbanks". By 1999, more than 60% of Campinas' population was concentrated in these informal/non-legalised/irregular settlements. The 2010 Census states that almost half of the population has an income equal to or less than two minimum wages<sup>10</sup>. Large numbers of people survive on low incomes, live in favelas, and are subjected to a lack of basic sanitation, poor transportation and deficiency in other services such as health and education (Cunha and Oliveira 2001).

Presently, CDHU gives loans and sells houses or apartments to individuals whose income band is from 1 to 10 times the minimum wage. Also, this company gives loans and develops projects to legalise and improve other informal settlements in the state. Nevertheless, there have been various criticisms about the design of these housing projects. Fernandes (2007, p.209-210) explains that public housing developments in Brazil have been more

"technocratic than socially driven", therefore being very "inefficient from the perspective of the objectives of spatial organisation and social inclusion", but "extremely efficient in guaranteeing the maximization of capital gains", "thus determining the place of the urban poor in the cities, that is, in those areas excluded from the market such as slums and in peripheral areas".

The quality of the housing project has been evaluated upon the maximisation of revenues instead of satisfying the real needs of the beneficiaries. According to Royer (2002), CDHU measures its efficiency based on the amount of units constructed

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<sup>10</sup> Equal to or less than £347.74 (refer to footnote 9 above)

without paying attention to whether and how these units become part of the general urban development of the region in which they are located. This has often led to the creation of new isolated neighbourhoods that lack basic services and/or transport. Moreover, Royer states that their focus on financial efficiency has also led the company to subcontract to companies with low quality standards, therefore causing low quality constructions and a tendency to locate the developments in peripheral parts of the city. This was also the case in my study, where various participants stated they were living in houses provided by CDHU located in isolated regions and which lacked public and private services, as will be discussed in detail in Chapter 6.

This situation is aggravated by the fact that mass constructions group together individuals with low incomes or the unemployed. According to Azevedo (2007), as the real estate market determines the values of the land/properties, the peripheries of Brazilian cities have become populated either by low-income or high-income neighbourhoods. Thus, once CDHU creates a new development for low-income populations, that zone becomes populated with mostly similar income inhabitants. According to the literature on public housing developments, this situation can cause a variety of social problems. For instance, Queiroz-Ribeiro (2004) mentions that in Brazil, the concentration of lower-income residents has generated a vicious cycle that has enhanced social marginalisation, with problems like school truancy, teen pregnancy and gang formation. Krivo *et al.* (2013) identified similar findings in a study comparing advantaged and disadvantaged groups living in Los Angeles in the US. These authors have shown that grouping disadvantaged individuals together may intensify the social problems they faced in the first place. Some of these problems include reduced access to services; enhanced crime and drugs-related issues; reduction of access to different places and reduced interest in education and social connections that could help them to improve their situations (Krivo *et al.* 2013; Peterson and Krivo 2010).

In this regard, Platt (2011) explains that some of society's structures - for instance, class divisions - may encourage the location of specific groups to specific places, as a way of limiting their access to other spaces in the city, which in turn makes visible the power struggles among different groups (p.41). In other words, as the market drives the location of CDHU developments, the land that has less value, due to isolation or lack of basic services, becomes the most attractive for low-income housing, unveiling the lack of power lower-income groups have when acquiring property. This has been confirmed by several studies conducted in Brazil that show

that these developments are always very distant from the town centres (Queiroz-Ribeiro 2004; Sachs 1999; Zattoni-Milano and Galacini-Bonadio 2013).

For those living in the outskirts of Campinas, access to basic services is deficient or inexistent. People may have access to medical centres, but generally not to hospitals; to primary, but not secondary schools or any higher education institutions. They have access to small shops and grocery stores nearby, however, they are aware that bigger and cheaper shops are available in other parts of the city. Due to distance, these are not accessible to them on a daily basis. Also, access to banks and governmental services is very limited, requiring them to travel to the town centre or to neighbourhoods with more facilities (Kenyon 2006; Queiroz-Ribeiro 2004; Sachs 1999; Zattoni-Milano and Galacini-Bonadio 2013).

Lack of security is another issue the city of Campinas faces. According to Francisco-Filho (2004), Campinas could be seen as one of the most dangerous cities in the state of Sao Paulo, where crimes such as car robberies, murders, express kidnapping and drug trafficking have been increasing over several years. To illustrate, Francisco-Filho (2004) mentions that from 1997 to 2000, even though the population only grew by 1.5%, crimes against individuals increased by 2.5%; and crimes against private property increased by 12.3% (p.64-66). Moreover, he mentions that murders are more common in the peripheries, especially due to drug dealing, while car and property robberies occur mostly in central areas, where wealthier individuals live. A newspaper story by Luciana Félix (2013) indicates that the rise in criminal events has continued over the past years, meaning that Campinas was, and continues to be, a dangerous city.

Overall, Campinas could be understood as a city with a very centralised urban fabric, forcing its citizens to travel to the centre of the city to access a greater variety of private and public services, some of which would only be available in specific areas. These include bigger shops, entertainment facilities such as cinemas, higher education institutions, hospitals or government services. This structure visibly affected some of the participants of this research. Nineteen of the twenty-eight course participants lived on the outskirts of the city, and of these nineteen, twelve were adult women, who reported having difficulties accessing private and public services, such as the national identity card office, medical services or free training courses offered by the government. Seven of twenty-eight course participants lived in the West region of the city, and reported having security problems such as

burglaries. The remaining two participants lived in other areas of the city, and also reported lack of security to be a problem.

## **5.4 ICT sector**

### **5.4.1 Evolution of the ICT sector in Brazil**

In terms of new technologies, Brazil is considered the fifth largest market in the world for mobile phones and home computers (Portal Brasil 2013), fifth in the world in terms of mobile phone ownership, and fourth in the number of internet users (CIA 2013). According to the International Telecommunication Union (ITU), Brazil is one of the top ten countries that have improved their ICT infrastructure and usage over the past decade. By 2012, 50% of households had a computer, and 45% had internet access (ITU 2014).

Growth of the telecommunications sector started in the mid-1960s, as communications were considered by the government to be strategic to the development and integration of the country (Takahashi 2000). Since then, projects related to ICT expansion have only increased (Costa 2012) (see Table 5-1). Governmental institutions, the private sector, academia and civil society have stimulated the growth of this sector. It could be argued that these initiatives, in particular those related to the internet, needed the government's support to grow and expand, as they were new technologies, which needed great investments in infrastructure, policies and regulation, among other things. The Federal Government has thus been establishing programs for other members of the Federation to implement. For instance, according to Oliveira (2011), Campinas Municipality was the first to adhere to the Broad National Plan, meaning this Municipality is currently receiving financial support to increase connectivity, under the established conditions of the Programme. This programme aims to provide support to all Municipalities to expand the broadband coverage to the whole country.

As all members of the Federation are autonomous, their adherence to these initiatives also depends on their capacity to implement the programmes. Therefore, the level of growth and expansion of the telecommunication sector and the internet has been uneven across the country.

1965	Government creates Embratel: a company mainly dedicated to telephony and TV signals.
1972	Government creates Telebrás: a holding enterprise for all telecommunications providers.
1976	Government creates, within Telebrás, the <i>Centro de Pesquisa e Desenvolvimento – CPqD (Research and Development Centre)</i> .
1979	Government creates <i>Secretaria Especial de Informática – SEI (Computing Special Secretary)</i> .
1980-1990	Crisis of the telecom sector. Stagnation of investments dedicated to infrastructure and services related to this sector.
1988	The academic network FAPESP creates the <i>Rede ANSP (Academic Network at São Paulo)</i> , the first institution in the country to have internet access.
1989	<i>Ministério de Ciência e Tecnologia – MCT (Ministry of Science and Technology)</i> creates the <i>Rede Nacional de Pesquisa – RNP (Research National Network)</i> , focused on internet for education.
1991-1993	RNP installs the first large internet network, connecting twenty-one states.
1991	Government sanctions a Law on Tax Incentives on Computing, to enhance nationally produced software and hardware.
1995	New Telecommunications Law sanctioned, advocating the privatisation of Telebrás and Embratel.
1995	Government set the first guidelines for internet providers.
1995	Creation of the <i>Comitê Gestor da internet no Brasil – CGI.br (internet Management Committee in Brazil)</i> , a multisectoral committee - government, private sector, third sector and academia - to coordinate and integrate all initiatives regarding internet services on the country.
Late 1990s	Privatisation of Telebrás, Embratel and CPqD.
1997	Government creates <i>Agência Nacional para Telecomunicações – Anatel (Telecommunications National Agency)</i> : regulating and supervision body for the Telecommunications Sector.
1999	MCT creates <i>Programa Sociedade da Informação – SocInfo (Information Society Programme)</i> with the aim of educating Brazilian citizens for the Information Society.
2000	Government creates the <i>Programa Governo Eletrônico (Electronic Government Program)</i> , to oversee the new electronic forms of interaction, aiming at the universalisation of services, making the government accessible for all and installing advanced infrastructure. It is constituted by representatives from nine different governmental institutions.
2004	Government creates the <i>Departamento de Governo Eletrônico (Electronic Government Department)</i> to host the program mentioned above.
2010	Government creates <i>Programa Nacional de Banda Larga – PNBL (Broadband National Plan)</i> , to widen internet connection across the country.

Table 5-1: ICT sector in Brazil - Timeline (Adapted by the author from various sources)

#### 5.4.2 Digital inequalities: a replication of social inequalities

As the sector has grown, the uneven distribution of digital services has become more apparent. In 1995, the first NGO working with digital inclusion, the Centre for Digital Inclusion (CDI), was founded in Rio de Janeiro, focusing on how to improve citizenship, by using ICTs. In 1997, the Federal Government created the *Programa Nacional de Tecnologia Educacional - ProInfo (National Program of Educational Technology)* to train teachers in how to use new technologies in their classrooms. The 2000 Census was the first to collect data related to access to new technologies, followed in 2003 by the first study at national level about digital inclusion, entitled Digital Exclusion Map (Neri 2003). The CDI and the think tank *Fundação Getúlio Vargas – FGV (Getulio Vargas Foundation)* conducted this study with the objective of raising awareness of the increasing importance of ICT access and usage. It is argued that this project influenced the IBGE to collect data related to ICT access and usage, also motivating discussions at national level about the necessity of developing projects focusing on the poor (Mattos et al. 2009; Neri 2012).

Reports from the ITU and CGI.br provided data to begin to understand the extent of the inequalities. The ITU-ICT Development Index<sup>11</sup> ranked Brazil 62<sup>nd</sup> out of 157 countries worldwide and seventh in Latin America and the Caribbean region in 2013. However, this rank reflects only a country's average. According to CGI.br, social inequalities related to ICT are visible when the statistics are analysed in depth. Thus, in urban areas 44% of the households have internet access, in contrast to 10% of households in rural areas. The Southeast region of the country has the highest internet penetration (48% of households), while the Northeast and Northern regions have much lower penetration (27% and 21%, respectively). Moreover, the difference among socio-economic groups is extreme, 97% of the richest household populations have internet access, compared with as little as 6% in poorer populations (Barbosa 2013a, p.31-32). Concerning Campinas, studies are limited, but according to Neri (2012), 66.95% of individuals have a computer at home, and 58.15% also have internet access. Yet, it is not known how these percentiles are distributed across the population in Campinas.

Authors explain that Brazil has 'a world within' (Neri 2003), showing polarised levels of ICT penetration and usage within the states but also within cities, which in a way

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<sup>11</sup> The ICT Development Index follows the evolution of the digital divide worldwide, by measuring access, usage and ICT skills.

has “reproduced and promoted, the already embedded, inequality and social injustice structures that characterise Brazilian society” (Mattos et al. 2009, p.9). A possible reason for this uneven growth is pointed out by Macedo and Carvalho (2013) who conclude that the lack of laws regulating the expansion of broadband in the country has allowed companies to drive their investments only by the purchasing power of the population, which, being a reflection of their income, means that locations of low income populations have poor or no access to ICTs. Nonetheless, this is not the only reason behind the current inequalities: Cortimiglia et al. (2012) state that Brazil still has weak fiscal policies and a complex legal and regulatory environment that constrain the telecom sector’s growth, in particular to less served areas. Also, the low educational standards, in particular from less advantaged and vulnerable populations, affect the ability of individuals to improve their digital skills, therefore reinforcing digital inequalities (*ibid.*).

#### **5.4.3 Efforts to overcome ICT-related inequalities**

From 2006, with the creation of the *Portal de Inclusão Digital (Digital Inclusion Portal)* as part of the Electronic Government Program, activities started to focus on those communities that the Brazilian government considered to be the most vulnerable, trying to address the growing issue of digital exclusion<sup>12</sup>. Projects like Casa Brasil, Kit Telecentres, One Laptop Per Child and Computers for Inclusion, among others, have been promoted by the Federal Government, and implemented in partnership with other members of the Federation. In a study analysing thirty-two governmental projects, Teixeira et al. (2013) concluded that the governmental initiatives are mostly focused on providing equipment for personal access (13) and providing basic training (11). The remaining eight focus on infrastructure (3) and professional training (5) (p.96). Secondary data analysis also shows a few initiatives designed to aid public policies related to digital inclusion. For instance, the *Observatório Nacional de Inclusão Digital - ONIC (Digital Inclusion National Observatory)*, acts in partnership with civil society and the CGI.br, and, among other things, they collect, systematise and distribute information related to digital inclusion<sup>13</sup>.

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<sup>12</sup> It is important to clarify that there is a strong discourse in Brazil around the term ‘Digital Inclusion’. Although there are some critics, as will be discussed later, it is the most widely used term and has a connotation related to the difference between those with and without access to ICT (Lopes 2007).

<sup>13</sup> ONID’s official website has been inactive for several months by the time the last corrections of this thesis were made. I am not able to verify if this project is still active.

Nonetheless, implementation of these ICT programs has been uneven, due to the great influence that private investment has on the sector. Infrastructure has been concentrated in more populated and affluent areas, causing a lack of investment in remote areas, which also tend to be the most vulnerable (Costa 2012; Lopes 2007; Neri 2012). Also, initiatives from the Federal Government have been planned and executed in a top-down manner, making them difficult to implement because they often do not consider local realities and fail to adequately engage with local populations (Teixeira et al. 2013).

Implementing telecentres has been the most popular strategy to address digital inequalities (Costa 2012; Lopes 2007; Teixeira et al. 2013). According to Teixeira et al. (2013), courses offered at telecentres are often structured to offer ICT technical skills, what van Dijk (2012) would call operational and formal skills. Yet, these courses have failed to provide informational and strategic skills, such as how to locate and evaluate information or how to use this information to attain a specific goal, (Teixeira et al. 2013, p.96), which ultimately are the skills that will enable people to make use of ICT to support their well-being.

According to Marques (2010), some 12,000 telecentres are estimated to be active around the country, of which 5,549 are formally registered. These telecentres belong to different public, private and civil society initiatives that operate at national, state, regional or municipal levels. Dias (2011) points out that unfortunately data are not available to establish how many of these centres are operating effectively. The same is true for data from Campinas. Secondary data analysis shows that the Local Government and Federal Government organisations have telecentre initiatives in Campinas. These are *Jovem.com (Youth.com)* and *Rede Telecentros do Banco do Brasil (Brazil Bank's Telecentres Network)* respectively. Although anecdotal data mentions the existence of other initiatives, the only civil society organisation from which data can be easily accessed, either online or by visiting the organisation, is CDI Campinas. As mentioned in the Methodology Chapter, CDI Campinas and Jovem.com are the two case study organisations for this research.

## **5.5 Conclusions**

Informed by the CA, which stated that individuals are influenced by the context in which they live (Sen 1999c), and Freire's 'Pedagogy of the Oppressed', which

indicates that an understanding of social structures is needed to examine the reasons behind social inequalities (Freire 1970b), this chapter aimed to provide some background information about Brazil and Campinas, to frame the discussion in the following empirical chapters.

To focus the study, and to facilitate the dialogue with the partner organisations, social structures were operationalised in Chapter 4, following the classifications of Kleine's (2013) portfolio of resources. Some of these have been addressed in this chapter and are summarised as follows. Regarding financial structures, Brazil's and Campinas' great economic growth has been accompanied by small improvements in some social indicators. Cash transfer programmes, such as PBF, directed at the most vulnerable populations, have had impacts both on individuals' financial resources – improving their purchasing power; but also on their educational resources – decreasing rates of school truancy; health resources – improving children's nutrition; and cultural resources – increasing the bargaining power of women in their homes. Employment rates have improved, yet, Campinas is known for having “a large contingent of workers underemployed, underpaid and placed precariously in the labour market” (Cunha and Oliveira 2001, p.374). Consequently, differences between rich and poor have mostly remained or widened in some indicators, showing that Brazil's social policies, at national and local levels, have not yet been able to achieve equal distribution of the benefits of its great economic growth of the past decade.

Material structures, for instance housing, are a concerning issue. The majority of Campinas population, 60%, live in favelas, subjected to a lack of basic sanitation, poor transportation and deficiency in other services such as health and education (Cunha and Oliveira 2001). Concerning ICT, studies are limited, but according to Neri (2012), 66.95% of individuals have a computer at home, and 58.15% also have internet access. Remote areas, such as the peripheries of the city, where nineteen out of twenty-eight of the participants of this study live, and rural areas have lower internet penetration and infrastructure than urban areas, at national, regional and municipal level (Cabral Filho and Cabral 2013; Cortimiglia et al. 2012; Lopes 2007). The most popular initiative implemented by the government has been telecentres, offering mostly basic technical skills, such as the second case study JC.

Geographical structures vary according to the area of the city. Campinas has a very centralised urban fabric. This forces its citizens to travel to the centre of the city to

access a greater variety of private and public services, only available in this area. The peripheries, in particular the favelas and CDHU housing projects, have limited access to private and public services, high indices of drug trafficking and violence. Central areas suffer from kidnappings, car and property theft, and burglary. The level of insecurity is high, which may have negative impacts on the individuals' psychological resources. Finally, educational structures, as mentioned above, have improved although access to quality education at all levels, in particular to higher education, is still far from being equally accessed by the whole population.

It is within this context that the participants of this study live. Having clarity of these structures is important as this thesis is interested in finding out how intermediaries can support a meaningful appropriation of the computer and the internet (RQ1). Intermediaries have to acknowledge the context that their participants come from, and how these structures may affect their learning. Similarly, this applies to RQ2, which asks about the resources an individual needs for appropriation. Depending on the context, individuals may need different resources. Finally, RQ3 and RQ4 enquire about conscientisation and social transformation, and require an understanding of the environment and the constraining social structures in place, in order to be able to challenge these. Thus, having described some of the social structures, the following chapter analyses these from the individual's perspective, in order to explore their impacts on her portfolio of resources, adaptive preferences and agency.

# Chapter 6 Motives, goals and constraints

## 6.1 Introduction

Both Freire’s and Sen’s ideas emphasise the importance of situating the individual within a specific context. Her agency, choices and capabilities are a result of the interaction of her interpersonal differences, her portfolio of resources and the social structures that surround her (see Figure 6-1). As this thesis is interested in understanding what the intermediary can do to support individuals’ choices regarding ICT and their use (RQ1), this chapter will explore how different social structures were affecting the participants’ agency and choice, constraining or enhancing their freedom. This analysis will also provide a baseline to answer RQ2, as changes to the portfolio of resources of the participants will be analysed in comparison to this baseline, to determine which resources are useful for meaningfully appropriating ICT. This analysis will also be the reference for studying conscientisation and social change (RQ3 and RQ4). This analysis corresponds to the relation between the individual and the structure, as shown in the conceptual framework. It is important to state that this is by no means an analysis of the social structure of Campinas as a whole. This is a reflection of the data collected about the issues faced by the participants of this study on a daily basis, which in turn has been limited by the research design.

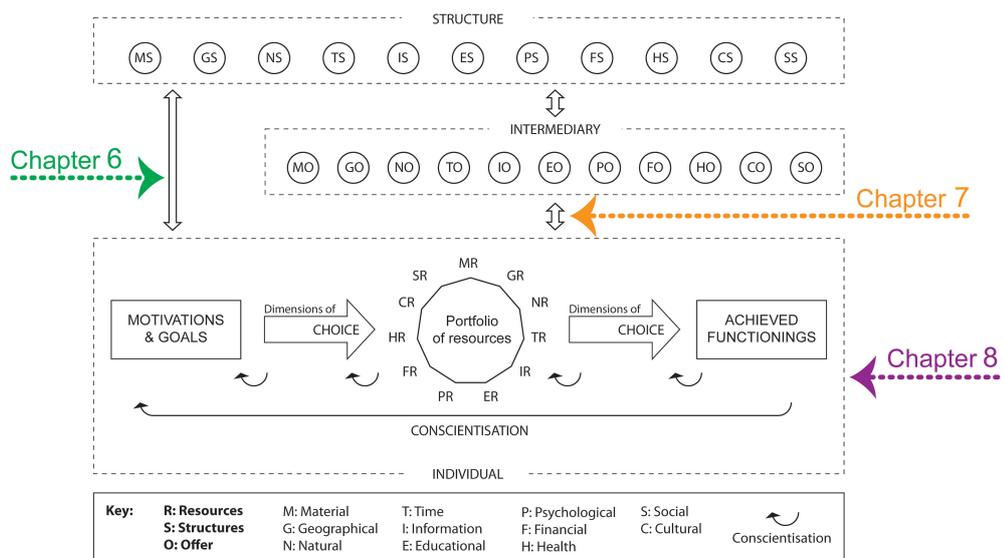


Figure 6-1: ICT Appropriation for Development Framework showing its relation with the chapters of this thesis. Developed by the Author based on Kleine (2013), Gigler (2011), van Dijk (2012).

## 6.2 Employment, material access and human flourishing

Campinas, as one of the largest economic poles of Brazil, has always attracted internal migration, as explained in Chapter 5. Eva, one of the interviewees, mentioned the following:

*I came to Campinas twenty years ago [...] because there [in her home town, located in a rural area] were no job opportunities [...] there were no companies, only jobs in the field [farms], so the living costs [for products and services which did not come from the fields] were too high and we could not live properly, then the only solution was to come to the big city. (Eva, female adult, JC student, ID42)*

Eva, mother of two children, married and currently unemployed, was one of the eight interviewees (out of nineteen adults) who reported migrating to Campinas to find better jobs and living opportunities. Eva recounted the great physical effort required when working in the fields, only to receive a poor salary. What made this situation worse was the lack of quality services, which forced citizens like Eva to miss a day of work (and thus a loss of income) in order to travel great distances (at further cost) to access services such as hospitals. For instance, Eva mentioned that they once had to travel to Campinas in order to take her son to the hospital, because the facilities in her rural hometown were not sufficient to treat him appropriately. It was during this trip, according to her, that the family decided to move to Campinas to seek better opportunities.

Constraining geographic social structures, in the form of public services, forced Eva and her husband to travel to seek appropriate healthcare for their son. This experience expanded their sense of choice, as they realised that they could find jobs and access to services in the big city. This was not an easy choice to make. Eva stated that she still felt that the environment of the city was hostile and unfriendly. She and her husband had traded off the friendly and safe environment they had in their hometown (geographical and social structures) for the hope of having better access to jobs and hospitals (financial and health structures).

In this respect, various authors mention that being employed is not a guarantee of a better quality of life (Cunha and Oliveira 2001; Phillips and Sakamoto 2012). As indicated in Chapter 5, labour rights are still weak in Campinas, where there is great

injustice in the labour market. Some of the interviewees shared experiences that relate to this situation, such as Raquel, who had worked as a cleaner:

*I used to work in the cleaning area [...] but I had to leave because I got a skin reaction to the cleaning products I was using [...] I did not want to feel I failed the company or myself, because my condition was getting worse, so I resigned [...] (Raquel, adult female, JC student, ID46)*

Raquel, a widow, with a son for whom she receives a pension from her deceased husband, was at the time of this research living in a common-law marriage in a favela house with no potable water or electricity. Raquel was unemployed after resigning from her job as a cleaner. The quote above shows an example of the poor health and safety conditions some companies offer to their employees. Raquel felt responsible for her condition and chose to leave her job, even though the cause for her illness was the strong chemicals she was using to clean, provided by the company. She did not receive any compensation, nor did she expect any. Raquel expressed being thankful that she was given the opportunity to work in the first place, especially considering her low schooling level (she never finished primary school). This appreciation towards the company was her primary motivation to quit, in order to avoid causing them any problems, disregarding her own loss. On the one hand, she was now facing illness due to the job she used to perform, and on the other hand, by resigning, she gave up any claim to compensation she could have received if released by the company. It could be argued that powerful discourses about employment, e.g. employers will find people to fill their vacancies regardless of their unfair conditions, led Raquel to believe that companies did not have to offer benefits like health and safety conditions; therefore, she adapted her preferences to not expect them.

From a Freirean perspective, it could be argued that Raquel had adapted to an unfair labour market, not only by her lack of knowledge of the labour law, which would have helped her to claim the benefits she deserved, but also because of the weak enforcement of the existing laws, which allow companies to offer little or no benefits and to pay little attention to their employees' safety, as in Raquel's case. Raquel mentioned knowing many people employed on similar schemes as hers, so it could be argued that this just reinforced her idea that what was happening to her was normal. In a way, this was adapting her preferences to believe that the situation could not be changed, therefore she never even considered demanding her

employees comply with her rights. Besides Raquel, four more interviewees, from the 19 adults who were part of this study, reported leaving their jobs due to health issues suffered because of their work, also with no compensation from their employers: Pilar (elderly woman, CDI student, ID6) and Daisy (adult woman, CDI student, ID13) reported having tendonitis caused by working as hairdressers, and Jade (adult woman, CDI student, ID17) reported having bronchitis after breathing the cleaning products at her former job.

In Campinas, for those who were employed, they had the security of a stable income, but for many of those, work conditions were not fair – they had no health insurance or any other benefits – and their careers could not progress or improve, mostly due to their lack of education. As mentioned above, improvements in income allow the expansion of some individuals' capabilities but do not guarantee other aspects that support human development, such as education, health or social resources, unless the individual has the opportunity, and chooses to reinvest her income in these aspects. Regarding education, Gaulard (2011) notes that to sustain growth, investments in areas such as education – traditionally known to show results in the long term – will be necessary if Brazil and its municipalities wish to continue to develop. According to this author, economic growth under previous conditions, e.g. levels of education, has been accomplished. Therefore, to keep promoting and sustaining growth in the long term, Brazil's government needs to support the diversification and improvement of its services, which requires equal efforts in expanding and professionalising its work force. Gaulard (2011) believes this can be achieved, by updating processes, and/or adopting new technologies, while investing in education to qualify employees.

This need for better skills is an issue that was evident in the data collected. Eight participants (out of nineteen adults, 2 from CDI and 6 from JC) reported being unemployed and were participating in the ICT skills course to improve their CVs to find better/new jobs. They stated that having ICT skills was becoming more valuable for companies. Even though some jobs did not state ICT skills as a requirement, companies would ask for CVs to be sent in digital form and through email, which could be considered a way to exclude those without basic ICT skills. Other jobs were incorporating new technologies that required their employees to know at least basic ICT skills, as Rute explains:

*I started working as a receptionist but I was fired after my three-month trial [... because] I was too slow typing the visitors' IDs on the computer [causing] a long queue of people. Now I am waiting to finish this course to start applying for jobs again. (Rute, adult female, JC student, ID44)*

Rute was Raquel's (introduced above) sister-in-law, who was living with her brother. Rute was living in a common-law marriage and had two children. She did not finish primary school, and did not have any ICT skills prior to the course. She stated working first in the cleaning sector, and later becoming a receptionist. She changed jobs because the latter was less physically tiring and had more social status. She mentioned just having to identify people at the entrance and open the gate. Rute said she knew she was not going to be young and strong forever, so being a receptionist seemed like a job she could keep for a longer time. However, when she applied for her latest job, she found out that she did not have the abilities to perform the job as required. This led her to constrain her expenses – financial resources – and to improve her educational resources. She chose to stay unemployed and attend the ICT skills course over finding a job she did not want anymore (cleaning). In this way, she enacted her agency freedom, by choosing to learn (educational resources) over having an income (financial resources). One of the reasons that facilitated Rute's choice of education over income was that she was receiving the cash transfer support aid *Bolsa Familia*, giving her some financial breathing space. This may be seen as an example where social structures may provide individuals' with greater choice.

Seven participants mentioned receiving this governmental aid. However, it was confirmed during the interviews that this was not a subject about which participants were willing to talk openly, as even during one-on-one interviews, they seemed reluctant to go into details<sup>14</sup>. Talking with the teachers and staff from the intermediary organisations helped me to understand this situation. On the one hand, for some, receiving this aid does relieve their families of some of the economic burdens they face, but they might also be ashamed of accepting that they fall into the group of those in extreme poverty (Campello and Neri 2013; Matijascic 2015; Sant'Ana 2014). On the other hand, as law enforcement is weak, it has meant that a significant number of families may find ways to receive this aid as an easy way to receive money without having to work or as an extra income (Castro et al. 2009;

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<sup>14</sup> Data related to financial resources had to be eliminated from the questionnaires, as it was mostly left blank, as previously discussed in Chapter 4.

Matijascic 2015; Soares and Sátyro 2009). An example from my years of living in Brazil<sup>15</sup>: a couple of people working for my father asked him to state that their salary was below a certain amount so that they could still get this aid. Even though they had a job they still wanted to get the extra money from the *Bolsa Família*, and, to do so, they asked him to report a lower salary, a request that he never accepted.

### **6.3 Social and cultural discourses**

Focusing on the individual is also important in order to understand her choices in different situations. For instance, if specific gender norms praise women that prioritise caring for their families, then, if service opening times are in conflict with this duty, this may mean women do not use the service. The following section describes some social and cultural discourses and their impact on the participants of this research.

#### **6.3.1 Political engagement – lack of interest and distrust**

Demonstrations during the 2014 World Cup in Brazil drew great media attention, and showed the world a country divided and citizens dissatisfied with the current inequalities. These movements started in 2013, while I was in Brazil. People initially protested about high public transport fares, low quality of health care and education and constant government corruption scandals, among other things. Considering that Freire's conscientisation requires a dialogic process of reflection and action, political activism and collective action are among the suggested undertakings Freire mentions in order to achieve social change. Thus, this provided a great opportunity to explore whether the participants of this research considered political freedom to be something they valued and had reason to value.

These demonstrations show changes in Brazil's political atmosphere, where until 2013, citizens' demonstrations against government had been scarce and small in numbers. This media called this new wave the 'awakening of the giant' (Saad-Filho 2013, p.657). As mentioned in Chapter 5, the 1988 constitution, following the end of the dictatorship, stimulated the creation of community associations, social

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<sup>15</sup>As mentioned in the Introduction, I lived in Brazil for seven years, between 2004 and 2011.

movement organisations and other citizens' groups (Avritzer 2002; Matijascic 2015), improving participation and decentralisation mostly by strengthening local institutions at municipal level (Fleury 2003). However, the revitalisation of public political participation mechanisms was not followed by an active involvement from Brazilian citizens (Avritzer 2009; Avritzer 2011; Garrossini 2010; Longhi and Canton 2011; Pintaudi 2004). Instead, Nobrega (2010) argues that participation mechanisms in Brazil are still inadequate and insufficient to allow all citizens a voice that would allow Brazil to enjoy a consolidated democracy.

Keeping this in mind, the demonstrations that started in 2013 have been considered as the "largest and most significant protest in Brazil for a generation" (Saad-Filho 2013, p.657). According to some authors, this protest united different social and political classes (Bastos et al. 2014; Morais and Saad 2011; Moseley and Layton 2013; Pelli 2013; Saad-Filho 2013; Sampaio 2014; Singer 2009). On one hand, neoliberals were discontent with the populist governments of the former President Lula and current President Rousseff, because the upper classes were witnessing changes to the previous social order, jeopardising their privileged conditions (Saad-Filho 2013; Singer 2009). For example, governmental programs, such as the *Bolsa Familia*, expanded the purchasing power of the poor, allowing them to afford certain possessions, such as cars. Then, as the increase in vehicles was not accompanied by improvements to infrastructure, urban quality of life suffered from some negative impacts, such as increased traffic and pollution (Morais and Saad 2011). On the other hand many were dissatisfied with the low quality of public services, mostly lower-income populations who demanded more and better quality social programs (Bastos et al. 2014; Pelli 2013; Sampaio 2014). Most of all, both groups shared frustration with the cases of government corruption (Moseley and Layton 2013; Saad-Filho 2013; Singer 2009).

The 2013 demonstrations started in June, and interviews for this research took place before and after these events (March and July). As collective action and political awareness are issues supported by Freire and explicitly addressed by CDI's methodology, questions during the interviews intended to find out whether participants were, or were not, interested in political issues and if they participated in any group interested in social or political matters. Accordingly, data collected was limited to these two sets of questions and by no means addresses these or other issues in depth. The data below provides just a glimpse of the situation and requires further research to be better understood. During the initial conversations, most

participants (25 out of 28) expressed that they preferred to distance themselves from political matters:

*I don't like to get involved in politics [I think it is] all fake, they only make promises and don't do anything. Talk, talk, talk and nothing [...] so I better don't get involved with that. (Bruna, elder female, CDI Student, ID1)*

Bruna worked as a housemaid and sustained her household, which was made up of her daughter and her daughter's two small children. Her husband had left her several years ago, and as her daughter was currently unemployed and looking for new jobs, she mentioned that she was the one raising her grandchildren. For Bruna, 'politics' or 'political' seemed to be used synonymously with politicians and corruption, and she preferred to separate herself from those matters, a feeling that was shared by three other participants. Initial research conducted by Bastos et al. (2014) and Saad-Filho (2013) indicated that those participating in the demonstrations were mostly "students and young left-wing activists [... and] (mainly) middle-class protesters". For Bastos et al. (2014), the location of the demonstrations affected who could attend them. As the demonstrations occurred in central locations in the cities, those living on the peripheries and depending on public transport, usually the poorest, were the least represented (Bastos et al. 2014). Reasons for Bruna's attitude may be related to apathy towards political issues, a lack of understanding about citizens' responsibility to engage with political causes in order to promote a real democracy, or a belief that political matters are only for those with the right skills, capacities or education levels. Evidence from this research points towards apathy but more research is necessary to understand the reasons behind it. Nevertheless, by withdrawing herself from political issues, Bruna is relinquishing her ability to influence any political decisions. For Freire (1998) this is the result of being oppressed, as people accept that others – those already in power – are the only ones that know how the system works (Freire 1970a). Discourses about politics seem to reinforce the idea that engaging in political action requires specific skills and that it is not for everyone, and also that relating to these actions may lead to corruption, as examples of corruption have shown (Moseley and Layton 2013; Saad-Filho 2013; Singer 2009). This also shows what Freire (1970b) calls fear of freedom, because accepting that they should get involved in politics means that they have to reconstruct some of their internal beliefs. Changing your beliefs, facing the unknown, requires personal work that the individual may not be motivated or willing

to face. From a CA perspective, this fear of freedom could also be understood as an adapted preference.

The lack of participation can be explained by the analysis presented by Costa and Cunha (2010), who maintain that citizen participation in Brazil suffers from several flaws that make it difficult or impossible to promote. They argue that since Brazil became a democratic state, education towards citizenship participation has been a responsibility of the state, without considering that the state is not an impartial actor. According to these authors, education in Brazil promotes and enhances the government position as providers of services, without promoting citizens' active participation (p.545-547). In other words, Brazilians have learned by practice that having a democracy equals voting and having a right to be a service user (Brito 2011; Nobrega 2010; Tomizawa and Maschio 2012). Freire would describe this education as 'banking', lacking the critical thinking which would provide the students with the ability to critically assess the services received from the state in relation to their own duties as citizens – i.e. taxes – and reflect on the effectiveness of the government in power. This issue will be further analysed in Chapter 7, where data from the second interviews will clarify whether participating on the ICT courses impacted participants' attitudes towards political freedoms.

### **6.3.2 Cultural discourses and their impact on agency**

Chapter 2 introduced the issue of gender in Latin America, stating that women may enjoy greater freedoms compared to other regions of the world – for instance, access to the labour market and education – but traditional family structures and tight gender roles still cause many women to face a double burden. In particular, women from low-income families need to work to supplement the family's income, while they remain responsible for childcare and housework, and usually also for caring for elderly members of their family. As indicated in Chapter 4, all nineteen adult students, participants in this research, were women, and some of their experiences as discussed in interviews agree with the literature. For example, Mariana is married and runs a craft materials shop with her husband. Even if both work, Mariana expressed:

*We both work at the shop, and have specific responsibilities. But at home, it is only me. He [my husband] does not lift a finger. I have to cook lunch and*

*dinner, make sure all the bills are paid and take care of the house. Also on weekends I take care of my mother. (Mariana, elder female, CDI student, ID4)*

Mariana and her husband do not have children but she now takes care of her mother, in particular having her to stay at weekends. During our interview it was clear that the relationship she had with her husband was very good but was based on specific roles. Mariana explained that at the shop, her husband was the boss and she was an employee, who had the same duties and rights as any other employee. At home, she was responsible for the household, with no help from her husband. Mariana, then, had three responsibilities: paid employment, housework and caring for her mother, an example of a double burden as explained in the literature (Laurie et al. 1997; Platt 2011) or indeed a triple burden.

Other women have had to resort to informal work in order to help sustain their families. For instance, Marta, introduced above, had improvised and created a fruit and vegetable stall at her house:

*My husband is unemployed and I have to take care of three girls, so I had to find a way to make an income without leaving the house. I want to be able to raise my girls, so I need to stay close while they are growing up. (Marta, adult female, JC student, ID45)*

Marta explained that her husband was very involved in the education of their daughters, but still, she said she was the one responsible for their education. This relates to research that mentions that one aspect of gender inequality in Latin America is not that women are forced to face a responsibility by themselves, but that they have become used to being the ones responsible for the children (Besse 1996; Chant 2003c; Friedman 2009), feeling any failure in that responsibility as a failure of their own selves. Thus, their own behaviour may discourage men from getting more involved and reinforce unequal gender relations. This relates to adaptive preferences as traditional gender roles, which have been internalised by women, affect their choices.

This 'self-imposed' responsibility also causes women to resort to informal work, such as the fruit and vegetable stall. As mentioned in her quote, Marta did not want to leave her kids unattended, but she still needed to work, which she had managed to do by improvising her stall. Other women in the research also mentioned working

informally. Jade (adult female, CDI Student, ID17) described selling sweets she baked at home and selling clothes and perfumes a friend provided for her; Kyara (adult female, JC student, ID43) mentioned working for a neighbour collecting quail eggs a couple of days a week; and Joana (elder female, CDI student, ID3) said she offered her hairdressing services to a couple of clients. Authors believe that women tend to rely on informal income sources due to lack of education and social mobility, not being able to find jobs that allow them to fulfil their other obligations (Bruschini 2007; Chant 2003a; Cupples 2005). Besides the examples mentioned above, Eva (adult female, JC student, ID42) and Rute (adult female, JC student, ID4) mentioned having resigned from their jobs as receptionists due to lack of time to attend to their families. Robeyns (2003b) would argue that these women were lacking capabilities related to education and knowledge, mobility, time-autonomy, domestic work and non-market care, paid work and other projects. Overall, Freire would argue that these women would need first to understand how the pervasive gender roles that they were unconsciously helping to reinforce were affecting their lives, in order to be able to restructure their lives in ways which encouraged their freedom.

Another cultural structure that participants highlighted was the important role that religion still plays in Brazil's society. Brazil is considered the biggest Catholic country in the world (Almeida and Monteiro 2001), where 73.77% of inhabitants considered themselves Catholics in 2000 (Pierucci 2004). Approximately 10% consider themselves atheist, while the rest, approximately 17%, belong to a diversity of religious groups – Protestants, Spiritualists, Candomblé, Umbanda, Jewish and Buddhists, among others (*ibid.*). Twenty-one of the twenty-eight participants stated that they had some religious beliefs and participated in different activities organised by their churches or temples. According to Garmany (2010), religious institutions play an important role in the most vulnerable communities in Brazil. For Garmany, the “material presence of the state, in the form of schools, hospitals, municipal infrastructure, emergency response personnel is quite limited”, and instead these religious institutions are very present in the communities (p.916). During my immersion walks (see Chapter 4) in the neighbourhoods near the ICT centres, I was able to witness many religious establishments, ranging from small one-room facilities to full-house infrastructures. For instance, one favela had two different Evangelic institutions and no state presence, and another neighbourhood had four Evangelic institutions and the only state presence was the prison nearby.

Having this presence may impact positively on the individuals' sense of social isolation, making them feel more integrated, as long as they follow a specific religion. Also, Garmany (2010) argues that the "strict codes of social conduct that these Christian religions demand from their followers [may help them deal better with the social] problems that are confronted on a daily basis" (p.916). Such codes might include sexual fidelity and abstinence from alcohol and drugs. This is supported by Mariz (1992), who argues that in Brazil, belonging to religious communities can "foster a sense of self-esteem and superiority to others, provide support networks [...] and encourage a sober and ascetic style of life" (p.63). Then, participants from this research who participate in religious activities may be seeking and finding psychological and/or social support by joining these activities. This was evident from the participants' statements: Isabel (Catholic, elder female, JC student, ID50) stated that Church was the only place she finds comfort, having God as her only confidant; Susana (Protestant, teen female, JC student, ID51) indicated that her friends and emotional support came only from her church youth group; Yara (Protestant, elder female, CDI student, ID11) and Anna (Spiritualist, adult female, CDI student, ID12) were volunteers in charity activities promoted by their churches and felt proud and accomplished for doing so, showing personal and spiritual fulfilment. Thus, these activities may help to improve the participants' psychological and social resources.

However, this also has a downside. Research has shown that religious practices in Brazil and Latin America promote specific gender roles, subordinating women (Bruschini 2007; Cupples 2005; Friedman 2009). Also, Kleine (2013, p.47) has stated that "religious and other beliefs stand in a complex interrelation with psychological resources" as these can have either positive or negative impacts. Then, while enhancing some resources, engaging with religious groups may also reinforce cultural structures, such as gender roles, adding to their adaptive preferences. This could be seen as a trade-off between psychological and social resources, on one hand, and cultural resources on the other.

Finally, age was an issue that was present in the data due to the nature of one of the groups taking part in the study – the course for the elderly. Only one person mentioned feeling discriminated due to her age, but all expressed in one way or another that their age represented a challenge in the way they lived their lives, namely having more illnesses, being slower and being less capable of learning. In this respect, a participant mentioned:

*I am a bit afraid (referring to being able to learn something at the ICT course). It is because [our brain] is different from younger people's: old people's neurons get slower and slower. (Pilar, elder female, CDI student, ID6)*

Pilar was married and had three adult children, still living with her. She explained that she used to work as a hairdresser but had to resign due to tendonitis in her arm after years of drying her clients' hair. She was now interested in learning new techniques from the computer, which motivated her to enrol in an ICT course. However, she was afraid of failing due to her age, as indicated in her quote. According to Lindôso et al. (2011), changes that people experience due to their age tend to impact negatively on their self-confidence, becoming their biggest difficulty when learning ICT skills. Yet, various studies indicate that engaging in activities, such as learning how to use ICTs, may provide great opportunities to improve the elderly's cognitive and manual skills (Lindôso et al. 2011; Scoralick-Lempke et al. 2012), increasing their motivation to remain active and fostering feelings of being socially included (Loos 2012; Repetto and Trentin 2009; Scoralick-Lempke et al. 2012). Chapter 8 explores, among other issues, whether Pilar and other elderly students benefited from participating in the ICT skills course by improving their social and psychological resources and agency, as research indicates they might.

## **6.4 The structures in Campinas related to geography**

### **6.4.1 The impacts of space on the portfolio of resources**

As the digital inclusion case studies of this thesis are mostly focusing on low-income populations, three out of the four locations visited during fieldwork, were located on the outskirts of the city (see Figure 3-2). Participants stated living close to the location where they attended the ICT course. Nineteen out of the twenty-eight participants stated that they were living on the periphery, from which four indicated living in neighbourhoods where CDHU houses prevailed and five indicated living in favelas. Of the remaining nine participants, seven lived in the West Region of the city, in zones closer to the centre, while the other two lived in other neighbourhoods. To qualify for a CDHU property, a person within the income band needs to register on a waiting list and wait to be selected. When awarded a property, the person will agree on a financing program, determining the monthly instalments payable after a two-year grace period. These instalments are meant to be less than or equal to the

rent the individual was paying before. Therefore, to have affordable rates, these properties are usually located on the outskirts of the city, where the price of the land is lower. One of the participants recounted the process she went through to get her current house in one of the CDHU developments.

*I registered [on the waiting list] for this little house a long time ago, from CDHU, [...] after ten years, it was really ten years... every once in a while they used to send me some information by telegram [confirming she was still in the waiting list], each telegram was a happiness, [...] after the tenth [year] I was called [...] I got a house. (Isabel, elder female, JC student, ID50)*

Isabel was a divorced woman who had raised her two children with no help from her former husband. Her two adult children still lived with her and were currently working after graduating from university. This made her very proud, as she had never finished primary school and barely knew how to read and write, but had worked as a street cleaner for several years to be able to support her children's education. Her tenacity served her well in getting a house from CDHU. When Isabel started the process, she did not know if she would receive a house. The CDHU website indicates that registration is not a guarantee of when you will get a property, nor if you will be offered a house or an apartment. The waiting time is a matter of chance, while the kind of property is a decision made by CDHU based on the documentation presented upon registration (CDHU no year, n.d.). In other words, perseverance is needed to stay with this process until the person is selected to receive a property. It seems that perseverance is also necessary to cope with the uncertainty of how long this process may take, which helped Isabel to maintain her faith in eventually receiving a property, an attitude that reflects her psychological resources. It could be argued that Isabel's attitude reflected her resolution to get a property, even if that meant waiting, without questioning, for many years. While this may be true, we should not disregard the great challenge that this meant for Isabel, i.e. having the geographical structures and social structures of a very bureaucratic process, which was the only way she could ever acquire a property.

In this particular case, Isabel said she had to wait for ten years. She recounts being happy when receiving the yearly telegram the CDHU sent to her. Her reaction to such a small thing as the telegram was "happiness" and not disappointment for having to wait one more year, showing, as indicated by Johnstone (2007) and Nussbaum (2000), that she had adapted her preferences to the situation in which

she just had to wait. Because the telegrams kept her hopes up, they strengthened Isabel's well-being freedom, but the fact that she still did not have a choice whether to move or not, but was just told to wait, meant that her agency freedom was not strengthened in the same manner. After being awarded the house, from a resource analysis perspective, it can be argued that Isabel's material resources and financial resources increased significantly. First, she was now the owner of a house and the land on which it was constructed. Second, the money previously used for rent was now being used for the mortgage on the house. She reported paying R\$90 per month, which is only approximately 12% of a minimum wage. Owning equity in a property also improved her access to financial services, such as loans or credit. This shows an increase in her financial resources too. Furthermore, she stated feeling very positive about owning the house, which reflects her increased psychological resources. Isabel was divorced and raising two children, without any help from her ex-husband at the time, so when she received the house, owning a property gave her a sense of security for her and her children, which further strengthened her psychological resources.

Empirical studies have shown that owning property and/or land can empower women because it can raise their self-esteem (psychological resources), improve their access to loans (financial resources) and guarantee that they have a safe and friendly environment at home (cultural resources), among other things (Agarwal 1994; Deere and León 2001; Roy and Tisdell 2002; Sánchez Korrol 1999). Likewise, since women in Brazil are traditionally responsible for the household and for childcare, owning a property and/or land improves not only their wellbeing, but also potentially the wellbeing of their children. According to Sen (1999c), different structures, such as educational institutions and property rights, may influence women's wellbeing, impacting positively on those closer to them, i.e. their immediate family, which may be a partner and/or children. Property ownership, in particular, improves women's status in their communities and in their own households, raising the influence of their voices and improving or levelling intra-family power relationships (Agarwal 1994; Deere and León 2001; Sen 1999c). These enable women to participate more actively in family decisions, among others, about their children's food and education. In addition, studies have shown that women invest more in their children and homes than men (Besse 1996; Chant 2003c; Deere and León 2001): therefore, having a home owned/run by women may be argued to bring positive impacts for children.

CDHU's limited resources enable them only to construct a series of standardised houses or buildings, with a small playground and green area in each development. As these developments are constructed without knowing who will inhabit them, they do not incorporate any participation from their future residents, which could be seen to be in tension with the CA emphasis on pluralism (see Plate 6-1).



*Plate 6-1: Houses (left) and apartments (right) provided by CDHU. Credit: Author*

When selected, the beneficiaries will receive a property with basic finishing and it is the responsibility of the owner to customise their property and adjust any security features, such as outside boundary walls and doors and/or window bars. Houses in Campinas have tall walls around the property with sharp edges, and windows have different kinds of security features, all to hinder access to strangers and avoid robberies. As the police frequently take a long time to arrive, alarms are not enough, and it is better to build in defence mechanisms. Citizens need to enclose themselves in their homes and to establish distance from strangers to feel safe, which could be seen from a CA perspective as lack of freedom. Moreover, it could be argued that if this is a common practice in all houses in Campinas, CDHU should provide boundary walls as a basic finish, as these are seen as necessary. Isabel dealt with this situation by requesting a loan:

*[...When I received the house] I was able to get a loan from the company I work for [...This allowed me to build] a wall around the house and today everything is just a blessing. (Isabel, elder female, JC student, ID50)*

The fact that Isabel was in a stable job and owned a property helped her to access the financing necessary to improve the security in her new house. For Isabel, the feeling of being blessed may be a reflection of a sense of achievement, and therefore an increase in her psychological resources. This is not the case with many

people in these neighbourhoods. Many households may be getting by with the income of only one parent, which might not be enough to fulfil the bank's or company's requirements to ask for a loan. It was observed during the fieldwork, and was also heard from other participants' interviews, that what usually occurs is that you build as you get the materials, depending on your available income. This could be read as a trade-off between an individual's financial and material resources. Some may take months or even years to complete a wall or a house renovation/extension.

This situation makes evident the social structures and power relations existing in this society, such as inequalities in access to housing, financial services, income, unemployment, and lack of safety. In a way, Isabel was lucky to be able to build the wall quickly, thanks mostly to the company she was working for which gave her the loan. Not every company offers this service to their employees, and, as buying a house from CDHU involves acquiring a mortgage with a governmental organisation, people's options to access additional loans or credits are constrained to private institutions. Yet, as eligibility requirements for financial services are usually unattainable for low-income populations, they need to stretch their incomes, further constraining their financial resources. This situation is something of a contradiction. On the one hand, owning a property may be seen as improving individuals' chances to access financial services; however, on the other hand, because CDHU properties are not given for free but come with long-term mortgages, individuals cannot access financial services until the mortgage is fully paid. So individuals experience an improvement in their material resources, but not equally in their financial resources regarding access to financial services.

Nevertheless, even a wall and other securities may not be enough, as Kyara's experience reflects:

*Drugs are [the problem] most visible in the street I live in, there is a drug trafficking point there. [...] They do not bother anyone, but it is still dangerous [...for instance, someone] tried to get into my house [...] I guess it was not to rob us, because they did not take anything [...] we just stayed very still and quiet till we could not hear noises anymore, then we went to check and they were gone. (Kyara, adult female, JC Student, ID43).*

Kyara was a single mother, still living with her parents, whose retirement pensions sustained their family. She had not finished high school and was currently in an informal job, as mentioned above, collecting quail eggs. Kyara had grown to like her neighbourhood very much, enjoying the quietness and having a park nearby. When asked to explain why she liked where she lived, she struggled to find an explanation. In between nervous laughs, she mentioned being happy to have a space to live at no cost, as she was living with her parents, and also, she stated being able to occasionally take her child to play at a park nearby. Kyara said that her main interest in life was the wellbeing of her child, and that being able to live with her parents assured her that her child had a home, giving her some peace of mind, especially considering that she was unemployed and was finding it very hard to find a job.

Kyara commented, referring to the episode above, that both she and her family preferred to stay still rather than call the police to avoid repercussions from the drug dealers. Drug dealers live in her neighbourhood and know every neighbour, making it easier for them to guess who contacted the police. Fear of retaliation forced Kyara to stay indoors and build up physical securities, such as building tall outside walls with broken glass attached to the upper edge that would at least help her to keep a distance from the danger, limiting her mobility. It could be argued that her geographical and social resources are constrained because she does not have the freedom to go anywhere at any time. Kyara was one of the twelve interviewees, out of twenty-eight, who mentioned experiences related to drug use or trafficking. Participants stated knowing where drugs were consumed and sold, and sometimes even who the dealers were. Despite these events, all of them had grown to like the spaces where they lived. Kyara's choices were limited: she lacked financial and material resources, but also educational resources, as she had not finished primary school.

This could be seen as adaptive preferences, because even though her neighbourhood was dangerous, the positive feelings of having a home and the support from her family – social resources – overcame the negative, making her state with assurance that she liked the neighbourhood very much. Participants knew their situations were not optimal, but they chose to focus on the positive, as Kyara's and Isabel's examples show. This is seen in the literature as a positive coping mechanism that may help improve psychological resources (Teschl and Comim 2005).

However, this analysis has been focused on those living on the outskirts of the city, nineteen out of the twenty-nine interviewees. And, as the city is much bigger and more diverse, the above only reflects the situation of some in Campinas. Seven participants in this research stated that they were living in the West region of the city, which will offer the current analysis another perspective. These individuals also faced some challenges related to space. They reported suffering mostly from robberies.

*A few days ago my neighbour was out for a walk on Sunday, and I guess because everyone sleeps late (during weekends), two guys mugged her [...] I have been assaulted twice myself [at my shop] (Mariana, adult female, CDI student, ID4)*

Mariana, the owner of the craft materials shop mentioned above, explained that calling the police is useless, because they take too long to arrive, losing track of the criminals. This situation constrains her geographical resources by limiting her mobility to times when it is safe to walk. Like Kyara, discussed above, whose mobility is limited due to drug dealers, Mariana also has to make her house a fortress against invaders due to the high incidence of burglary (refer to Chapter 4), constraining her social relations and therefore her social resources. This may also affect her psychological resources by forcing her to be alert and take continual precautions to remain safe, heightening stress levels. However, it was possible to see during the interview that Mariana was not afraid or bothered by the situation. Mariana seems to have adapted her preferences to the situation, in the same way as Kyara. By learning to cope with their environment, Mariana and Kyara increased their resilience, consequently improving their psychological resources. A colleague of hers, Nicole, referring to safety, offered an explanation for this behaviour:

*We need to always have one foot in front and the other behind [take precautions...] here is very, very dangerous [...] there are many petty thieves, burglars. [...] There is not one safe neighbourhood nowadays – it simply does not exist. [...] (That is why) I think my neighbourhood is very good. (Nicole, elder female, CDI student, ID5)*

Nicole was married and had three adult children already living on their own. Her husband had told her when she had her first child that she had to either work to pay for a babysitter or stay at home, which made her decide to become a full time mother. In a way, her husband forced her to stay at home, as he did not offer to

support a babysitter. Since then, she had been a housewife, responsible for paying the bills, housework and childcare. Nicole mentioned being very independent in how she organised her day and expressed how she liked her neighbourhood. It seems that her way to cope with danger was linked to the belief that there is nowhere she can escape from it. These characteristics of space also constrain the individual's mobility, by limiting what kind of activities she can do and what times of the day are safe/adequate for these activities. This will be the subject of the next section.

#### **6.4.2 The impacts of mobility on the portfolio of resources**

The participants' geographical resources go beyond the quality or availability of space, such as Isabel's house: they refer also to what Isabel or others may be able to do within those spaces, what kind of mobility they are able to have. Nordbakke (2013) defines mobility, from a CA standpoint, as "the ability to choose where, when and which activities to take part in outside the home in everyday life" (p.166). Therefore, if people are constrained to specific spaces either by lack of options or for safety reasons, their mobility, indeed their freedom, is also diminished. Lack of spaces such as leisure or cultural facilities is common in CDHU neighbourhoods. Neighbourhoods built by CDHU contain only small parks, if any. As properties become occupied, some families may start small businesses in their homes. However, this does not guarantee that every service will be available.

For instance, Aurora explained during her interview that although she liked living in her CDHU house, accessing services was not easy.

*The only bad thing is that there aren't any markets, pharmacy, shops, or a butchery (in the neighbourhood) [...] (to shop) we need to come to Anchieta<sup>16</sup> [...] I make a (shopping) list so I can buy it all at once [...] Then, my husband will take me back home on his bicycle [they do not own a car]. (Aurora, adult female, JC student, ID41)*

Aurora was married and had two children. Her husband was a recovering alcoholic and the couple ran a small hairdressing shop in a back-room of their house. She mentioned that walking to the nearest shop would take her between twenty and twenty-five minutes, similar to the journey she made to reach the ICT course, and that it took a

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<sup>16</sup> Padre Anchieta is the nearest bigger neighbourhood to her home.

further twenty minutes or more to reach bigger/better shops. She did not consider the first a long journey; however, if she needed to go to the bigger shop to buy groceries, the journey was longer and then she needed to carry heavy bags back, which was even worse if it was a rainy or sunny day – temperatures could reach 37 degrees Celsius. From my own experience in her neighbourhood, another option would have been to take the bus to a closer point to her house and then walk. However, bus routes were intermittent and represented an extra cost. Therefore, having her husband take her home was her best option. Her husband's bike – a material resource – helped her to improve her mobility. This does not mean that it was a safe journey, with two people on one bike and carrying bags of groceries, or that returning home by bike helped her to avoid the hot sun or the rain, but travelling this way reduced the time she would have taken if walking, and reduced the load of the bags.

Owning a CDHU property increased her material resources, but constrained her mobility. As shopping required planning – making a shopping list, agreeing to get a ride - it could be argued that living in her house also constrained her time resources by having to organise her day around a visit to the shops. Having the help of her husband in the form of a ride home did improve her time and mobility constraints, but as the bike was not hers, it represented being tied to her husband's availability. In spite of these issues, Aurora reported being happy living in her neighbourhood. Like Kyara, Aurora had gotten used to her living conditions, limiting her activities to particular spaces or to specific times, adapting her preferences to her degree of mobility. Céline Sachs (1999), after studying some of these developments in Brazil, described how people reported being satisfied living there, either because they had received a property close to a better-served neighbourhood, or because they currently did not have any more problems because they had persevered while their neighbourhoods grew and became better served places over time (p.70). Isabel is an example of this perseverance:

*When we moved here, we suffered [...] We did not have supermarkets or shops, we had to go to Valença<sup>17</sup> [...] but soon we got used to that [...] now I work closer to home and everything that I thought was far away is now closer. (Isabel, elder female, JD student, ID50)*

Isabel, the street cleaner introduced above, explained that when she first received the property, she not only needed to travel long distances to get to her place of

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<sup>17</sup> Parque Valença is the nearest bigger neighbourhood to her home.

work; she also needed to do so to buy any kinds of products or services. She enjoyed owning her own house, but because the neighbourhood was new, there were only other similar houses nearby, forcing her to seek services in other neighbourhoods. As time passed, she said she was getting used to the distances. Also she mentioned moving to a job closer to her home. Additionally, from my experience visiting her neighbourhood, I was able to see that it has grown, incorporating new infrastructure, shops and other services. These situations then helped her to become very happy with where she lived.

Nevertheless, unlike Isabel, thousands of individuals commute mainly to the centre of Campinas to work every day. The growth of Campinas, mentioned earlier, has not changed the significance of the city's centre. Still today, most of the places of work are concentrated in this area, according to the *Observatorio de Trabalho de Campinas* (2009) (Campinas Working Observatory), which influences the city's mobility patterns. As mentioned above, several participants live on the peripheries having to commute to the centre. This is a common situation in Brazil, as confirmed by various studies (Queiroz-Ribeiro 2004; Sachs 1999; Zattoni-Milano and Galacini-Bonadio 2013). Buses, which connect all neighbourhoods and some informal settlements to midtown, are the only public transport system in Campinas. Bus routes correspond to the demand, which affects many places with lower population densities. For instance, as most people need to commute to work in the central region, transport connecting the peripheries is very poor. Commuting to the centre is easier than trying to commute from one peripheral region to another.

Using public transportation requires time and effort. If there is no other choice, people will need to plan, taking into consideration the amount of time they will need to get to their destination. From my own experience living in Campinas, it also required some physical and emotional preparation. Bus drivers in Campinas were rude and drove very fast, even though the streets and roads were not in the best condition. In addition, there were large quantities of passengers and the very uncomfortable paying system (see explanation below), required me to be in comfortable clothing and shoes, ready to face the possibility of a very crowded journey standing up. Payment is done through an automatic paying method, with cards that need to be topped up in advance. Cash payments are also accepted and are collected by a conductor.

Due to the large number of people trying to avoid paying, the conductor also controls the entrance. Indeed, as an extra preventative measure, buses have

incorporated a turnstile at the entrance. Buses are usually crowded and the turnstile slows down the entrance of passengers. Regardless, the driver will rush to continue the journey, meaning that some passengers will have to pay and go through the turnstile while the bus is moving. It is also important to mention that the bus fleet varies in quality and age, meaning that some buses may be new, and others may be timeworn or damaged.

These characteristics are not only a limitation in themselves, but also constrain people's ability to access better public and private services and places of culture and entertainment, mostly located in specific neighbourhoods or the city centre. As Campinas has some neighbourhoods that, due to their characteristics – i.e. expensive shops and restaurants and limited public transport – are perceived as exclusive to higher-income populations, midtown is the place most visited by middle and low-income populations. Nevertheless, as mentioned above, the journey is tiresome and time-consuming: a trip could take at least an hour and twenty minutes, with two or three bus changes, for a journey of 15 kilometres – not necessarily something a person would choose to do in her free time. For this reason, some people, such as Anna, look for alternatives:

*I have to come by bicycle, because there is no bus that comes here [to the course training centre]: well, if I want to take a bus to come here from my house, I have to take first one to Campinas downtown, catch another bus in the market bus station and come here, then the bus will drop me off nearby, so there is no point. I can come by bicycle in... 20 minutes, cycling slowly from my home [...] Public transportation from my house to the midtown of Hortolândia<sup>18</sup> or to any part of Hortolândia and Campinas is terrible. (Anna, adult female, CDI student, ID12)*

Anne was married, for the third time, and had three children, one of whom was the only son of her current husband. She had decided to be a housewife to raise the children and used some of her time to work as a volunteer for her church. In contrast to Aurora's example above, Anna owned her own bicycle, which increased her mobility and time resources, and also gave her increased autonomy – a psychological resource. This material resource relieved Anna from the burden, inefficiency, and cost of using public transportation, and, in the same way as Aurora, facilitated her mobility within her community, which supported greater access to

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<sup>18</sup> Hortolândia is Campinas's neighbouring city.

services. Nonetheless, as both Anna's and Aurora's homes are located on the outskirts of the city, approximately 15 kilometres from the city centre, a bicycle does not help to improve their access to more central locations as there are no cycle routes available, and cycling on the highway is extremely dangerous.

Given that mobility produces, and is produced by, social relations (Cresswell 2010, p.21), the situations described above are representations of the distribution of power in Campinas. Cresswell (2010) proposed six aspects of mobility, which are used to support the understanding of certain issues (see Table 6-1).

<b>Aspect of mobility</b>	<b>Situation in Campinas</b>
Why does a person or thing move?	People on the outskirts are forced to move if they wish to access better/more complete services. For instance, there are few Public Hospitals in Campinas; therefore, if they have a medical emergency, which cannot be attended in a medical centre, they have to travel to other regions in the city. They also have to move to go to work or to access certain governmental services.
How fast does a person or thing move?	As mentioned above, travelling on public transport may take an hour and a half from the outskirts of the City to its centre. As this is the most common route, from my own experience, it is easier to go to the centre than to go to another outlying neighbourhood. If the journey is during rush hours (7.00 – 8.30 and 16.30-18.30*), it will take longer, whether driving your own car or using the bus.
In what rhythm does a person or thing move?	Travelling by public transport, the main way of transport of the participants of this research. As mentioned above, drivers usually drive at high speed, which endangers the passengers. During my stay in Campinas, at least four buses were involved in traffic accidents, with several people injured and killed. Bicycles are also a means of transportation for shorter distances; however, not everyone owns a bike.
What route does it take?	The concentration of jobs, public offices and services is so high in downtown Campinas that most routes will go to the centre. As Anna stated above, sometimes to go from one place to another, you need to change at midtown, because there are no other routes available. If using a bicycle, cyclists have to use the roads available. Bike lanes are available in the biggest park in the city, called Taquaral. Also, every Sunday morning, a bike lane route is activated for people to enjoy in the centre of the city, more for entertainment than for transportation.
How does it feel?	Participants indicated that they wanted to avoid public transport. From my own experience, it is not a pleasant experience: it is tedious, overcrowded, tiresome, and if the weather is too hot or too cold, the climate inside the bus will be either sweaty or very humid and smelly.
When and how does it stop?	This aspect is related to friction. The characteristics mentioned above are difficult to endure, and become even worse if the person is accompanied by children or is carrying shopping bags, as usually women in Brazil do. Therefore, it could be considered not to be a gender-friendly service.

*Table 6-1: Analysis based on Cresswell's six aspects of mobility (2010, p.22-26)*

*\*SINFRECAR (accessed in 2014)*

Women will suffer more friction than men in terms of when and how movement stops. As stated above, since in the local traditional gendered division of labour women are responsible for shopping and childcare, they will carry bags and/or will be accompanied by children on some of their journeys. So, if a woman requires public transport, these bags and/or children will add complexity to her already arduous journey. In particular, she will have to struggle with the bus turnstile while carrying bags and/or struggle to care for her children, and any child under 5 years old will have to be carried by their mother or be asked to dodge the turnstile, because they are exempt from payment and the turnstile only works for paying customers.

Thus, due to the onerous travel experience, people's mobility is reduced in a second way. People will constrain their activities to spaces and services located within walking distance, or cycling distance if they own a bike. Given the characteristics of their neighbourhoods as described above, this reduces their access to better services or public spaces and the amount of social and/or educational experiences.

*I don't know if there are courses in the centre, but it is very hard to go there, because you have to take a bus, and it is against the flux (most people travel to work to the centre and return home to the outskirts of the city), [...] here (location of the ICT course) is very close to home [...] 10 minutes walking and I am here. (Marta, adult female, JC student, ID45)*

As shown in the quote above, Marta had not even considered looking for other free courses elsewhere, in order to avoid using public transport. During my fieldwork, I found various organisations offering free training courses, but they were located in the downtown area. For Marta, the effort required to get to the city centre to attend a free training course was perceived as too troublesome, it was a trade-off between educational resources and time/financial resources. This situation confirms the findings of Kenyon et al. (2002), who argue that lack of mobility can be understood as a dimension of social exclusion, because it reduces "accessibility, to opportunities, social networks, goods and services, reinforcing other dimensions and factors of exclusion" (p.207). Namely, because, first, few people who live in the outskirts of the city own a car, second, public transport is limited and costly, and, third, better services are located mostly around the centre of the city, these people's living experiences are limited to fewer cultural, entertainment, educational and work opportunities than those available in other regions of the city.

Conversely, as indicated above, people living in more central areas had the advantage of having access to more and better services. However, due to the violence also mentioned in the previous section, participants stated that their mobility was limited to either certain times of the day when it was safe to walk, or to times when they could be with a group of people, as this would improve their chances of defending themselves against attackers. Various participants, such as Mariana, mentioned above, recounted having been robbed, either while walking or while in their homes or workplaces.

Unlike the women mentioned above, Mariana is 62 years old and reported working in a shop owned by her and her husband. Despite her age, she was still very active. She told me during her interview that she deals with payments and other errands during her one-hour lunch break, thanks to the proximity of bank offices and other shops. Living in her neighbourhood facilitated her mobility. She was able to undertake various activities within the vicinity of her home and workplace. Therefore, she has more geographical resources than the women above, and also more time resources, because she can undertake many activities by walking, avoiding public transportation.

Yet, if space is socially constructed (Massey 2005), it means also that positive and negative situations, and their benefits and constraints, coexist. Mariana's home and shop may be walking-distance to the shops, but her neighbourhood is also more attractive to thieves. This means that she has to be cautious while walking and have the necessary security at her home and shop to prevent robberies. Nevertheless, in the same manner as with space, participants seem to have developed strategies to cope with the danger, thus improving their psychological resources, while adapting their preferences to violence: some of them even stated that they never wanted leave their neighbourhoods, immediately after stating that they had suffered from several robberies.

## **6.5 Conclusions**

This chapter analysed the relation between the structure and the individual, prior to the digital inclusion programme, as a baseline for the analysis of the intermediaries' role (RQ1) that will be presented in Chapter 7, and the study of any changes on the portfolio of resources of the participants (RQ2) that will be presented in Chapter 8.

This chapter also serves to provide a basis for studying conscientisation and social change (RQ3 and RQ4), which is included in Chapter 8 and 9.

In general terms, participants of this study face several challenges in their daily lives. In terms of financial and material structures, Campinas suffers from great inequalities with large numbers of sub-standard jobs and informal work, in which six of the nineteen adult students who took part in the research mentioned being engaged. The same applies to those who are unemployed (eight out of nineteen adults). Reasons for unemployment include illness, lack of skills and inability to align household responsibilities and paid work, pointing to uneven gender relations, as will be further explained below.

Related to social structures, Brazil's recent collective demonstrations show that some discourses related to public participation are starting to change. However, it is difficult to understand the current situation with the available data collected for this study. Further research is necessary to understand what motivates some to engage in political activities, while others do not. Regarding cultural structures, such as gender, religion and age discourses, it was seen that these influence the participants of this research in positive and negative ways. On the one hand, gender and religious discourses seem to be linked to the individuals' identities and sense of fulfilment. For instance, some of the participants expressed that being a good mother was a source of pride, and that participating in church activities improved their social inclusion, personal satisfaction and sense of belonging. On the other hand, gender roles impose a double burden on women, who assume sole responsibility for housework, childcare and elderly care, in parallel to paid work. As this role has been internalised, it acts as an adaptive preference and oppression, making women often the first to support and reinforce this role. This is strengthened by religious practices, which also often reinforce current gender roles. Finally, age, for the elderly, is related to discourses of being out-dated and/or not able, which decreases self-confidence and causes social isolation.

Related to geographical and financial structures, efforts from the Federal, State and local governments, such as conditional cash transfers (*Bolsa Família*), received by seven participants, have increased the purchasing power of the low-income population, without challenging constraining social structures. Public housing development projects, such as CDHU, fall into this category. Even if such projects improve housing for their beneficiaries, they also constrain low-income populations

to specific locations in the city, which in turn causes new kinds of inequalities, such as lack of access to quality services or greater exposure to violence, affecting their psychological, time, social and geographical resources.

Overall, the collected data shows how participants' agency is permanently negotiated with social structures. Participants effectively deal with different social structures by developing coping strategies that allow them to feel happy, secure, or encouraged to pursue further education, such as the ICT course. These coping strategies are in turn expressions of their adaptive preferences. These preferences do provide psychological resources to ease individuals' daily struggles, by limiting their expectations to those they believe they can achieve. This in turn impairs their ability to realise this situation as injustice, and their own power to challenge and change some situations. Coping may help them to still live happy lives despite their challenges, but it may also affect what they value and have reason to value, reducing their expectations and desires. As they minimise what they expect from life, they will also expect less from the activities they perform. One example of this is what they expect from, and do, at the ICT training course, which will be addressed in Chapter 8.

# Chapter 7 Implementing Conscientisation

## 7.1 Introduction

Participants of this research faced daily challenges, as presented in Chapter 5 and 6. According to the CA, to improve the individual's development, different social arrangements should aim to help her with the aforementioned challenges. However, discussions in Chapter 2 showed Sen's CA is criticised for not dealing with power relations, and being "poorly equipped to deal with questions of entrenched power and the politics of conflict or social mobilisation" (Corbridge 2002, p.203). The proposal of this thesis is that in order to overcome this criticism, Freire's ideas can be integrated into the CA. Then, this thesis goes on to argue, social arrangements should not just aim to help the individual, but change the constraining social structures causing the challenges she faces. Thus, access to information and communication alone may be insufficient for the individual to challenge current constraining social structures. This is, indeed, why conscientisation, used by CDI Campinas, presents itself as a strategy that can help intermediaries to direct their efforts to achieve positive social structure changes.

Regardless of its value, conscientisation is not a process that is easily achieved. Freire indicates that conscientisation faces two challenges: first, how to overpower the internalised oppressor within the oppressed, and second, how to overcome what he calls the oppressed-oppressor duality. Considering the first challenge, Freire (1970b) explains that the oppressed usually admire the oppressors, and feel both fear and admiration towards them, aspiring to become like the oppressor. Subsequently, the actions of the oppressed show their unwillingness to upset the oppressor for fear of their reaction, or an abstention from some actions because of their belief in their own unfitness.

Concerning the second challenge, societies have limited resources, which are usually unevenly distributed, and as the oppressed, namely the marginalised and vulnerable, free themselves from their constraints, they may realise that unjust social structures have been restricting their access to some of these resources. Consequently, this situation impacts upon the oppressors: in other words, those who enjoyed greater access to resources will have to share them. As they never agreed

with giving away their advantaged status within their societies, instead of seeing a new group emerging, they see the new freedom of the oppressed as hostility/oppression against their beings, particularly their wealth. This limited vision causes resistance and struggle. Those who control resources, wealth and/or power will find ways to avoid losing them. Those lacking resources, wealth and/or power will struggle to access them, as their new understanding of the world indicates that this is their right. This is what Freire calls the oppressed-oppressor duality.

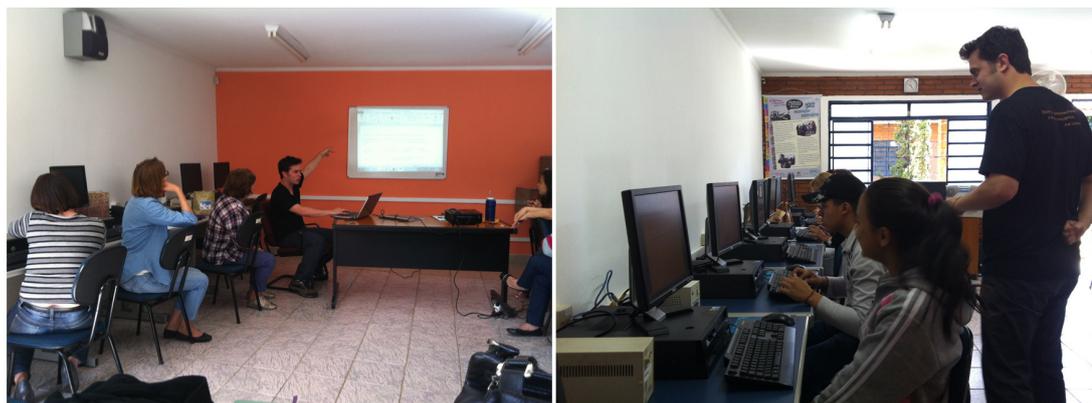
Freire (1970b) argues that oppressors will not relinquish their power easily, and that one of their tactics is to show generosity towards the oppressed. This is argued to be a 'false generosity', as oppressors need their power and wealth to be able to afford to be generous. The challenge is how to raise critical consciousness in both oppressors and oppressed, and how to deal with the tensions that will arise while this process is occurring in order to eliminate the duality. The question is how to sustain the oppressed awakening and identify possible 'false generosity' attempts from the oppressors, while at the same time awakening the latter to unjust social structures that demand that they relinquish their power.

Members of staff of the organisations participating in this study, CDI and JC, mentioned during their interviews that they agree with, and implement, Freire's pedagogy, in particular applying a dialogical and dynamic education. Hence, this chapter will reflect on data collected from their practices, to identify the challenges mentioned above and explore whether and how conscientisation was implemented in spite of these challenges. The CA and Freire's theories will be used to explore how the different implementation strategies impacted those involved. This process will also enable an identification of the limits of these strategies. This analysis corresponds to the relation between the individual and the structure, as shown in the conceptual framework (refer to Figure 6-1).

## **7.2 Banking and dialogue: the pedagogy in the classroom**

Observing four different courses, all in different locations and with different teachers, provided information about similarities and differences between CDI's and JC's practices, some of which are clearly a result of the training and guidelines provided by the organisation, and others a consequence of the abilities of the teacher and the location where the course took place.

First, the four locations visited had organised their classrooms in the same manner. Computers were set up in a U-form, which allowed the students to turn their chairs and form a circle with the teacher at the open front of the U, whenever she/he was giving instructions. This position allowed the teacher to walk around and check how each student was handling the tasks assigned. It also allowed the students to help each other if they wanted to. All four teachers stimulated students to help each other, but some encouraged this more than others. For instance, Francisco, teacher at *CDI Comunidade Eufraten* (Plate 7-1), was teaching a group made up by mostly elderly people (seven elderly, one teenager and one young adult). As Francisco explained during his interview, the elder students were afraid of making mistakes all the time, asking him to be near them supervising constantly. Francisco quickly realised he was not going to be able to attend to all students in the same manner, so he asked the teenager student to act as a peer mentor. Sally (teenager female, ID9), high school student, was finishing all tasks very fast, left with nothing but waiting till the rest of the students finished. During the third session, I was able to observe how Francisco asked her to help, something she was already doing with the person sitting next to her. However, after Francisco asked, Sally was standing up and walking around the room to help others as soon as she had finished the task herself. This responsibility was giving Sally additional experience, improving both her educational and social resources.



*Plate 7-1: Images from CDI Comunidade Eufraten. Credit: Author.*

This amicable environment was present in all four courses, and all four teachers were very concerned with supervising the students and helping them out. The openness of the layout of the classroom concurs with findings from Kleine (2011a), where she was able to compare U-form and cubicles layout, concluding that U-form allowed greater collaboration while cubicles were mostly used when users wanted

to retain their privacy. Considering the Pedagogy of the Oppressed, having a U-form that will encourage collaboration, openness and face-to-face dialogue with the students, seems indeed, the best way to organise a computer lab. Also considering the CA, a U-form could be considered a factor towards the improvement of the students' social resources (collaboration among students) and educational resources (clear eye-contact with the teacher, allowing also the teacher an easy way of supervising all students).

Second, how exercises were proposed to the students was very different, even if the skill being practiced was the same. For instance, most students were unfamiliar with typing, making this an operational skill they needed to practice. Fabio, JC's teacher from the telecentre EECE (Plate 7-2), took advantage of the fact that his classroom was located within a cultural centre that had a small library. He borrowed various books and asked the students to choose a page and copy it into (Microsoft) Word. He asked the students to include a title, in font Arial, size 18, bold and centralised, showing them, on a computer, where the formatting tools were found. While the students were following the instructions, Fabio will continuously asked them to remember to format the way he had asked, as this was part of accomplishing the task. On the one hand picking the books from the library shows Fabio's creativity, taking advantage of the resources available to him. On the other hand, his strict instructions and the limited room for exploration he was giving his students can be considered a banking education style, which may have limited his own students' creativity development in relation to how to use and explore different tools in Word.



*Plate 7-2: Images from telecentre EECE from JC. Credit: Author.*

Conversely, Carolina, teacher from *CDI Comunidade EEE* (Plate 7-3), also proposed a typing exercise to their students. Before class started, she had printed out a text with the following story downloaded from the Internet:

A 50-something year old white woman arrived at her seat on a crowded flight and immediately didn't want the seat. The seat was next to a black man. Disgusted, the woman immediately summoned the flight attendant and demanded a new seat. The woman said, "I cannot sit here next to this black man." The flight attendant said, "Let me see if I can find another seat." After checking, the flight attendant returned and stated "Ma'am, there are no more seats in economy, but I will check with the captain and see if there is something in first class." About 10 minutes went by and the flight attendant returned and stated "The captain has confirmed that there are no more seats in economy, but there is one in first class. It is our company policy to never move a person from economy to first class, but being that it would be some sort of scandal to force a person to sit next to an UNPLEASANT person, the captain agreed to make the switch to first class." Before the woman could say anything, the attendant gestured to the black man and said, "Therefore sir, if you would kindly retrieve your personal items, we would like to move you to the comfort of first class as the captain doesn't want you to sit next to an unpleasant person." Passengers in the seats nearby began to applaud while some gave a standing ovation.



*Plate 7-3: Images from CDI Comunidade EEE. Credit: Author.*

Carolina gave a copy to the students, asking them to copy the text it into Word. She also asked them to format the text when they finished. She showed them where the formatting tools were and asked them to explore their functionalities. When students began to finish copying the text, they started testing the tools. Some called Carolina for assistance, while others, in particular a couple of teenagers, were testing freely all the tools, and ended up having their text in large pink letters. Carolina pointed out for all some of the main tools and their functionalities, but this was not the end of the exercise, she asked them to turn to see her for a minute. Then she asked them their opinions about the text. This was a very interesting conversation to observe. Some

students were upset with the white lady, others just happy the black man got a better seat. The conversation got deeper when one of the students, Rosa, high school student, told the class:

*My stepmother does not like black people. She will avoid them and when she is home she says ugly things about them. But I think she is black, she has the hair and the colour, she is even darker than me and I consider myself black (Rosa, teen female, CDI student, ID20)*

Carolina took this opportunity to talk about identity, racism and respect with the students. She told the students that she was black too, and that sometimes she had suffered from racism, but that she was proud of who she was. The conversation lasted less than 15 minutes, and Carolina started with the next task. Carolina was able to combine the typing exercise with a discussion on racism, allowing her students to engage in a critical discussion and dialogue. She also gave them more freedom to engage with the software than Fabio did with his students. By observing both groups, those that had more freedom also felt more at ease with trying out functions that they were unfamiliar with. This is a formal skill, which in the mid- to-long term, students need to continue to learn and practice on their own after the course ends. This kind of exercise is similar to what Freire (1970) used to do when teaching literacy. He would teach students words and then engage in conversations about the meaning of those words. This is a good example of how CDI promoted dialogue in the classroom. However, in this particular example, there is not a direct connection between the digital tools and the discussion. From a CA perspective, Carolina's approach to the exercise was encouraging students to feel comfortable with the tools, to explore and make mistakes, which can be considered to improve their confidence (psychological resources) and their ICT skills (educational resources). The conversation about racism was also informing the students about some cultural discourses that may impact them in different ways, either by being affected by racism or by observing it happening to others (informational and cultural resources).

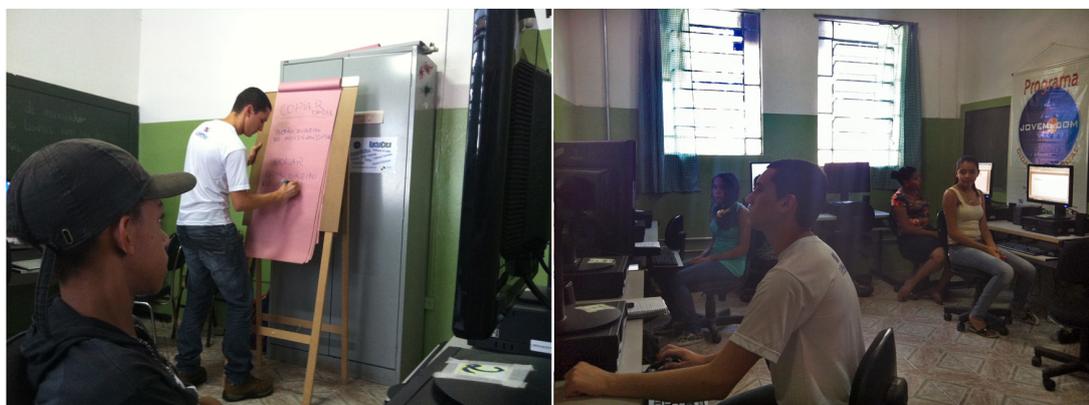
Another example, where the task and the technologies are more intertwined, was observed at Francisco's classroom at *CDI Comunidade Eufraten*. Francisco took his students on the immersion walk around the location of the school. Students took photographs and learned how to download them into the computer when they arrived back into the school. Afterwards, they looked together at all the photographs taken, and Francisco asked them what they had thought of their walk. Students

started to share their impressions but one was common among several students. During the walk, they had problems crossing a street. Cars were driving pass very fast and there was no traffic light or zebra lines that could help them to cross. Only a few of them were able to run to cross the street, while most had to wait patiently for no cars to come in order to cross at a slower pace.

Francisco took this as an opportunity to ask them who was responsible for the streets and what they could do, if anything, to improve the situation. After discussing the issue, Francisco taught them how to search for information on Google about the organisation responsible for the streets in Campinas, finding the address and contact information to make a complaint. He also showed them how to search for examples of complaint letters and, together with them, chose one. Then he printed the letter as an example and asked them to copy the text into Word to practice typing and learning to format. It took four lessons to complete this exercise and as a result, students' practiced typing, as in the two previous examples, but they also practiced searching for specific information that could aid a determined goal. In this case, the students did not have too much freedom when exploring the different tools in Word, arguably a banking education, but it could also be argued that they learned many other formal, information and strategic ICT skills (educational resources), besides the dialogue they engaged with about the problem itself (informational and cultural resources). Carolina's group was able to experience the immersion walk too, however, the students only discussed the images. A lack of time meant they could not identify an issue that they all found interesting, or undertake the other activities that Francisco's students did.

The teacher's enthusiasm, skills and support they received, had a great impact on the students' results. All four teachers had strong computer skills, but each had different levels of teaching skills and enthusiasm. For example, Gilberto, JC's teacher from the telecentre HM (Plate 7-4), had great knowledge about programming and computers, huge enthusiasm, but little teaching experience. Observation of his lessons showed that his body language and attitude during class were very cheerful, and it was easy to see he liked what he was doing. Students also responded very well to him. However, when explaining different tasks, he would get into so much detail that students would start playing with their phones or look bored. The first lesson consisted of 80% explanation by him, with him writing the main ideas onto a flip chart. With his great knowledge about computers, he would share with students information not available in the manual JC teachers were asked

to use as a guideline, and it could be argued that students were benefiting from this knowledge, but also, his lack of pedagogical skills limited how much he was able to communicate effectively with his students, as his style resembled a banking education in the way of just informing the students instead of promoting dialogue.



*Plate 7-4: images from Telecentre HM. Credit: Author.*

On the other hand, Fabio, after listening to his students saying that they wanted to be very good at typing, he decided to start every lesson with 20 – 30 minutes of typing practice. Computers at the lab had software specialised to train typing, so he would ask his students to use it before starting class. It could be argued that there are other, more creative, ways to train typing whilst also learning other skills, but Fabio, who explained during his interview that he was about to complete his second and final year at JC, decided to go down this simpler route. As discussed in Chapter 3, digital inclusion should open up opportunities, teaching not only operational skills but also formal, information and strategic ICT skills. Fabio chose to accommodate what the students had asked for instead of challenging them to do more, which would also have required him to do more. This could be argued is banking education too. He explained he was already looking for jobs and that he was very critical of the JC programme, as will be explained in section 7.3.2.

In the case of Carolina and Francisco, both were very committed to their students, but Carolina did not have the support of her home institution EEE. This organisation had been the first to work with CDI, but in the past year had been losing structure. Lack of financial and human resources had the organisation almost paralysed. The computer lab was one of three other services that the organisation was still offering, from more than ten that it used to offer in the past. Carolina did not have a proper local coordinator as Francisco and other teachers had. Although there was a person

assigned as local coordinator, Carolina was the one dealing with all the responsibilities. This is the reason it was not possible to organise a results meeting with this group at this institution, as was done with Eufraten.

In sum, the examples shown above aim to illustrate how teachers from both organisations were helpful and attentive to the needs of their students, paid attention to the layout of the classrooms as well as encouraging openness, conversation and collaboration among the students. However, how the teachers approached the lessons did differ. While JC teachers concentrated on the operational ICT skills, CDI teachers tried to encourage dialogue alongside the practice of operational and formal ICT skills, moving then towards more information and strategic ICT skills. Having dialogue as part of the lessons also helped them include critical thinking. Banking education seemed to facilitate teaching very basic operational ICT skills, like typing, but the combination with dialogical education allowed the students to acquire a greater set of skills. Finally, the immersion exercise experienced – at different levels - by CDI students, had the aim of encouraging conscientisation while learning other ICT skills. Whether this was achieved or not, will be discussed in the following sections.

### **7.3 Fear of freedom: facing fear by challenging adaptive preferences**

Improving the quality of life of the individual is one of the desired outcomes of development, which may require the individual to change. However, on some occasions, individuals seem rather unwilling to accept change. An example of this came up within CDI. Carmen, a member of CDI's staff, who was also teaching a course at one of CDI's partner organisations, mentioned in her interview an experience she had had with a student:

*There is a whole world outside our classroom that shows many things different from what we would want our students to see and what we teach. One of my students reacted defensively during one of our sessions, when talking about change and the possibility for them to go to university. He stated that he would not encourage false hopes for himself or for his grandchild. He said he will always remind him [his grandchild] that life is tough, that he will have to work very hard [meaning there was not time for going to university] and that he will have to just get used to it. (Carmen, Social Projects Manager, CDI)*

Carmen stated that this reaction was quite surprising. While they were engaged in conversation about their current lives, she asked what could change and what might be the outcomes if they were to go to university. This question instantly triggered her student's reaction. His expression 'false hopes' might indicate that he was already assuming that change was not possible (i.e. because he did not trust education to be a valuable strategy to find better jobs, because he did not trust his abilities or due to restricted financial resources), and that he would rather prepare his grandchild to face the unavoidable constraints of life. This student seems to reflect what Freire (1974) described as being oppressed: "if a man is incapable of changing reality, he adjusts himself instead. [...] Gradually, without even realising the loss, he relinquishes his capacity for choice; he is expelled from the orbit of decisions" (p.5). Slowly, his sense of choice fades away. This student's lack of hope towards positive change now, in his own life, and in the future for his grandchild, reflects how he has adapted to his constraining circumstances and his lack of choice in the matter. From a CA perspective, this behaviour could be described as adaptive preferences.

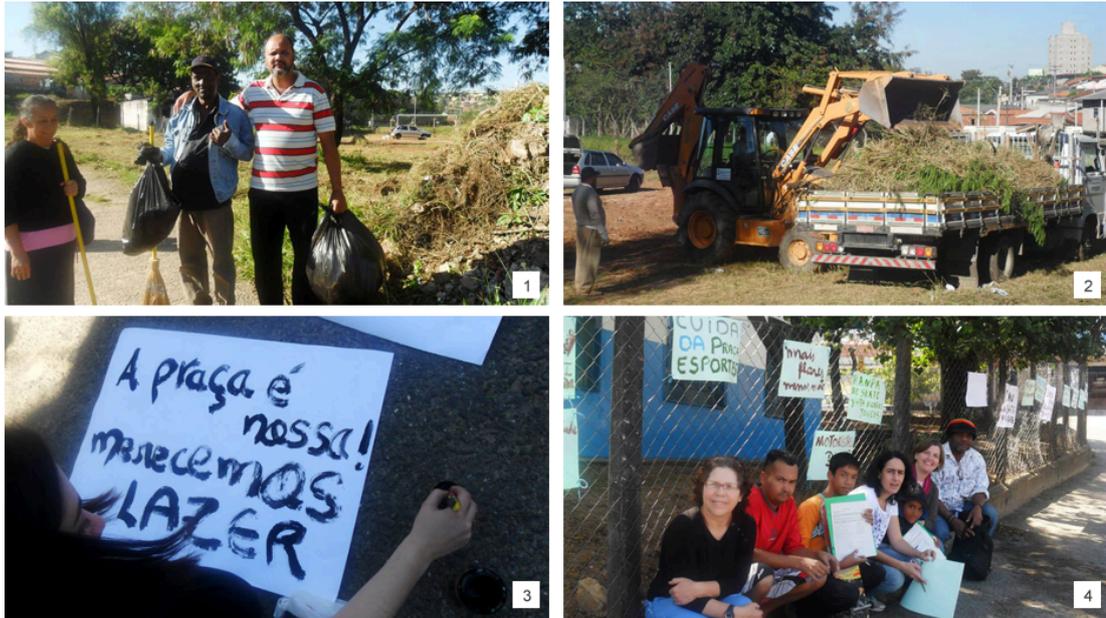
"Convinced of their own unfitness" (Freire 1970b, p.45) and having lost his ability to choose, Carmen's student would rather stay in his current constraining situation than face the unknown. Lack of psychological resources (self-esteem and self-confidence) may impede an individual's willingness to take risks; also, lack of educational resources (being able to problematise and implement solutions) might seem an insurmountable problem to this individual. According to Freire (1970b), this situation can only be overcome through a conscientisation process, where individuals learn how to understand their surroundings and challenge their current situations. This experience will allow them to feel the power they thought they lacked, thus strengthening their psychological and educational resources. As the oppressed lack

power, a liberating pedagogy is needed to help individuals to come together as collectives and experience their ability to transform their own realities (Freire 1970b).

Herein lies the instrumental value of the social projects promoted as part of CDI's methodology, where students get to experience being part of a collective and accomplishing changes, albeit small ones but bigger than those they could accomplish individually, in their own communities (Plate 7-5). In the case mentioned above, Carmen recounted what her group did:

*The group realised there was a park nearby that needed maintenance. The grass was tall, it was littered, and drug users were using it rather than children. After discussing some options, the group decided they wanted to ask the local authorities to clean the space, to request that the community help in the cleaning, and to create a campaign to ask the community to care for the park and to avoid littering. [...] The results were overwhelming. Most of all, students were amazed that they had actually managed to summon the local authorities to clean the space. (Carmen, Social Projects Manager, CDI)*

People who have lost all power and trust in their own ability to produce change need to see that they are as capable as anyone else to initiate and achieve change. By engaging in small projects, like the one mentioned above, students from CDI were able to learn new skills, such as how to plan an intervention, strengthening their psychological (self-confidence) and educational resources. They also experienced the power they had within, enhancing their agency, and the power they could have with others as a collective, increasing their social resources (getting to know other people and learning how to work in a team). Rowlands (1997) would argue that they increased their 'power to' (resolving a problem), their 'power within' (believing in themselves) and their 'power with' (organising a collective action).



*Plate 7-5: CDI's students engaged in a collective action to clean their park*  
 1) Students helping with the cleaning; 2) Local authorities cleaning the park;  
 3) Poster stating: "This park is ours! We deserve LEISURE";  
 4) Students and posters they created to raise their community's awareness;

Freire would maintain that by engaging with this process of exploring their communities, discussing and identifying possible social projects, and finally, planning and implementing an action, CDI students were practising dialogue and praxis, where action led to reflection and then to action, and so on. A cycle of critical reflection and collective action, which could also be called conscientisation, would empower the students. Similar examples can be found in the ICT4D literature. For instance, the 'Community Informatics Movement' (Arnold and Stillman 2012; Gurstein 2003; Konieczny 2014) has been using collective action and ICT as tools for "empowering those in society who are normally without power" (Gurstein 2007). Likewise, within the CA literature, collective action has been seen to improve the courage and self-confidence of individuals and groups (Kabeer and Sulaiman 2015) and to expand the individual's capabilities with actions that could only be acquired through cooperation, namely collective action (Anand 2007; Ibrahim 2006).

However, neither community informatics nor using collective action from a CA perspective provide a route to critical consciousness, which requires constant reflection and action upon every situation faced by the individual (Freire 1970b; 1974). As this has to be "pursue[d] constantly and responsibly" (Freire 1970b, p.29) it entails continuous process, requiring great commitment and effort from the individual and the collective. Therefore, by experiencing this process as part of a

liberating pedagogy – CDI’s ICT course – within a controlled environment and having the support of a trained teacher, it could be argued that students gradually get to improve their capacity for action and acknowledge the need to be responsible for their own development. Moreover, as this is a never-ending process, if implemented as a process instead of as a one-time activity, conscientisation may provide a strategy to challenge the ever-present adaptive preferences and enhance the individual’s power within and with others.

#### **7.4 Teachers: trickle-down conscientisation**

Teachers working with CDI tended to lack higher education degrees, or degrees related to pedagogy or social affairs. Some were previous students who moved on from being students to become teachers. This happened in particular with teen students, thus they were very young, with no pedagogical training or previous experience of teaching. Conversely, fellows from the Jovem.com program were young people, between fourteen and twenty-nine years old, who applied to the program as a way to gain some paid work experience that would allow them to continue their high school/ university studies. To be able to apply, these young people need to go through a selection process, where both they and their families are interviewed by a social worker. The criteria for selection were as follows: they had to be fifteen to twenty-nine years old, be resident in Campinas Municipality, be enrolled at school or recently graduated, be unemployed, be from a family with an income of no more than three minimum wages, and know how to use a computer and the internet. It could be argued that some of these JC teachers and fellows might need to develop their critical consciousness as much as their students.

The nature of these teachers’ work was complex and challenging. CDI’s partner organisations and the locations where Jovem.com established computer labs were located in marginalised areas. In CDI’s case, since partners were local associations, these tended to have limited financial resources and tended to offer positions for one minimum wage although the work was very demanding. Teachers working within the partner institutions had to juggle CDI’s requirements and their home institution, meaning that they did not always have full support to perform certain activities proposed by CDI. However, CDI’s Coordinator explained that their partners were institutions that were well established in their communities, having their community members’ acknowledgment and trust, which also meant that many citizens would

reach out to these organisations for help and support beyond their offer, or bring their issues into the classroom. For instance, CDI's Coordinator explained:

*There are many external forces that constrain the teacher. The organisation where she works may not provide the right support, she may have to deal with many activities and students, or she may have students that come from very difficult situations: [i.e.] students that did not sleep well because they share a bed with siblings or other family members, if they have a bed; because their parents fought all night long; because they have not eaten properly; or because they are sick. (Elsa, Coordinator, CDI)*

Considering that both organisations' results and/or impacts depended on the performance of their teachers or fellows, how the organisations related to the teachers/fellows and how the teachers/fellows related to the participants became crucial elements in the success or failure of their activities. Teachers needed to be aware of the challenges they were going to face, both from the social constraints suffered by their students, neighbourhood or community and in terms of how to implement CDI's and JC's methodology, respectively. For instance, as conscientisation is a process that students need to experience rather than being told about, teachers required support to be able to implement this during the course. Related to this, a member of CDI staff mentioned:

*We cannot force collective actions on the students. They have to choose to create a project by themselves. Only then will they be developing their criticality. If this is achieved, we consider the course a success, as they have learned a skill they can continue to use to support their choices. (Jeni, Administrator Staff, CDI)*

The teacher had to guide her students into dialogue and instigate reflection. However, the teacher could provide the answers, and needed to remember that her opinions could influence the students, as they uphold her as an authority figure. As mentioned in Chapter 2, education can be used as a tool for both oppression and liberation: therefore, the teacher had to be aware of her power within the classroom and be willing to relinquish it to the students, as they were the ones who should lead the process, if conscientisation was to be achieved.

Freire argues that those leading conscientisation – in the case of this thesis, CDI teachers and Jovem.com fellows – “must be converted to dialogue in order to carry out education rather than domestication” (Freire 1974). In Freire’s words, “the role of the problem-posing educator is to create, together with the students, the conditions under which knowledge at the level of the doxa is superseded by true knowledge, at the level of the logos” (Freire 1970, p. 62). To achieve this interaction, the students were required to participate and be co-responsible for the educational process, motivating, from the start, the development of their critical thinking. The teacher has to be understood as the facilitator of dialogue and praxis, encouraging students to engage in practices that are unfamiliar to them. This process invites student to see their world through critical eyes, reflect and act. The following sections will present how each organisation provided support for their teachers or fellows accordingly.

#### **7.4.1 CDI: adapting Freire’s methodology for digital literacy**

As indicated above, CDI depends on its teachers’ performance to achieve their desired results, for which the organisation provides guidance to their teachers. Still, CDI is aware that asking teachers to change their pedagogical practices is not an easy suggestion; therefore, training the teachers is their priority.

*Our focus is on training the teachers. We provide initial training, lifelong training opportunities and supporting meetings. The CDI Campinas Network offers the teachers group support and additional opportunities for learning [...] If the teacher does not believe in the power of social mobilisation and does not incorporate this as a habit, then she won’t be able to inspire the students. (Valentina, Social Projects Manager, CDI)*

Keeping in mind that conscientisation is “a process of permanent liberation” (Freire 1970b, p.36), CDI offers a variety of activities and courses as a multi-layered effort to raise its teachers’ awareness. They provide them with opportunities for learning and practice, with issues regarding CDI’s methodology and also related to Freire’s theories of dialogue and praxis, so as to ‘incorporate’ these abilities. Freire understood the great challenge that teachers faced, first needing to raise their own conscientisation and then leading the process in their students. He dedicated several sections of his books, and even complete books, to the characteristics a teacher should embrace (Freire 1974; 1976; 1998). During one of the teacher’s training

sessions, in which I was able to participate, the trainer showed the book 'Pedagogy of Autonomy' (Freire 2004b) and read a passage to the teachers. Then she asked the teacher about their opinions and to provide examples, whether these examples were something they would value or not, and why. The discussion concluded by stating that all the virtues mentioned were valid but sometimes hard to attain. For instance, respecting the students' opinions, as sometimes these reflected habits that needed to be challenged such as reacting with violence when faced with problems.

CDI was aware that text-book level performance all the time was not realistic. This was another reason why they ensured constant contact with the teachers through their diversity of activities. Full details of CDI Campinas (CDI-CPS) activities are presented in Table 7-1, as a result of a mapping exercise done together with CDI's team (see Chapter 4). I attended the majority of these events with only a few I could not attend because they occur only once a year, in months when I was no longer in Campinas.

Level	Target	Activity	Objective
Organisational	CDI-CPS Staff	Social Educator Program	Staff are required to take the same training as teachers in CDI's Methodology
		Lifelong training	Meetings once a month to engage in critical dialogue about a variety of social issues and challenges related to the implementation of CDI's methodology
Community	<i>CDI Comunidades</i> Teacher & Coordinator	Social Educator Program	Training in CDI's Methodology
		Backing meetings	One-to-one support meetings where weaknesses are identified and addressed on the spot or future activities are planned
		Lifelong training	Training sessions designed based on weaknesses identified in backing meetings or as requested by the teachers, where teachers learn new ways of using ICT for citizenship, using CDI's methodology
	<i>CDI Comunidades</i> Students & Teachers	Social Intervention Project	Learn through praxis that collectives have power to change specific social issues
Campinas (CPS)	Clusters of <i>CDI Comunidades</i>	Backing meetings	Support meetings where participants are encouraged to support each other and create a network of support
	CDI-CPS Network	Network meetings	Bimonthly meetings where one <i>CDI Comunidade</i> takes responsibility for the organisation, agenda and activities. Aiming to engage in critical dialogue, share experiences and strengthen the network

		<i>Encontro da Cidadania</i>	Annual event where <i>CDI Comunidades</i> share knowledge and experiences about their social projects and results. Students present their projects, participate in workshops and discuss social issues.
		Campaigns	Activities from social movements are shared with the network, and whenever possible, CDI supports their activities by having a stand, presenting or adding their name to support their causes. This also provides an opportunity for the CDI-CPS Network to get involved with wider social issues beyond digital inclusion.
	Other similar organisations	<i>Forum da Cultura Digital</i>	Network formed by organisations in CPS working with digital inclusion or similar initiatives. This provides an opportunity to create a network of support, share knowledge and experiences about digital inclusion practices.
	General population	Semana da Cultura Digital	Annual event to raise awareness and promote digital inclusion among CPS population, offering panels of discussion, workshops and other free activities.
National	CDI Network	Annual Network meeting	Annual meeting at Headquarters where CDI's from Brazil and abroad send representatives to share knowledge and experiences.
		Online Network meetings	Online meetings where different groups within the CDI network (pedagogy, fund-raising, administrative) meet, share knowledge and provide support.
	Public policies	Member of CGI.BR	Active participant of the Internet's committee organisation. This also provides an opportunity for the CDI-CPS Network to get involved with discussions on public policies.

Table 7-1: Overview of CDI's offer of activities

As explained in Chapter 4, a mapping workshop was organised as part of the fieldwork activities and was conducted with all CDI Staff. This was based on the operationalisation of the intermediaries' offer, which was worked out at the initial workshop. This exercise aimed to identify all the different activities and their targets. They mentioned they had never stopped to reflect on what they were offering, to what audience and for what purpose. They knew, individually, all their activities, but having them mapped provided a great opportunity for discussion, and one of the outcomes was a realisation of the amount of work they had managed to accomplish, which gave them some relief and a sense of achievement.

Figure 7-1 was designed to help visualise and understand CDI's multi-layered effort to interact with the multiple actors mentioned above. At the top there is a representation of CDI Campinas, formed by its staff. Each *CDI Comunidade* is represented by being co-created by CDI and its local organisation partners, and

contains the students who will receive the ICT skills courses. All these actors together form what is called the CDI Campinas Network. Similar networks exist in other cities in Brazil and in other countries in the world. These are represented to the right of CDI Campinas and together form what is called the CDI Global Network. Below left is the *Forum da Cultura Digital*, which is formed by the CDI-CPS Network and other Digital Inclusion initiatives in Campinas, together with academics of the University of Campinas – UNICAMP. Below centre are other social movements in which CDI-CPS participates, for instance, the *Forum da Criança e Adolescente* (*Child and Teen Forum*) in Campinas, which discusses issues related to young people’s rights, and the *Campanha do Software Livre* (*Free Software Campaign*) which at national level supports the appropriation of technology by being able to produce and design your own technology and freely share it with others. Below right is the *Comitê Gestor da internet no Brasil – CGI.BR* (*Brazil’s internet Management Committee*), in which CDI-CPS also participates.

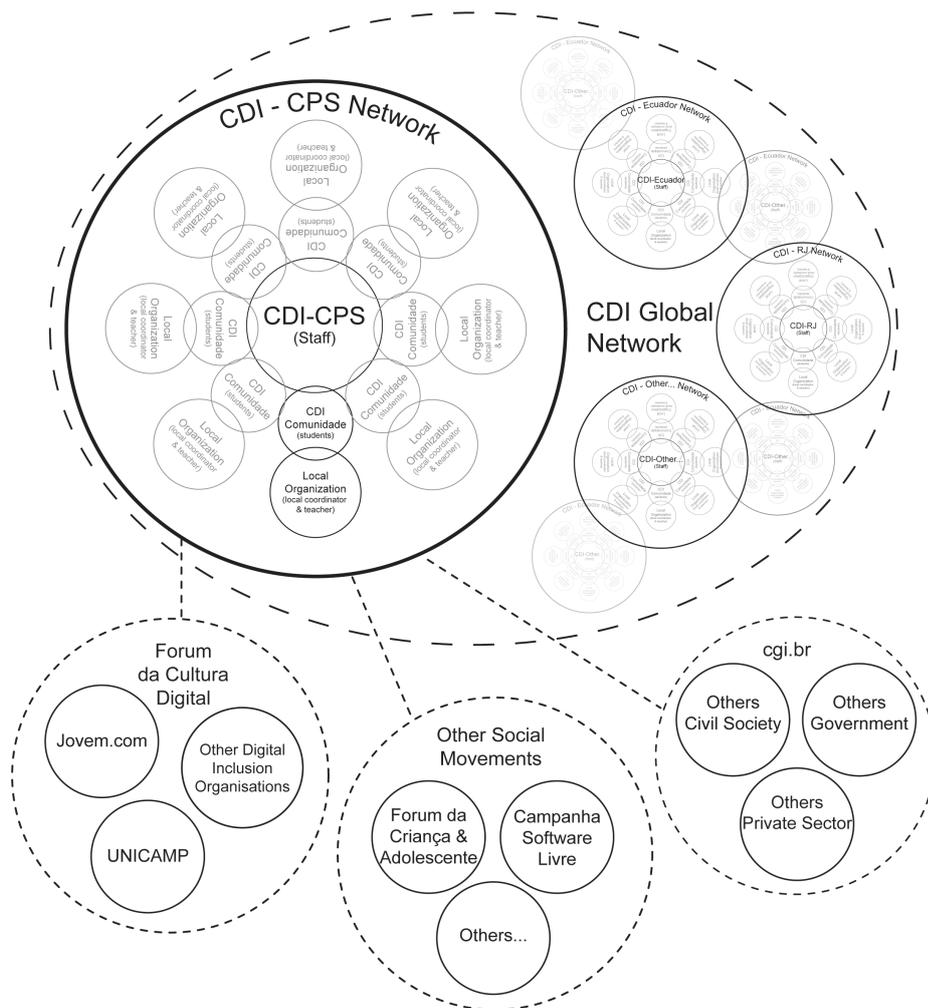


Figure 7-1: CDI-CPS map of actors and networks (developed by Author)

Considering the multiple relations CDI has with other actors, each activity is targeted to a specific group. At an organisational level, activities are mostly offered to CDI's staff, but from community level onwards, all activities are open to members of staff, teachers and coordinators of the *CDI Comunidade*, and even to outstanding students. CDI acts as an information broker, sharing relevant information to the network, and a facilitator/ leader, proposing and organising events. However, all activities are jointly organised, with shared responsibility. Particularly for the bigger events, in which the entire CDI-CPS Network participates, the event organisation is carried out in a participatory manner. Various working groups are established and different members assume leadership over certain activities. This way, responsibility is shared among all those involved. These activities aim to strengthen their participants' educational (i.e. new ICT skills), psychological (i.e. self-confidence), cultural (i.e. increased awareness about gender, race, class), informational (i.e. knowledge sharing within the network) and social resources (i.e. strengthening the network and raising political awareness).

These activities also provided opportunities for political engagement, by participating in the diverse campaigns organised or supported by CDI-CPS. Moreover, partaking in the working groups meant that participants could improve their psychological resources (i.e. organisational skills) and their agency. Hence, teachers could learn by practice what they were being asked to teach. Getting teachers involved in a diversity of activities can be seen as socio-constructivist teacher training, where interactive methods are used to improve teachers' adherence to what is being taught, as co-creators of content and activities (Bunaiasu et al. 2013; Joia 2002; Nitulescu and Rotaru 2012). Also, research on lifelong learning (LLL) shows that students – in this case, CDI's teachers – benefit from lifelong training by improving their work-related competencies (Chauhan and Chauhan 2009; Ryan 2003) and increasing their motivation and self-regulated learning behaviour (Finsterwald et al. 2013; Lüftenegger et al. 2012; Walters 1999), similar to CDI's aim for their teachers.

Working with teachers was also intended to encourage multipliers, as CDI-CPS saw the teachers' potential within their communities and the wider society:

*We think the highest impact towards the transformation of our society is providing training to those working with social programs, inspiring them to be more critical, more conscious, more stimulated to read and learn. Namely, to be more qualified professionals who can become social mobilisers, who know how to use a computer as a tool for the construction of a better world.*  
(Elsa, Coordinator, CDI)

As indicated by Elsa, these teachers were already in jobs dealing with social issues, and any training provided to them to improve their abilities would not only strengthen them as individuals but also reflect on those beneficiaries with whom they worked. Therefore, strengthening teachers in these positions was seen as having a multiplier effect on the community in which they were working. However, as a Freirean approach was always used, it can be argued that by engaging with the activities proposed by CDI, teachers were also undergoing a conscientisation process themselves, strengthening skills like organisation of social events, critical thinking, planning, implementation and evaluation. For instance, during the Coordinators training I was able to listen to various examples given by the coordinators of how they were applying what they were learning with CDI in other areas. One teacher said she wanted the organisation she worked in to become a reference point in the community, so people would take ownership of the organisation. Also she wanted to lead other organisations to build a network of collaboration within their community, aiming to help and support each other, to be able to serve their community in a better way.

Recalling that a Freirean approach encourages a horizontal relationship between teacher and student, in which both are seen as teacher-student and student-teacher (Freire 1970b), acquiring these skills meant that the teachers were also in a better position to teach their students the same skills. It could be argued that CDI's activities aimed to give their teachers the benefit of lifelong learning, as indicated above, but also aimed to give teachers the skills to be able to teach lifelong learning to their students. Finsterwald et al (2013) mention that "teachers should, on the one hand, experience systematic support in their own LLL paths; on the other hand, they should also be prepared to promote LLL competences among their pupils" (p.144). CDI was trying to achieve this by providing access to a diversity of opportunities for learning and political engagement, always with a Freirean pedagogy approach. Finsterwald et al. (2013) also indicated a lack of academic research about how to train teachers to foster lifelong learning, proposing their own approach, called TALK. While these authors point to a gap in the literature, further research is necessary to

acknowledge the current state of affairs, which lies beyond the scope of this thesis, and may be addressed in future research. Nevertheless, CDI's experience seems to be another alternative for lifelong learning teacher training, for which further research is still necessary with a specific focus on the impact of CDI's methodology on the teachers and their teaching practices.

Among all training activities, CDI's first and most important effort was the 'Social Educator Program'. This course was given twice a year, inviting all new teachers or soon to be teachers and new members of CDI's staff. It was also open for current teachers, local coordinators and CDI's volunteers, and the wider community if places where available. I attended the first of two courses in that year. It occurred once a week for 14 weeks, during the mornings (8.00 – 12.30) at CDI headquarters. It had 14 participants, mostly teachers that had been hired to teach at a *CDI Comunidade*, however, 5 participants (one was me) were attending out of personal interest. The course lasted a total of 60 hours. Teachers had the opportunity to experience CDI's five-step methodology while also learning how to facilitate dialogue and reflection. Reflecting on this course, a participant indicated:

*We need to understand our role as social educators in computing. So the course is very good because it makes us reflect, and from that reflection, turn to practice. (Paulo, new teacher, CDI Comunidade, participant of the Social Educator Program)*

Freire's Pedagogy of the Oppressed (Freire 1970b) was presented as CDI's theoretical framework. The program's content was organised around CDI's five-step methodology: 1) read the world; 2) problematise; 3) plan an action; 4) implement the action; 5) evaluate the action. Based on its manual of suggested activities, sessions were divided into dialogue, revision of the manual, and practice of some of the activities. The chosen activities aimed to provide the participants with an experience of a conscientisation process, to enable them to learn by practice and to be able to feel the possible challenges and opportunities this methodology offered for their work, teaching for CDI or their home institution.

I observed a diversity of discussions in which social issues were analysed, examining some of the causes for the issues raised. CDI's trainer facilitated the discussions, instigating questions to deepen the arguments presented; and when possible solutions were discussed, introducing different ways in which ICT could

provide assistance. For instance, a participating teacher shared that she was appalled that their students liked a type of music called Funky, which objectifies women in their lyrics and which is danced to in obscene manners. Many other participants agreed that this was a challenge with their students too, and CDI's trainer then explained how she would use Freire's pedagogy to face this challenge. She said she would try to deconstruct the meanings of the song with the students, asking them to explain to her the meanings of the lyrics and reasons why they thought they liked it, agreeing with them that the music itself was fun to dance to. She would then use the internet to search for different topics that might spark the teens' interest and critical discussion. Later she asked the participants to comment on this approach, which led to further discussions, but one participant said she worked in an institution that worked with prostitutes, and that she could gather some information that might help the teachers to develop arguments against objectifying women. CDI's trainer then indicated that for her, this illustrated what it meant being a social educator who also taught ICT – what Paulo called (above) a 'social educator in computing'. She went on to explain that this kind of support was something that the CDI Network could provide, so that they could all help each other to face this and other challenges.

As part of the program, the participants had to conduct an immersion walk around CDI-CPS headquarters, known as '*Mergulho na comunidade*' (Immersing into the community). As explained in Chapter 4, this practice aimed to encourage those taking the walk to observe their community, identifying positive and negative characteristics. Each participant then had to present these perceptions to her peers, along with her reasons for identifying them as positive or negative. In the same manner, teachers taking the Social Educator course walked around the community where CDI's offices were located, and took photographs of those things they found positive and negative. Later, back in the classroom, the trainer moderated their presentations, encouraging a critical analysis of the reasons behind a positive or negative classification, with questions such as: Why negative? Is it a bad thing?

This course was a challenge for the teachers for two main reasons. First, it introduced theory as a basis for their work, which most of them had never experienced. This required them not only to understand the theory, but also to actively engage with its implementation. Accordingly, the second challenge was to live through what they were being asked to teach. Experiencing the five-step methodology meant that they had to collectively design, implement and evaluate a

social intervention. This provided the teachers with first-hand experience of the challenges they would face when implementing CDI's methodology in their classrooms, but also showed them the opportunities and positive outcomes that could be achieved. For instance, one of the participants mentioned:

*I had a discussion with my students about citizenship and rights. All of them knew that going to school was their right. But when I asked them what was their duty in relation to that right, they responded: 'wanting to study or not'. To that I said, of course, but if education is your right, the only way you can really achieve that right is by going to school, to study and learn. [Under CDI's methodological proposal] we could do the same thing with access to the Internet. Students may argue that they have a right to access the Internet, but then we can ask, what is their duty? How are they going to use the computer? And having this reflection with the students may encourage a better use of the computer and the Internet. (Paulo, new teacher, CDI Comunidade, participant of the Social Educator Program)*

This participant's quote shows how he was already thinking about how to implement the methodology in his classroom. As a social educator, he had engaged in reflections about rights and duties before, but it was only after participating in the Social Educator Program that he thought of having the same reflections in the context of an ICT course. In general, the course aimed to strengthen the teachers' skills to apply CDI's methodology in the best way possible, but also wanted to challenge some of the limited ideas about the potential uses of technology and its role in society. A participant said:

*I thought this might be a very technocentric course, as CDI works with computers. However, I am positively surprised that it is more reflective and social focused. (Aline, new teacher, CDI Comunidade, participant of the Social Educator Program)*

As stated in the quote above, it was not uncommon to find people who believe that CDI's work was focused mainly on the technology, particularly because other organisations offering ICT training, such as Jovem.com, focus only on ICT skills. Therefore, CDI had to address this misconception, explaining to their partners and teachers that their aim was to strengthen citizenship, using technology as a tool, not as an end. The final part of the course was focused on advising the teachers that

only practice and commitment would allow them to completely implement the methodology in their classrooms. For that reason, they were asked to apply as many steps of the methodology as possible and to engage with the other activities offered by CDI, particularly with the CDI Network. A member of CDI's staff explained the value of this network by saying:

*We do not have all the answers [at CDI], but we have twenty-six partners, and within this network, we can learn and support each other, strengthening the relationships. In particular, the CDI Network meetings reflect our partners' needs, a space for them to share challenges and try to find solutions and support from others. (Carmen, Social Projects Manager, CDI)*

CDI network meetings occurred every two months, and each *CDI Comunidade* in turn assumed duty for hosting and content organisation. All members were required to attend in person, however this was not always possible, as they had to juggle commitments of their home institutions. All members shared catering responsibilities. All participants brought some food and drinks to share. I conducted participant observation at three network meetings. As these meetings took place at the host *CDI Comunidade*, this provided an opportunity for them to showcase their expertise and how they served their communities. Besides having a better understanding of their fellow network members, participants also had the opportunity to learn from them about very specific issues in which each organisation specialises. For instance, the first meeting I attended had a session on working with sex workers and their children, and the second meeting had a session on teaching children with disabilities. The third session was hosted by CDI and had a session on participatory planning. Valentina, member of CDI's staff explains the objective of all these activities:

*The final aim is to be politically active, participate within the available structures, promote others (new social structures), get involved in the process and not just be a spectator or a victim of the administration [local or federal government], but agents of change. (Valentina, Social Projects Manager, CDI)*

Valentina mentioned both the role of the individual and the collective, and this is an important distinction in Freire's theory. It is engaging in dialogue that enables individuals to awaken, but it is the respect for their own individualities that guarantees that dialogue to continue. According to Freire (1974), collectives result

from critical agreements between individuals. If an individual is part of a collective to satisfy others, she is relinquishing her choice and stepping back into oppression. Since conscientisation is a process, the individual needs to consciously make the choice to promote or support a collective action. Therefore, if collective action is pursued without this prerequisite, individuals might be easily manipulated by other people, with the argument that their communal efforts will bring positive changes for all (Freire 1970b). As Freire (1974) states, praxis has to be the result of a process in which “solutions [are achieved] with the people, not for them or superimposed ‘upon them’” (p.12), and this requires people to invest in their own conscientisation as individuals within the collective. That is, collectives provide the individual with reflection and praxis towards her conscientisation, but the individual has to be able to choose freely to participate in this dialogue. Hence the importance of focusing both on the individual and the collective, as CDI does with their courses and network events. Nevertheless, CDI’s role is to offer while the participants have to accept it. With a network of 26 partners, attending to all their expectations is not always possible, and the level of participation and engagement varies within the network. Observation confirmed that there was a range of levels of commitment to conscientisation, varying from those really committed, others who attended the courses and activities but showed no change in their attitudes, and others who would always find excuses to not participate.

#### **7.4.2 Jovem.com: youth development and digital inclusion**

Similarly to CDI, JC does not interact directly with the students, as their fellows offer the ICT training courses. As mentioned previously in the discussion of JC’s history, their program suffered some cuts due to the change of public officers at the municipality. This meant that they were not able to hire trained teachers to fulfil the role of supervising the fellows and delivering courses at the telecentres as planned. Therefore, the program compensated by training their fellows to be the telecentres’ managers and course monitors. They were monitors in the sense that even though they were teaching courses as teachers, their contract as fellows and lack of appropriate qualifications released them from being responsible for the success of the courses. In the words of one of the supervisors of the program:

*The Fellow will be in a way in charge of the telecentre during the hours he is there [usually half a day, morning or afternoon for four hours]. But the fellows need to remember that this is not a formal job, that they are part of a Social Program of the Municipality, where, besides gaining some working experience, they will be learning a lot of new skills. We cannot make them responsible for more, or for delivering proper courses: that is why we explain to them that they are monitors who will give users the basics of how to use a computer. (Tania, Supervisor, Jovem.com)*

Cuts in the budget forced them to replace trained teachers with Fellows acting as monitors in order to be able to continue to offer courses and try to attain their objectives of digital and social inclusion. This was an innovative response to the sudden and constraining negative circumstances the programme had to face. Accordingly, the fellows' training was divided into initial and weekly training. The initial training, which lasted a week and was organised around the fellows' availability (i.e. there was no set number of hours or detailed program) provided a welcoming introduction to the Jovem.com program, in which the three strategic lines of their work (explained in Chapter 4) were set out, and where their roles and responsibilities were explained in detail. Complementary to this, they received a short but intense revision of the basic ICT skills they were expected to 'teach/monitor' during the courses at the telecentre. During this training, they would use the same step-by-step workbook recommended for use during the courses on offer. The initial training was followed by weekly trainings, once a week, for four hours, where different subjects were addressed, always based on the three strategic lines. A supervisor of the program explained:

*The trainings are planned at the beginning of the year based on our strategic aims. My colleague and I will run the sessions about citizenship and telecentre management. For the digital culture sessions, we will bring in experts to help us. Sometimes this is CDI, or CEPROCAMP, which is a service of the municipality that provides advanced IT courses. Currently we have a partnership with another institution, so they sometimes organise some sessions. However, the plan is not fixed: if we see that there is a subject that needs to be addressed, then we adapt. For example, today we talked about the importance of the worksheets to our reports on the success of the telecentres, and last week we spoke about this being the month of*

*awareness against children and teen sexual harassment and abuse. (Ines, Supervisor, Jovem.com)*

The fellows would stay in the Jovem.com program for a maximum of two years, and many left early because they would find other jobs or start university. This was mentioned as another reason for adapting their annual training plan. The rotation of fellows needed to be considered when planning, to avoid some of them attending the same session twice and to try to ensure that all fellows attended all-important sessions. However, even though digital culture was stated as being 50% of the sessions, according to one of the supervisors, there had problems finding adequate experts or organisations specialised in ICT to provide the sessions, as they did not have someone with those qualifications on their team. Consequently, more sessions about the other lines were provided. During the period when I was able to attend the sessions, digital culture sessions were occurring once a month. Nevertheless, as one of the supervisors mentioned:

*The biggest difficulty that the fellows face is not how they themselves understand the technologies or what to do with them: it's how to translate that knowledge for the participants of the courses. (Tania, Supervisor, Jovem.com)*

Surprisingly, pedagogical sessions were not provided to the fellows. Because of their contracts, fellows could not be held responsible for delivering courses, acting only as monitors, so sessions supporting their teaching skills were not offered at all. This made some of the fellows uncomfortable:

*A big part of our responsibility is to promote the courses and deliver them, but we are not prepared for this. I knew how to use a computer even before being part of this program, but I do not know how to teach, so I follow the workbook, and if I see that students need more time to understand something, I will focus on that and cut other parts. (Fabio, Fellow, Jovem.com)*

Some fellows shared this feeling of inadequacy about fulfilling their role as teachers, while others did not. These last fellows were young people who stated that they had had previous work experience or enjoyed teaching. But, arguably, teaching should not be left to chance rather than training. According to Freire

(1998), we are the result of our social conditionings, and if we have not been trained in teaching, we will probably just reproduce the kind of teaching we have been exposed to. Consequently, considering that the educational system in Brazil is mostly banking education, as Freire calls it, untrained fellows will probably use banking methods when teaching. This was evident while observing the courses, and was exacerbated by the design of the workbook, which stated step-by-step the content and activities to be executed in class, as the examples explained in section 7.2 showed.

### **7.4.3 Managing people's sense of choice: challenges and shortcomings**

At first hand, JC's training seems to leave its fellows unprepared for the courses, while CDI's training aims to encourage its teachers to have a more social view of the use of technology. Rather than right or wrong, both face difficulties when offering the courses. Changes in the labour market have driven many people to acquire ICT skills. Many companies are asking for CVs to be sent by email or even posting their openings only online. The jobs may not necessarily require deep ICT skills and knowledge; so many individuals will try to learn at least the basics as quickly and as cheaply as possible. After interviewing both the teacher/fellows and the participants on their courses at CDI and JC, it was evident that almost half of the adults attending the courses were currently unemployed and were trying to improve their job skills (eight of nineteen adults; two from CDI and six from JC), and that the location and the fact that it was free were their main reasons for choosing that course over others. In CDI's case, this represents a challenge in terms of finding ways to advertise their courses without scaring people away. One of the teachers said:

*If we put in the flyers or posters that we are giving a course on citizenship and ICTs, no one will come. We need to highlight that we teach ICT skills and then introduce the citizenship issues during class. And even though we do it smoothly, we do have some people who do not like to talk about anything but ICT skills. (Carolina, Teacher, CDI Comunidade)*

Therefore, to manage the participants' expectations, CDI's teachers will have to advertise what people want to hear to recruit significant numbers to guarantee their presence, and only then open up other possibilities, thus trying to expand their sense of choice. Conversely, in the case of Jovem.com, participants will get what

they want. They arrive looking forward to gaining certain ICT skills that they think they need, based on their own sense of choice. Fellows from JC will then adapt the course to have more hours in those skills that participants seem to need the most. For instance, in one of the courses I observed, the fellow decided to skip teaching Excel in order to have twenty minutes at the beginning of each class to train typing as explained in section 7.2. Students were extremely happy and satisfied with this change. They expressed that not only was the course free and the teacher very nice, but those there had learned what they needed to learn:

*Oh my...only good stuff (laughing) I learned a lot. I learned everything, you know? Everything I needed, you know? (Rute, 32 years old, Female)*

Of course it is a good result that the students achieve their choices, but it could be argued that it is also a lost opportunity. Fellows are always at the telecentres to help users with simple tasks, so when one attends a course, it would be interesting to be exposed to more and different content, knowledge one would not get on one's own. However, these kinds of technical courses seem to be very attractive and popular in Brazil. As Costa (2012) mentions, current initiatives tend to focus on economic and technical issues rather than on cognitive values, such as social, cultural and intellectual issues. Institutions need to show that people are interested in their services in order to justify their own existence: hence the importance of the worksheets for monitoring telecentre usage, mentioned above by the JC's coordinator. However, by limiting the courses to very basic ICT skills, the opportunity to transform people is lost (Costa 2012) and the course becomes another kind of 'banking' training, which, instead of opening up the potential of ICT to the students, oppresses them into becoming only better workers in the wider labour market, which is similar to the JC's approach.

In sum, CDI's methodology requires greater training effort and a greater competence and commitment from the teachers to be able to apply it in their classrooms. Using Freire's ideologies seems to offer a framework for digital inclusion in a way that will encourage the individual's development and their freedom from oppression. Therefore, Freire's ideas could be the theoretical support that many authors believe are needed to allow telecentres to achieve their users' transformations, by motivating them to use ICT to improve their own quality of life (Cabral Filho and Cabral 2013; Costa 2012; Freire 2004a; Mattos et al. 2009).

## 7.5 Social structures: accountability and legitimacy vs. freedom

### 7.5.1 NGOs and funding

Searching for funding was, for CDI, one of the main challenges they faced in order to continue to pursue their activities. This challenge was twofold: first, how to explain CDI's work relevance in a city where ICTs were becoming ever more affordable and connectivity was spreading rapidly, and second, how to present their results in ways that satisfied their donors and convinced them to continue to invest in their work.

First, as explained in Chapter 5, Brazil's ICT penetration has grown significantly during the past decades. Stimulated by the governmental digital inclusion initiative, hardware access and connectivity availability are no longer considered issues, making many state that digital inclusion is no longer necessary. However, according to CDI's coordinator:

*Now, everyone knows at least something about computers. Many may even know how to use them. But we argue that inclusion is much more than just access to a computer. I am included only when I am a participant and author, when I produce content that I can publish on the Internet. I am included when I use these ICT to really change my life and the lives of those in my community. (Elsa, Coordinator, CDI)*

Elsa's statement reflects what feminist scholars have argued about gender and technology (Gurumurthy 2004; Hafkin and Huyer 2008; Hilbert 2011; Parmentier and Huyer 2008; Spence 2010; Wajcman 2004). Using ICT is just one dimension: creating, programming and designing technology are others, which are also important. Not everyone will engage with ICT to the same degree in the same manner, but limiting digital inclusion programmes to learning how to use ICT is excluding many who, if they knew the alternatives (i.e. if they had a sense of choice), might have chosen to produce content or design technology. Second, CDI's coordinator explained that donors were looking for investments with high impacts, which unfortunately meant having high numbers of participants (quantitative results), instead of individual success stories of students who had successfully applied CDI's methodology. Therefore, CDI's Coordinator explained:

*We already realised that many donors do not understand our work using Freire's methodology, so we collect data that can help us to convince them that our work is serious. (Elsa, Coordinator, CDI)*

Reports using data related to performance are known in public accountability literature as performance assessments reports. These reports were popular tools used during the 1980s and 1990s, when governments incorporated management concepts into public administration to improve public management and increase program outcomes (de Lancer Julnes 2006; Ebrahim 2003; Heinrich 2002). Performance assessments tended to focus on efficacy (i.e. program coverage and the total number served compared to the demand) rather than efficiency (i.e. what were the impacts produced by their activities).

Besides government influence in civil society accountability processes through regulation, these organisations also have to respond to their donors: private or international organisations, or the local or federal government. These, too, demand performance assessments rather than impact reports (Ebrahim 2003; Parsons 2007; Yetman and Yetman 2013), even though research suggests that due to the “complex nature of development, attention to more strategic processes of accountability are necessary for lasting social and political change, [...making] qualitative assessments [...] essential for understanding the real impacts of development activity” (Ebrahim 2003). Within the ICT4D field, Uimonen and Hellström (2015) state that initiatives are challenged by “a lack of long-term commitment by donors, unrealistic timelines from deployment to impact assessment, and the absence of sustainable business models [looking for quick fixes offered by innovation hubs or hackathons, which] sometimes do not look beyond the technological artefacts, hardware, and infrastructure to the more complex issues involving people, processes, and sustainability challenges and a holistic perspective” (no pagination).

Furthermore, given the discrepancies between what donors expect (performance assessments) and what NGOs should be assessing (impacts), these organisations also have to adapt their reports to the different regulations and expectations of each of their donors, making NGO accountability processes very complex. Even more, as donors tend to allocate resources for specific activities, the lack of value of impact reports (Ebrahim 2003; Parsons 2007; Yetman and Yetman 2013) leaves the organisations lacking the resources necessary for this activity. As CDI's

coordinator expressed, evaluation activities are often limited to the available human and financial resources, which depend on the funding received. In a way, although necessary, donors' funding imposes certain constraints to their beneficiaries. CDI indicated that this was one of their issues; however, they have chosen to collect data that could both satisfy their donors and provide more strategic information for their organisation. The data collected then helped them to tailor the information to its recipient.

*[Fund-raising] projects have to be adapted according to the organisation we are approaching. We may focus on culture or another theme, if that is what they are looking for, or we may focus on the technologies, if they look for that. (Jeni, Administrator staff, CDI)*

According to CDI's coordinator, their fundraising projects and performance assessments reported the total number of partnerships, courses delivered and students who had graduated, among other quantitative data about their activities and coverage in Campinas, essentially inputs rather than outcome data. However, the Coordinator also described other efforts to evaluate their impacts:

*We have different indicators to monitor the success of the application of our methodology. As it has five steps, achieving their full application in class indicates 100% success. Accordingly, if two or three steps were applied, we know further support is necessary. Another indicator is the amount of projects that are submitted to participate in our 'Encontro da Cidadania'. Besides providing us with a number, we receive detailed reports of what was done and achieved, and we listen to the students' presentations and their impressions at the event, all of which provides information of what CDI does, which we can later report to our partners. (Elsa, Coordinator, CDI)*

*Encontro da Cidadania (Citizenship Encounter)* is an annual event organised by CDI Campinas that brings together all CDI Network as indicated in section 7.4.1. To participate, each *CDI Comunidade* has to send to CDI examples of the projects their students have been able to accomplish during their lessons. For instance, Carmen's group introduced in section 7.2, could prepare a report – following the call-for-projects sent by CDI, and send it for consideration. CDI's team, together with representatives of the CDI network, form a review committee. This committee will select the projects that will be shown in the Encounter and help organise the event.

The students from the projects chosen receive free transportation to the event where they present their projects. The coordinator mentioned that this information is used to reflect on their own practices but also to report back to their partners. Great commitment is required from their partner organisations, as they are co-responsible for the success of the courses and of this annual event. For this reason, CDI stated that they needed evidence to give their partners (the local associations with which they work), confidence that their efforts were producing the expected impacts.

CDI proved to have an ambitious accountability process, aiming not just to satisfy their donors but also to be accountable to their partners and to their own organisation. Ebrahim (2003) explains that there are several forms of accountability. External or upward accountability aims to show donors or funders that the capital received is being used effectively. Downward accountability seeks to demonstrate results to the community/beneficiaries, such as CDI's partners. Internal accountability aspires to help the organisation to achieve its mission and goals, which also provides opportunities for learning from its own mistakes. CDI was therefore using upward, downward and internal accountability methodology. When probed about the reasons why CDI was so keen to collect all this data and perform external, downward and internal accountability, the Coordinator stated:

*Our aim is for the students to learn how to use ICT while wanting to become better citizens and seeking to invest in their own development. We know our methodology can achieve these aims, but we acknowledge how complicated it is to apply. As we do not get to work directly with the beneficiaries, we depend on the teachers' success to be able to have successful outcomes. Therefore, we invest heavily in their training and we follow all of their activities. Even if they only covered two steps of the methodology during their courses, we applaud their efforts, praise them and motivate them. With this, we want to stimulate them to keep trying and to prepare themselves better, so that eventually they can achieve all steps of the methodology with their students. (Elsa, Coordinator, CDI)*

Figueredo and Figueredo (1986) mentioned that programs had both tangible and intangible aims, which, during implementation, are translated into activities, mostly failing to reflect the expected impacts. In the CDI case, their tangible (number of computers installed) and intangible outcomes (students who have become more engaged citizens) have been implemented in partnership with community

organisations, establishing computer labs where ICT skills courses are imparted following a five-step methodology inspired by Freire's pedagogy. Accordingly, tangible outcomes are measured using quantitative data, while intangible results are monitored by, among others, following the level of success of the implementation of the methodology. As explained in Chapter 5, CDI's methodology aims to encourage students to become more engaged citizens and this is not easy to assess. CDI infers that at least those students who have accomplished the five-step methodology have gone through a conscientisation process, raising their awareness about citizenship. They can measure the degree of completion of the five-step methodology, for example, Carolina's group only finished step one – reading the world, which is the immersion walk, Francisco's group finished step four – executing an action plan, while Carmen's group finished all five steps – reading the world, problematising, creating an action plan, executing and evaluation. CDI's staff know the limits of this assumption:

*There are some things we discuss in class that students may not yet understand. It may take two or three years until they are mature enough to grasp their true meaning. That has happened even to me. Things I heard in different training sessions years ago, only recently have clicked in my brain. Only now they make sense. But that is ok: we plant a seed and expect our plant to grow in its own time. (Valentina, Social Projects Manager, CDI)*

Freire (1970) states that conscientisation is a process that is accomplished by dialogue and praxis, where individuals gradually begin to believe in themselves as agents of change. Therefore, the limitations of CDI's methodology are not surprising, and following Freire's reflections, they are even expected. Indeed, Freire's and CDI's approach shows greater sensitivity to the learning process individuals experience, which takes time, is not straightforward and differs from individual to individual. This awareness clashes with project and funders' timelines, structures and expected results, which represents one of the greatest challenges faced by this methodology. Indeed, it could be argued that data collected by CDI does not accurately reflect the impact of their methodology on their students, if that is even possible. Within the resource-scarce environment where CDI acts, their efforts in monitoring and evaluation were beyond what was expected, but they knew their limitations, which was why the research for this thesis was so welcome, as it provided an opportunity to explore new ways to identify and present their results to donors and partners.

### 7.5.2 The other side of the coin: looking for public services efficiency

Unlike CDI, Jovem.com does not attempt to implement conscientisation as part of its program; however, like CDI, this program also suffers from some constraints from its sources of funding. As a program belonging to the *Secretaria Municipal de Cidadania, Assistência e Inclusão Social* – SMCAIS (Municipal Secretary for Citizenship, Assistance and Social Inclusion) of Campinas' City Hall, it corresponds to the Campinas Municipal Law 13.796, which establishes the legal grounds to hire young people as fellows of the program and the telecentres' implementation parameters. This law regulates the areas of work for the program but does not guarantee the amount of funding it will get each year. The Coordinator of the program mentioned that they also needed to present reports and negotiate their funding each year at ministry level within City Hall. When probed about these reports and how these reflect the accomplishment of their aims – i.e. whether their beneficiaries were improving their citizenship – the Coordinator of the program mentioned:

*We do not have the resources to train the fellows accordingly, both to offer better courses and to collect complex data. So, what we do is to ask the fellows to fill in a weekly Excel sheet that we created for them. With this method we can guarantee that we have data about how many users have used the telecentre during the free access hours, how many courses have taken place and how many students have finished the course. These data are indispensable to us, because we offer a public service, and we have to report how many attendees were served at each telecentre. (Sonia, Coordinator, Jovem.com)*

The Coordinator explained that they are accountable to the SMCAIS Secretary, who in turn is accountable to Campinas' citizens. So, like any other public service, they need to prove that they are being efficient with the citizens' taxes. The indicator used is frequency, measured by the number of users per hour at the telecentre. For instance, if a user stayed for three hours, fellows were instructed, during one of the training sessions that I was able to observe, to report this as three accesses. The number of courses offered and the number of participants of each course is also quantified. These data are combined to produce monthly reports, which are the only evaluation tool used by Jovem.com: i.e., performance assessment reports. What applications were being used, for what purposes and what educational outcomes were being achieved, among others, were not monitored or evaluated. Indeed, I was

able to witness ICT usages that could be argued to be detrimental to development. For example, I observed children playing an online game in which a homeless person had to commit as many infractions, such as littering and spitting, as possible to be able to gain a new power, with the final achievement being to win the power to flash his private parts to others. I asked the monitor of the telecentre why he was not asking the children to stop playing this inappropriate game. He explained:

*I have tried to, but they do not listen. They stop and do it again when I am not watching. I am a teenager too; I do not know how to explain to them why that game is inappropriate. Anyway, if the telecentre is empty and they come in, I let them play: at least I have them as users and I can record their accesses. (Fabio, Fellow, Jovem.com)*

Accesses like the ones mentioned by the teacher are evidence that Jovem.com accountability tools are not measuring what is most relevant to the programme and possibly acting as perverse incentives to their actions. As indicated above, literature on public accountability indicates that performance assessment reports do not reflect the impacts expected from any initiative (Figueiredo and Figueiredo 1986). In other words, Jovem.com's objective of improving their beneficiaries' citizenship (intangible aim) through access to ICT via computer labs (tangible aim) was translated into the implementation of telecentres and their use, either through free use or free training courses, both of which represent the tangible aim rather than the intangible one. It is for this reason that it may be argued that these accountability processes could be detrimental to the Jovem.com program. Ebrahim (2003) argues that accountability has a "potential use of evaluation as a tool for learning, rather than simply for impact and performance assessment" (p.818). Therefore, not only is Jovem.com missing an opportunity for learning, but also the evaluation of their activities is based on information that does not reflect their 'desired' impacts. Indeed, this information, even if they are unaware, is not only misleading the public about the program's results: it is also misleading the program itself. As Freire (1970b) would argue, Jovem.com was lacking "consistency between words and actions" (p.157), reflecting a lack of dialogue and learning within their organisation.

Although more research is necessary to fully understand the relationship between citizen participation and efficiency in Brazil, accountability practices such as those mentioned above from JC may indicate the need for more informed and engaged citizens. It could be argued that citizens in Campinas have not yet demanded

impacts rather than performance, as reflected in the current evaluation practices of Jovem.com. Indeed, if this is happening with this project, it might also be the case for other projects at the Municipal Secretary and/or City Hall.

## **7.6 Conclusions**

The present chapter discussed whether CDI's and JC's practices were promoting conscientisation, to provide evidence to respond to RQ3. While both organisations stated that they were 'followers' of Freire, it was explicit only in CDI's documents that its activities were based on Freire's theories. Nevertheless, this chapter aimed to explore beyond their documented practices and inspect how these were being put into practice and to identify their impacts and limitations, to address RQ1.

The first challenge was to address the fear of freedom that individuals have as a result of internalised oppression or adaptive preferences, freedom that requires the individual to make changes to her current life. Individuals may even react defensively to change for fear of the unknown. As Freire explains, individuals can adapt to their constraining realities. CDI's methodology instigates collective action and reflection as a way to show their students their ability to change their immediate realities and regain their power within and ability to choose. The example provided by Carmen's students showed how, despite their initial fear, students were able to summon the local authorities and their neighbours to collectively clean their community park, providing evidence to indicate that CDI's methodology can, indeed, reduce the fear of freedom and of change.

However, to be able to implement CDI's methodology, great effort has to occur before and during the course. Teachers have to acquire conscientisation themselves and the necessary skills to implement it with their respective students. Given that conscientisation is a process and not a one-time-only activity, CDI has to provide initial training and constant support to the teachers and opportunities for them to act and reflect, as Freire's methodology suggests. For that reason, CDI organises a diversity of actions targeting different actors, in a multi-layered effort to promote conscientisation and to maintain their own criticality, fostering empowerment of their staff and all those engaging with their activities.

Conversely, JC's approach focuses more on the technical skills than on the individuals' conscientisation. Their training aims to provide their fellows with life and work skills that will strengthen their abilities at the telecentres and in future employment. The training does increase fellows' skills but has been criticised as inadequate for their responsibilities at the telecentres, i.e. teaching ICT skills. This has caused some fellows to feel that they are failing in their duty, which leads to dissatisfaction and less self-confidence. Outcomes depend on the teachers and fellows, which makes any efforts to support them adequately indispensable. While both organisations do offer training and support to their teachers/fellows, CDI's methodology seems more aligned to their aims. JC's shortcomings may hinge on a lack of a strong conceptual structure to their efforts, in the way that Freire's theory offers to CDI, and on their limited human and financial resources.

Setting these issues aside, both organisations struggle with accountability and proving legitimacy. On the one hand, as an NGO, CDI relies on funding from national and international, private and public institutions. This requires fundraising efforts, monitoring and evaluation, and accountability efforts, which vary depending on the source of the resources, complicating their processes. However, these complexities are not the greatest challenge. The greatest challenge is the funders' focus on performance rather than process or impacts, which forces CDI to collect data that does not reflect their conscientisation outcomes. Similarly, Jovem.com also accounts for its practices using performance reports. Jovem.com does not need to do fundraising as its resources come from City Hall. However, it is a project within the Social Inclusion Secretariat, and with the government as funder, it is still focused on performance assessments.

This disjoint between aims and accountability may divert attention within both organisations. Rather than focusing all their efforts towards the same outcome, including monitoring, evaluation and accountability, these organisations have to collect specific data required by their funders, which is time and resources that could be used to gather other kinds of data which could help them realise whether their aims are being achieved, or how to improve their practices.

Overall, conscientisation is a process that requires a multi-layered effort of action and reflection with all the actors involved. The process has internal and external challenges: internal from each individual's internalised oppression, which has to be overcome, and external from social structures that focus on performance rather than

process. Having an understanding of the organisations' practices will help explore the relationship between conscientisation and meaningfully appropriating the computer and the internet (RQ3), while investigating how the individual's ICT uses may/not relate to the organisations' support, as will be discussed in the following Chapter.

# Chapter 8 Expanding freedoms: choice, agency and reason

## 8.1 Introduction

What ICT applications may be considered valuable for development is an on-going debate in the ICT4D field. Digital inclusion is understood as a process that aims to overcome digital inequalities and promote development through the promotion of digital appropriation and conscientisation. Thus, if development is intimately related to the individual, i.e. her motivations, agency, portfolio of resources and social structures where she lives, then each ICT use may impact differently upon each individual, either hindering or enhancing her development. Hence there is the necessity to first analyse the participants' portfolio of resources, agency and social structures, prior to the course (Chapter 6). Second, it is important to understand how the pedagogies used by both case studies, CDI and JC, may have impacted on the students engaging with the digital inclusion programmes (Chapter 7). Finally it is necessary to investigate how the individual's development may have been impacted, or not, by different ICT uses. Specifically, this chapter explores any impacts of the intermediaries' support (RQ1) on the individual's portfolio of resources (RQ 2), and on their consciousness and adaptive preferences (RQ 3).

Moreover, it will explore whether these changes, if any, have been translated into actions towards social structural change (RQ4) as a way to improve individual agency to be able to promote change for their own benefit and the benefit of their communities (RQ3), as expressed by Freire's Pedagogy of the Oppressed. Indeed, examining the individual's portfolio of resources, her adaptive preferences, and any actions towards social change will help to explore the impact of the intermediaries' methodologies, and analyse the similarities and differences (RQ1). This analysis corresponds to the process an individual experience when appropriating a technology, as shown in the conceptual framework (refer to Figure 6-1).

## **8.2 Expanding the portfolio of resources**

The methodologies that the two organisations used to implement digital inclusion, as explained in Chapters 4 and 7, had similarities and differences. Both organisations provided free access to computers and internet connection (material offer) in communities with low ICT access (geographical offer), and offered free basic ICT skills courses (educational offer) with the intent of expanding their citizen rights, such as their ability to access public services. Both taught their courses in different ways, with different content and over different time periods. However, the organisations' efforts are not a guarantee that their students were going to expand their portfolio of resources in the way they intended. Any changes in the students' resources are arguably the consequence of a combination of the students' initial resources, their agency, the social structures they inhabit and the organisations' influence as an intermediary.

As the participants' ICT skills started to improve, they ventured to use some private and public online services, revealing their educational resources (what they have learned from the ICT course), but also demonstrated other more subtle changes, for instance in their psychological resources (improvement in self-esteem), subsequent to their experience during the course. So the following section will provide examples of how the organisations' efforts, enabled or constrained by the social structure, were translated into positive or negative changes in the participants' portfolio of resources towards the intended aim.

### **8.2.1 Geographical resources and virtual mobility**

Campinas public offices have started to offer some of their public services online, several of which are mentioned above. However, this process was slow and very few services were available at the time when the fieldwork was conducted. Nevertheless, the available services were introduced to the course participants.

*Just now... I registered myself for the ENEM<sup>19</sup> [National High School] test. This is very good: there are a lot of things (services) from the government, that you do not know (they offer) [...] someone may tell you (that there is a service you might be interested in) and then you can go (online) and see them on the computer. (Raquel, adult female, JC Student, ID46)*

Raquel, introduced in Chapter 6, who suffered from a skin problem that had led her to resign from her former job, was one of the most engaged participants on the Jovem.com course. She was also one of the students who were applying their new skills outside of the classroom, which made her case a very interesting one to analyse. She reported having dropped out of school at a young age, never finishing high school. During her first interview, Raquel mentioned regretting her choice and declared that she was keen to finish her studies. She was currently studying supplementary courses<sup>20</sup> to make up for lost time, showing what she valued and had reason to value. Her motivation to acquiring a high school degree was linked to the hope of getting a job that was less physically demanding and better paid than her former role as a hospital cleaner. Specifically, she wanted to have the skills to work in a desk job. As described in Chapter 6, a combination of a lack of knowledge about labour rights (information resources) and self-worth (psychological resources) motivated Raquel to resign from her previous job. She said she did not want to cause detriment to her employer, as she was unable to work due to skin problems caused by the chemicals she was using to clean. Taking the responsibility for her illness upon herself reflected her compliant behaviour towards her employer. Rather than reflecting critically on the situation, she was revealing her adaptive preferences, lack of agency, and possibly her fear of challenging authority.

Raquel stated that taking the basic ICT skills course was another way, other than finishing high school, to improve her work skills towards improving her chances of finding a better job. Consequently, when she did learn basic ICT skills and was able to discover another way to obtain high school qualifications faster, she was very

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<sup>19</sup> High rates of school drop-outs prompted the government to find a solution to encourage drop-outs to finish their degrees. The ENEM (*Exame Nacional do Ensino Médio* - National High School Exam in English) is an exam that aims to simplify the acquisition of a high school degree. This exam is also accepted at universities. Anyone over 18 years old can take the test, which allows adults who abandoned school to be tested and gain a certificate that will allow them to continue their education at university level.

<sup>20</sup> Supplementary courses allow students over 18 years old to cover two standard years of study in one year, with the aim of encouraging high school completion. The Brazilian Ministry of Education approves these courses.

happy that she was able to register herself at such short notice and with less effort than it would have taken to do it in person.

Before gaining some ICT skills, Raquel thought supplementary courses were her only choice to obtain a high school diploma. After the course, having the skills to navigate the internet to explore different governmental websites – an improvement in educational resources – allowed her to expand the information in her portfolio of resources. Her lack of informational resources was not just due to her inability to access the Internet. Raquel and other participants described getting most of their information through word of mouth. Raquel also mentioned watching TV, mostly for entertainment, and on rare occasions, reading the newspaper. Raquel's limited interest in information was a reason why she had a lack of it, which would not necessarily be alleviated by knowing how to use the internet. Also, this lack of interest may be an indicator of her lack of critical reflection. As Freire (1974) indicates, individuals need to read the world, understand the context in which they are living and reflect on it to be able to unveil the causes of their oppression. However, it could be argued that her lack of trust in her own abilities was also hindering her ability to critically reflect, as she was not getting sufficient and varied information that might encourage deliberation. Therefore, gaining trust in her own abilities helped her to realise that she could find information on the internet, showing improvements in her educational resources (skills), psychological resources (gained confidence) and informational resources. Experiencing access to information through this new digital source, may act as a motivator for Raquel to consume more information. Also, access to more and varied information may be a step towards greater reflection, although there is no data to confirm this.

The improvement of psychological, informational and educational resources improved Raquel's sense of choice regarding ways of acquiring the degree she valued. This new choice gave her the opportunity to gain a certification by passing only one test. Of course, this meant that she needed to study for one big test instead of progressively advancing. But when asked about this challenge, Raquel expressed:

*I really want to have a high school degree. I don't know if I will pass the test, but I will risk it anyway, there is not a problem if I fail, the more I study the more I learn, the better mark I will get, don't you think? (Raquel, adult female, ID46, JC student)*

Raquel was committed to study hard and, as seen in her quote, she did not even very much mind failing the test, which shows improvements in her self-esteem and confidence (psychological resources) in comparison to her first interview (Figure 8-1). As explained in Chapter 4, surveys were conducted at the first (phase A) and last session (phase B) of the ICT course. This data was then quantified and entered into a tool to enable the visualisation of changes in the participants' portfolio of resources (specific calculation procedures are explained in Appendix 15).

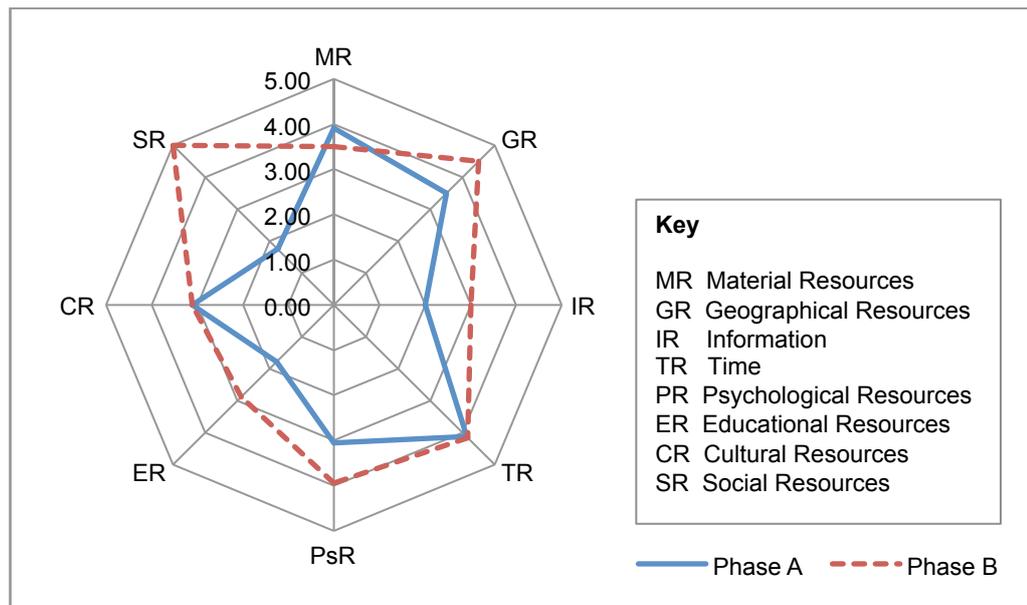


Figure 8-1: Changes in Raquel's portfolio of resources

Improvements in Raquel's psychological resources were also visible in her body language during the final interview. Compared to the first interview, when she expressed being nervous about failing to learn any skills, Raquel was much more relaxed, smiling and constantly repeating how happy and proud she felt about being able to use the computer with very little help. Raquel mentioned during her first interview that she was a bit concerned about the level of difficulty of the course, particularly considering she had not studied in years, feelings shared by other women in the same position. By the last interview, Raquel expressed that she no longer felt the computer was a "*Bicho de sete cabeças*"<sup>21</sup> [a "beast with seven heads"]. The accomplishment of being able to use the computer on her own, gave Raquel a boost to her self-esteem. Accordingly, it could be argued that by realising she was capable of learning and doing things by and for herself, computing-wise, was helping Raquel have the confidence to face new challenges, such as the ENEM

<sup>21</sup> A similar English expression would be that she "no longer felt that it was rocket science".

test. In Freirean (1976) terms, she was experiencing that she was an agent capable of influencing her environment and/or changing her life in positive ways. Both her sense of choice (i.e. things she could accomplish using ICTs) and her use of choice (i.e. activities she was now doing with ICTs) were expanding her ability to choose. Largely, this benefited her critical consciousness, and from a CA perspective, her psychological resources and her agency freedom.

However, the improvement that might be most surprising is the expansion of Raquel's geographical resources. Before learning ICT skills, she would have had to go personally to one of the government offices in the town centre to register for the ENEM, whereas now, she was able to register herself online, in the computer lab close to her home. By acquiring ICT skills, it could be argued, the distance required for her to access that public service was 'virtually' reduced, although the physical distance did not change. Also, from a practical perspective, by being able to use online services, she could avoid costly and time-consuming travel on public transport, thus preserving her limited time, energy and financial resources. ICT helped Raquel to access a service without having to resort to physical mobility, as would have been necessary prior to her taking the course. Even though Raquel's physical distance from services did not change, her ability to access services improved, which is reflected in the improvement in geographical resources visible in the diagram above. Another participant, Rute (adult female, JC student, ID44), mentioned registering herself online to get a new identity card, something that had also previously required a journey to the city centre. Kenyon et al. (2002) refer to this as "virtual mobility", because it "creates accessibility opportunities, both substituting for physical mobility and enabling access where previously there was an accessibility deficit" (p.213). Thus, Raquel and Rute gained virtual mobility when they learned to use ICTs, which allowed them to access services that previously they were not able to reach without drawing upon their financial resources.

Virtual mobility could also be understood as a process in which ICT facilitates social activities that were not possible due to time constraints. For instance, governmental offices' opening hours are limited, and people are only able to go to the offices during those times. As Kakihara and Sorensen (2002) explain, ICT applications help people to reduce time in some tasks, allow multi-tasking and facilitate the interconnection of people, even if they do not share the same time period (p.4). In Raquel's case, even though the website was available 24/7, she was still constrained to the opening times of the computer lab where she was taking the ICT

course. Therefore, this flexibility, although available, did not bring any benefits to her, as illustrated in how the time resource remained the same over the two periods in Figure 8-1.

Conversely, Raquel's improvement in geographical resources could also be caused by her new awareness of different online services, as shown above: *"there are a lot of things (services) from the government that you do not know (they offer)"*; which she did not previously know about, and which she now felt were available for her online. This new awareness reflects not only increased information resources, but also an enhanced existence and sense of choice, as services previously unknown are now acknowledged and perceived as available to her.

However, as these services have only facilitated parts of the whole process, Raquel's perception of her available time remained the same (Figure 8-1), probably because the overall time needed to accomplish tasks - for instance, in Rute's case, getting an ID card - was still great. In a hypothetical case in which the whole activity may be completed online, the experience of time may be highly reduced even though space remains the same. In this case, using ICT would increase both geographical and time resources. This shows some limitations of a methodology that relies heavily on self-reporting.

Unfortunately, in Raquel's and Rute's case, the available online services have not yet allowed them to experience gains in time resources. Also, as the data collected reflects the participants' experiences, it is possible to argue that participants' responses do not necessarily reflect their actual geographical resources, but their sense of choice related to these resources<sup>22</sup>. After acknowledging the existence and availability of more governmental services, participants may have felt a significant improvement in geographical resources, while time was still being felt as scarce on a daily basis.

On the other hand, Kenyon (2006) clarifies that virtual mobility is not good in itself: it is good to the extent that it does not cause negative unintended consequences to the individual. For instance, a woman may have her husband's help to her pay taxes and utility bills because these offices are on his way to work. If, by being able to pay without going downtown, a woman stops having her husband's help, then the 'perceived' ease of the online services is actually increasing her household

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<sup>22</sup> Validity of subjective information has been discussed previously in Chapter 3.

responsibilities, as she will now have to make these payments. This occurrence has been documented in feminist literature, alerting that technological solutions, such as household appliances, will only increase women's responsibilities unless changes in household roles and gender-norms also occur (Cowan 1983; Wajcman 2004). For example, the creation of the washing machine and the vacuum cleaner have increased standards of cleanliness, as today it is expected that clothes and floors will be cleaned more frequently than before these technologies were developed (Wajcman 1991). According to Cockburn (1997), research has shown how household "technological innovations were [...] playing a part in affirming or reformulating unequal gender relations" (p.362). Then, if a woman is already overwhelmed by activities, ICT enabled virtual mobility may become detrimental.

The examples shown above seem positive from the surface; however, if Cresswell's (2010) aspects of mobility, such as why they move or how fast they move (explained in Chapter 2) are considered, and the issues examined with gender theories in mind, the situation becomes more complex. On the one hand, Raquel's use of the internet eliminated the need for physical movement, allowing her to avoid the burdens of using public transport: i.e. costs, time and an uncomfortable journey. However, this situation did not change the reasons behind her constraints: i.e. unemployment, distance from the city centre and the lack of decentralised public services, such as public transport or registration offices. On the other hand, using online services was not a straightforward activity. As Raquel and Rute did not have computers and internet access at home, they were constrained to free public internet spaces – either the IT lab where they were taking the ICT course or other public spaces provided by the State of Sao Paulo Government,<sup>23</sup> which offered limited internet access (thirty minutes to an hour, depending on the place<sup>24</sup>), not considering that new users may need more time or special support. Related to this issue, Raquel mentioned:

*You can only stay for an hour. Then you feel you have just started your research on the Internet, when suddenly the time is up. It's not enough time. So you have to pick another turn (sign up for another hour of usage) to return later and try to finish what you started earlier. (Raquel, adult female, JC student, ID46)*

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<sup>23</sup> The State Government provides IT labs in several cities, through a program called *Accesa São Paulo*, which offers thirty minutes of free internet access. If you need more time, you have to request a new turn. At the time fieldwork was conducted, three labs were available in Campinas Municipality.

<sup>24</sup> A person can remain at the computer for longer only if there are no other users waiting.

As recalled by Raquel, even though she was now able to use a computer, her speed was still slow and she still needed to have someone nearby to help her. This situation put pressure on her use of time at the computer lab, causing nervousness and tension. This also meant that she was going to be surrounded by random individuals using the IT lab, which could make the situation even more uncomfortable. Raquel expressed feeling more comfortable when surrounded by fellow students, as she knew they all had similar skills and difficulties, while being around more skilled users made her feel that she did not know enough. Consequently, the benefits Raquel and Rute were getting from their new virtual mobility were still limited.

More importantly, the social structures that caused Raquel's and Rute's limited mobility in the first place did not change because of their new skills. Although it could be argued that their portfolio of resources expanded, it is important to keep in mind that resources are only used "within the confines of and in systemic interaction with a given social structure" (Kleine 2013, p.49). ICTs were smoothing their access to public services, addressing a current need these women had, in a way Molyneux (1985) would call a practical gender interest, because no gender "strategic goal such as women's emancipation or gender equality" was attained (p.233). Even though these women's psychological resources did increase, the data presented reveal that this improvement increased their wellbeing agency and helped them to use their newly acquired skills towards fulfilling practical interests that they had in their lives, but there is no evidence to support greater agency freedom or deeper changes in their adaptive preferences, which could indicate their emancipation.

In this respect, feminist scholars urge us to analyse how technologies may facilitate or constrain social relationships, because technology is not positive or negative in itself, as it reflects current societal power relations (Buskens 2014; Gurumurthy 2004; Wajcman 1991; 2004). Specifically, Wajcman (2004) would argue that using ICT to access online services was helping women as other technical inventions have helped them in the past with their daily responsibilities, such as the vacuum cleaner for cleaning the house, without changing the root of the problem. In this case, referring to class rather than gender, as in Wajcman's analysis, class inequalities forced them to live in places far away from the town centre and with little provision of services. If we do not keep this in mind, we might lose sight of the real issue – class inequalities, isolated peripheral neighbourhoods, inefficient and/or centralised public services – and believe that online public services are the solution

needed by Raquel or Rute to overcome their mobility constraints. Indeed, even here there are class-related barriers to entry: being able to use these online services is not straightforward: it depends on a person having, at least, access to ICT and the necessary skills. These women had to attend a training course and find free public access to be able to access the online services.

### **8.2.2 Material resources and digital services**

In the same manner that course participants ventured into using public online services, after acquiring ICT skills, some started using the internet to shop online.

*There are so many things you can get on there (through the Internet) [...] on the computer; you don't need to get out of your house. [...] If I need a home appliance, I can find how much it costs on the internet. I can also buy it through the internet. (Bruna, elder female, CDI student, ID1)*

For Bruna, a grandmother raising her two grandchildren, introduced in Chapter 5, being able to compare prices without having to leave her house allowed her to find the best bargain without it conflicting so much with her time-restricted daily life. She was the one providing for her family – her daughter and two grandchildren – and offering a safe and loving home for her grandchildren, this last being what she valued the most in her life. This responsibility, together with her job as a housemaid, constrained her available time.

Hence, when Bruna started using ICTs, she enjoyed being able to see different models and prices of things she needed within the comfort of her home and during her available free time. The internet allowed her to look for the option that best accommodated her needs in terms of product characteristics, price and available time to shop. Thanks to her new ICT skills, it could be argued that Bruna was now experiencing virtual mobility that was enabling her to acquire material resources that had not previously been available to her because of her geographical, financial and time constraints.

Figure 8-2, helps us to visualise some of the changes in Bruna's portfolio of resources. The increase in material resources is the biggest change within the diagram. This might be related to the aforementioned new ability to buy products

online. Also, as she was able to access services without having to travel, it could be argued that her geographical resources were being expanded due to virtual mobility. On the other hand, the fact that she now had access to a computer and the internet for free at the course lab may have been another reason why her material resources expanded, which would not have been possible without acquiring new ICT skills that improved her educational resources. Although possession would have guaranteed that she could access the computer at any time, having access to the free lab was already improving her access, therefore expanding her material resources. As a consequence of all these changes, it could be argued that Figure 8-2 shows a decrease in time resources as a result of the added activities Bruna was experiencing, specifically the ICT course. The remaining resources will be analysed in section 8.3.1.

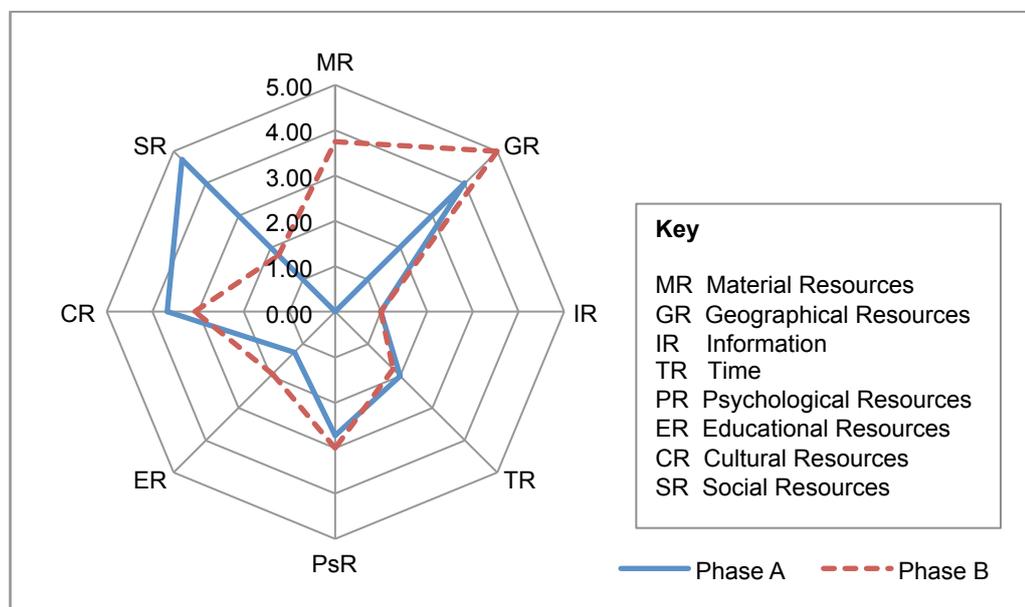


Figure 8-2: Changes in Bruna's portfolio of resources

Bruna's choice to use the internet to shop online is not unusual. According to Ahuja et al. (2003), many consumers are using the internet to shop because they report that it is more convenient and helps them save time and money, among other things. There are some who believe that e-Commerce can bring social-economic growth to developing countries and reduce poverty (Ahuja et al. 2003; Datta 2011; UNCTAD 2003; 2006; 2010). From a CA perspective, Wresch and Fraser (2012) comment that more economic freedom, in the form of increased access to markets via the Internet, could be seen as a way to promote development (p.76). However, these authors, and others, agree that there are barriers that prevent people from

buying online. Some of the barriers are related to financial restrictions (i.e. lack of income or lack of online offers – not every company has e-commerce facilities online); material constraints (i.e. lack of network infrastructure or access to a computer and the Internet); cultural impediments (i.e. popular beliefs about the insecurity of online shopping) and educational deficits (i.e. lack of ICT skills), among others (Ahuja et al. 2003; Datta 2011; Hawk 2004; Molla and Licker 2005). According to Datta (2011), these barriers may cause people to use the internet mainly for “information and content provision and consumption, rather than online purchases” (p.4).

In the particular case of Brazil, authors agree with the barriers mentioned above (Nascimento 2011), but they also state that research conducted analysing Brazilian websites (ending in .br) have shown lack of usability, which scares costumers, especially those who are less used to ICT (Costa and Ruiz 2011). Nevertheless, authors agree that online sales are and will continue to grow in Brazil (Costa and Ruiz 2011; Nascimento 2011; Passos and Lopes 2011). With time, it is reasonable to believe that many private services will be available on the internet and/or have some kind of online presence, not only to enable people such as Bruna to use services within the comfort of their houses, but also to save their companies' financial resources, as online services may easily support or even replace some physical stores, saving companies rent and labour costs.

However, moving towards digitalisation also has a downside, as not everyone has access to a computer and the internet, or the necessary skills to use these services. Some participants, who had never considered learning ICT skills, described “feeling forced” to learn these skills, as many services are replacing face-to-face services with online services.

*I am learning [to use a] computer. I don't like it very much, but I think that [...] every day routines [referring to going to the bank, using a mobile phone etc] requires us to learn [how to use the] computer (she believes that all digital technologies require similar skills, whether a mobile phone or a computer). (Yara, elder female, CDI student, ID11)*

Unlike all other adult participants of this research, Yara was the only one who had undertaken post-graduate studies. Her degree had helped her to work for many years in a bank and travel the country. Consequently, her conduct during the course

was different from other participants. She was the most critical towards technology and its perceived benefits. Yara expressed her lack of intrinsic interest in ICTs, but, as she expressed above, she felt obliged to learn. She explained that even simple tasks that she had formerly been able to accomplish face-to-face were being digitalised, requiring her to adapt. Her choice to learn ICT skills shows that she was actively trying to address the feelings of exclusion that the digitalisation of services was causing. In a way, this choice reveals how Yara was enacting her agency freedom by learning to use technologies, which she initially did not want to use, to be able to face future constraints in other areas. This also shows her capacity to envision the future (psychological resources). Concurrently, this situation shows how changes in the social structure impact individual's preferences, as people adapt to new situations.

Changes in technology were visible in Campinas, for instance in banks, where basic services were now provided by cash machines at the entrance to branches as a way to provide services more efficiently. During fieldwork, I observed how this service operated. Banks have created anterooms in their branches where several digital machines are located. A member of staff monitors and assists customers, which in some cases seemed difficult, as there is information that the customers should not disclose to any other person. On one occasion I saw a customer asking a member of staff to make the transaction for her, and the staff member explaining that she was not supposed to know the customer's security codes, even if she did not mind sharing her security data. Technological innovations are changing the ways in which we perform certain activities, such as going to the bank, which forces individuals to adapt by learning new skills. When a critical mass of users have adapted, the innovation will be considered a norm, becoming part of the social structure.

Interestingly, although a mobile phone or a cash machine is not the same as a computer or laptop, many of the participants, such as Yara, expressed seeing these technologies as similar, all needing similar skills to be able to handle these new digitalised tools. Eventually, Yara expressed in her second interview that she felt she had learned valuable skills (an increase in her educational resources, shown in Figure 8-3), and that she was enjoying being able to keep in touch with her daughter, who lived outside of the city (improvement of psychological resources). She also mentioned that her new skills might be useful for volunteering work she did for her church, since they could use the internet to compare service providers, e.g. catering services, allowing them to find the best ones for the different events they

organised. Nevertheless, a reduction in her social resources is visible in Figure 8-3, as she described being very happy to be helping her son to organise his wedding, which limited her time for other social activities. As illustrated below, the rest of the resources, with the exception of time, remained the same in Yara's perception. The variation in time can be explained by the wedding planning responsibilities that Yara mentioned. This shows another limitation of the methodology as many factors outside the course can and will influence changes in the portfolio of resources.

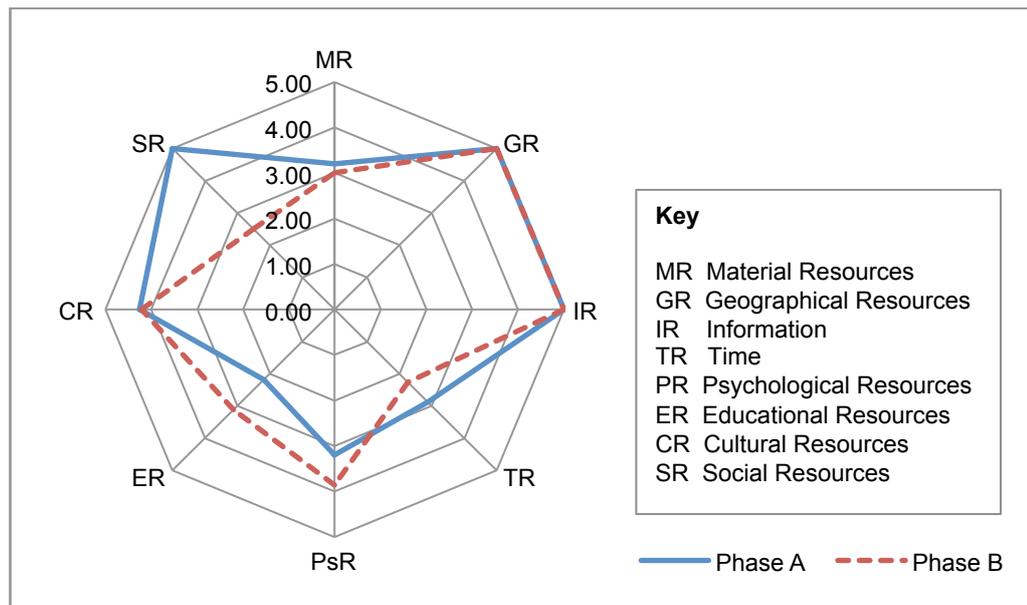


Figure 8-3: Changes in Yara's portfolio of resources

González (2008) states that abrupt technological changes are a common situation for Latin American countries, when they have to adapt to technological inventions coming from developed countries which are, in a way, imposed on less-developed countries. This is also known as leapfrogging, and while it may be seen as positive, it causes also disruption. People have not had the time to get used to the new technologies gradually, as in more developed countries, making the transition an abrupt process. The process may occur differently between different classes in the same country, where elites may be able to afford new technologies as they innovate, while poorer populations may be forced to catch up. To avoid discomfort and to prepare for an even more digitalised future, Yara decided to learn ICT skills in order to gain more autonomy, also benefiting her psychological resources. Nonetheless, as Yara felt that she was being forced to gain these skills, it could be argued that she was not gaining virtual mobility by being able to use these

online/digital services: she was actually trying to avoid becoming excluded from some services which she would have preferred as a face-to-face service.

Drawing on Wajcman's (2004) reflections, it could be argued that, under specific conditions, i.e. access to a computer and ICT skills, among others, digitalising some services may enable access to many who were previously excluded, and may help reduce costs and time usage, as described in the previous section with Raquel's and Rute's cases. However, if digitalisation does not consider the users' limitations, it becomes a service that excludes rather than includes: for instance, although Yara was not previously excluded, digitalisation of some services was now making it hard for her to access them. In a way, this may be a reflection of power inequalities within different social structures, along lines such as class, gender, and age. Those with more economic power and young people, who frequently are more up-to-date with technology, might demand the same from the market. In the case of the banks, as well as cash machines, many banks in Brazil have also incorporated online banking services, which, it could be argued, are designed for those customers who already have access to ICT and the necessary skills. Accordingly, none of the participants had ever used online banking services, limiting their 'virtual' bank services to the use of the cash machines. In short, the digitalisation of some services has enabled some individuals to become consumers, which is definitely interesting for the market, but is not necessarily in the best interest of the individuals.

Sampaio et al. (2013) explained that Brazil has seen an increase of consumption from low-income populations, partly facilitated by the expansion of the job market and social assistance programs, such as '*Bolsa Família*', but also partly by increased access to credit services from a variety of businesses. These authors mention that the lack of understanding of these services and their risks for low-income populations, which are commonly also made up of individuals with limited formal education, is visible in the inconsistency between their actual incomes and levels of expenditure, resulting in large debts and delayed payments (Sampaio et al. 2013). Therefore, enabling access to online markets may become an additional cause of debt, particularly if these new consumers do not know or understand the risks. Data collected for this thesis did not focus on this issue, but this would be a key topic for further research.

### 8.2.3 Expanding social and psychological resources

Nine of the twenty-eight participants were in their teens (11 to 15 years old), and only one of these teens lived within the city. Eight were living on the periphery. All of them reported already knowing how to use a computer before joining the ICT course. In their interviews they stated their motivations for attending the course as: (i) being able to do homework on the computer (9 of 9), (ii) getting skills to be able to find a job or internship (6 of 9), or (iii) being forced by their parents (2 of 9). However, through observation, it was possible to argue that for most of them, the main attraction was to be able to spend some time away from home, and using the Internet. As Regina stated:

*I liked the course because I get to get out of my house a bit. [By coming to the course I] avoid being imprisoned inside the house... I liked this much more than staying in. (Regina<sup>25</sup>, female teenager, CDI student, ID21)*

Regina mentioned attending school during the mornings and helping her mother with housework in the afternoons, while both of her parents worked. Regina's feeling of being "imprisoned" may be a reflection of limited agency and freedom, and may be the result of a combination of factors. First, according to Regina, she had to take care of her house with her brother while her parents worked. Second, Regina recounted that even though both of her parents were employed, their economic situation was still tight, which was why they were still receiving the '*Bolsa Familia*' – the government's financial aid– and could not afford a computer or internet access at home (constrained material and financial resources). She also mentioned that she liked using the internet, but that she was able to use it only once a week, either at school or at a friend's house. Her economic restrictions, combined with her interest in the internet, might have made staying at home an experience which forced her to realise what she lacked: for instance, personal space and internet access.

Consequently, having the chance to attend an ICT course gave her a great opportunity to address both issues by going to a different place in which she could experience more freedom than at home, and where she could have free access to the internet. It could be argued that Regina was gaining some independence

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<sup>25</sup> Regina's portfolio of resources is not being presented in this thesis because, upon detailed verification her questionnaire, it was possible to see that she left several unanswered items, necessary data to build up the diagram.

(psychological resources) and social resources due to the new group of people she was meeting just by attending the course, regardless of the new ICT skills she was learning (educational resources). Susana, a high-school student, experienced a similar situation. Susana attended school in the mornings and lived in turn with her mother and her father, who had divorced six years ago. Susana mentioned that her father had forced her to attend the course, but she expressed during her interview that the course was her only chance to gain some freedom, which could be seen in the increased geographical resources in Figure 8-4. When asked why her father was forcing her to stay at home, she explained that he was very protective:

*Susana: My dad does not let me walk alone, and my mom does not like it either [her parents are divorced]. My neighbourhood is a bit of a mess; there are many robberies and stuff [referring to drug trafficking].*

*Sammia: Do you think that is why they don't like to let you walk alone?*

*Susana: ... [Maybe] because where my mom lives there is a bridge, and a couple of girls were raped there. (Susana, teen female, JC student, ID51)*

The previous quote shows how it seems that Susana is not greatly concerned by the violence occurring around her, but her parents are, which leads them to keep their daughter indoors as a way of protecting her (constraining her mobility). Unlike Regina, Susana was not particularly happy about attending the course: therefore, her psychological resources had not improved, but she did enjoy a little more mobility, reflected in her increased geographical resources.

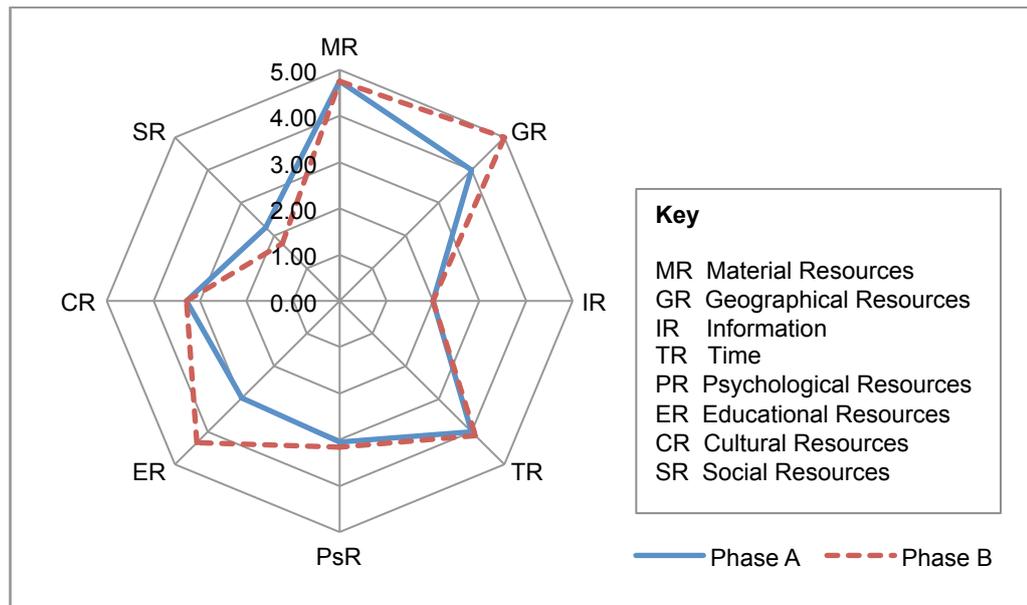


Figure 8-4: Changes in Susana's portfolio of resources

In her second interview, Susana expressed having acquired a couple of new skills, which are also reflected in her improved educational resources (Figure 8-4). Possible reasons for changes in the remaining resources have not been identified in the available data.

Another participant, Carlos, also mentioned violence and staying indoors:

*[When you need to stay at home] you become... like sad. It is because it is a condominium [a group of houses surrounded by a wall]; an enclosed area [a CDHU development] [...] staying at home is bad. (Carlos, male teenager, JC student, ID48)*

Carlos attended school in the mornings and lived with his mother and step-father, two sisters and two brothers. He stated in his interview that he could meet friends near his house, but that lately he has been avoiding it, because he was falsely accused of drug trafficking by a gang. He explained that there are many drug dealers in his neighbourhood, some of whom are his relatives, one of them already in jail. Thus, being on the streets meant contact with these people as well as other people, something that had already got him into trouble. Hirschelmann and van Blerk (2012) state that for young people living in cities who do not have the luxury of accessing safe playgrounds, the streets “offer a place of socialisation and exploration” (p.107) that could actually increase their wellbeing, even if they may be

seen as unsuitable for young people. Having a place in which children and teens can meet their peers, even if this is the street, is particularly important for them, because “[p]lay is a very important aspect of the[ir] lives” (*ibid.* p.98), and they construct their identities through social contact. By isolating himself, Carlos might be protecting himself from false accusations, but he is also constraining his mobility, which enables other activities necessary for his growth. His psychological resources are affected as much as his social resources (Figure 8-5).

Carlos may have shelter and security in his house, but it is also constraining his emotional and cognitive development, and therefore his psychological resources. This is because, according to Wetherell and Maybin (1996), children develop their identities by relating to particular social and cultural processes through language – listening, talking and dialogue with others. Active social lives provide multiple experiences that will help shape their identities (p.264-265). It could be argued that Carlos’s sadness is because he is limiting his encounters with other people, which prevent him from having social experiences. On the other hand, his sadness may be related to having chosen to act in a different manner from what is ‘expected from a boy’ – i.e. being fearless. Goodey (1997) and Brownlow (2005) refer to this as male gender roles, when men are pressured by their peers to act like ‘men’ – i.e. aggressive, homophobic, fearless – thus stereotyping the idea of what it means to be a man. For example, Brownlow’s (2005) research in Philadelphia revealed how young men would put themselves in dangerous positions to show their masculinity. Carlos may be hiding from his peers in his neighbourhood to avoid being criticised for choosing to walk away instead of enacting his masculinity – i.e. getting into fights against or joining a gang, or similar.

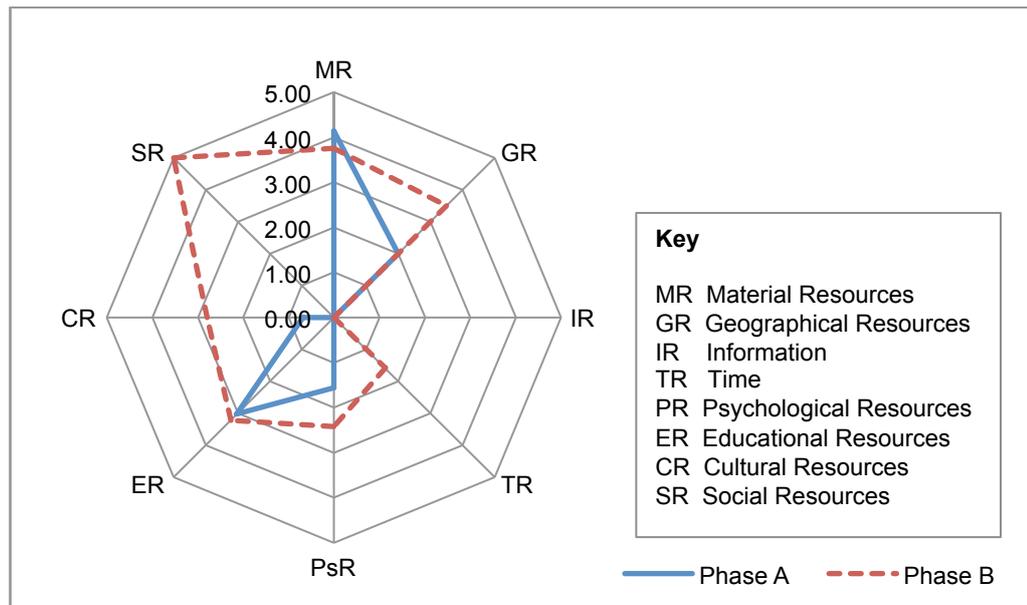


Figure 8-5: Changes in Carlo's portfolio of resources

For both Susana and Carlos, just being able to participate in the course became a means of entertainment, as it provided a safe place to spend some of their free time, meet their friends or make new ones, and also engage with an activity they already liked, which in this case was using a computer. Therefore, considering their limited offer of entertainment activities and spaces for leisure and the violence they might be faced with, having to go from home to the course location and back, was adding some mobility to their daily routines (geographical resources); it also provided a new and fun way to enjoy their free time, thus changing how they were using their time resources; the course also provided a place to interact with other course participants and the skills to be able to socialise online, using social media such as Facebook, strengthening their social resources; and a place to feel safe, increasing their geographical and psychological resources, as it is possible to see in Figure 8-5. Further, the ability to socialise online may be seen as a way to increase these participants' social resources, but also their psychological resources, as it provides some contact with friends, reducing their social isolation. Nevertheless, this activity only provides a practical solution to their isolation: its causes, i.e. lack of public spaces and dangerous environments, have not changed due to being able to use the computer more often.

Figure 8-5 indicates improvements in social resources. As mentioned previously, this might be connected with a decrease in social isolation, either because of participating in the course and relating with other people, or because ICT skills

allowed participants to increase or regain contact with family and friends online. In the interviews, increased contact with friends was mostly seen in teenagers, while contact with distant family was experienced by participants of all ages. In particular, adult participants who mentioned using Facebook (15 of 19) did so mostly to regain or keep contact with their relatives.

*You can find a relative that lives far away [...and] you can talk to him. I think that is so good. (Raquel, adult female, JC Student, ID46)*

Raquel mentioned in her interview that she was originally from a different town and had come to Campinas to find a job. Now that she was living with her partner, she revealed feeling that she had a family, as she spent a lot of time with her sister-in-law. Her family was still in her hometown and learning how to use Facebook had allowed her to regain contact with some of her relatives who also had an account, improving her social resources, as shown in Figure 8-1 above. In a way, she was replacing visits with online communication, as she could not afford to travel: i.e. she engaged in virtual travel. Unfortunately, having these skills was not going to improve her contact with those who did not have an account, and was not going to allow her to afford to actually travel. Other participants mentioned using Skype:

*I am talking through Skype [...] I talk with my brother, with my son, it is like I am talking with him here [...] I know how he is feeling, I see his face, I see how he is doing [...] And that makes everything much easier, I do not need to go there. Look how practical! Look how modern! And what if I did not know this? (Yara, elder female, CDI student, ID11)*

In Yara's case, she mentioned missing talking with her daughter often, now that she had moved to another city for her job. Before learning ICT skills, she was limited to telephone calls and sporadic visits, but now she was able to contact her via Skype, see her through the camera and experience greater connectedness than through voice communication alone. Although Yara, unlike Raquel, had the financial means to travel to visit her daughter, it was still not possible for her to visit as much as she would like to: hence, video communication provided a suitable solution, which had a positive impact on her psychological resources, as shown in Diagram 8-3. Virtual travel, in Yara's case, was enabling her to access more of what she valued and had reason to value, even if it was not what she had envisioned before, or was not as good as her desired capability, which was to visit her daughter in person.

### **8.3 Raising awareness: safety, privacy, self-awareness and motivation**

The examples presented in the previous section showed the impact of ICT use on the participants' portfolio of resources, and the following section will reflect on how the participants' choices may reflect their adaptive preferences. Consequently, I will explore how the training they received influenced their choices and their adaptive preferences, either positively or negatively.

#### **8.3.1 Use of choice and ICT uses**

Despite having difficulties in accessing ICT and the internet, younger students mentioned finding ways to access these technologies, in particular for entertainment.

*Simone: I come here almost every day [to the Jovem.com telecentre].*

*Sammia: What do you usually do [here]?*

*Simone: Mostly I use Facebook. I also like the singer Eminem, so I Google news about him or watch his videos on YouTube. (Simone, female teenager, JC student, ID52)*

Simone, a high school student, mentioned that she had a mobile phone with internet, which she used at home, where she did not have a computer. However, due to costs (lack of financial resources), she could not use it for long periods of time, so she tried to spend as much as possible of her free time in the free computer lab. Simone mentioned in her interview that using the internet was her main entertainment activity, and that she sometimes spent, in her words: “14 hours on Facebook”. This was perhaps an exaggeration, as she also mentioned meeting with friends from school and church at least once a week, but reflects how she perceived her use of time; perhaps trying to express how some days Facebook was her only activity.

Authors investigating Facebook argue that people use this platform for reasons varying from self-presentation (Nadkarni and Hofmann 2012; Seidman 2013; Tosun 2012) to wanting to belong (Ahn and Shin 2013; Seidman 2013; Sheldon et al. 2011) or entertainment (Tosun 2012), which may lead some users to addiction

(Sheldon, Abad et al. 2011). Therefore, having free access to the internet at the computer lab allowed Simone to improve her social resources, and being able to learn some ICT skills increased her educational resources (Figure 8-6).

On the other hand, Simone expressed in her second interview how she now realised she could do more with the computer than what she had understood before (increased educational resources), which could be why the results of her second survey show reduced material and psychological resources. In other words, she had increased her awareness of her limited access to ICT (feeling that she had fewer material resources), and this realisation might have negatively impacted her psychological resources. Being able to interact with others in a safe place at the course may be the reason for the improvement in Simone’s social resources. Reasons for changes in other resources are inconclusive, as data from her in-depth interview did not provide details as to why she responded differently from the first questionnaire to the second.

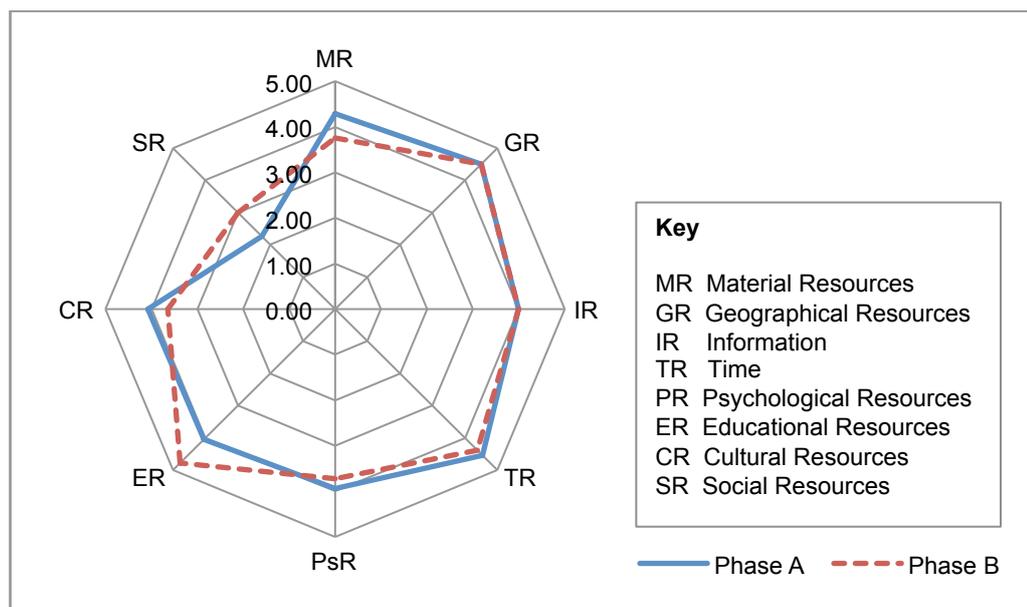


Figure 8-6: Changes in Simone's portfolio of resources

In contrast, from a development perspective, keeping in mind the CA, it could be argued that Simone’s desired capability of Facebook use was the result of her adaptive preferences. Although Simone was indeed obtaining something she stated she valued, her choice to use Facebook for ‘14 hours’ may indicate lack of other leisure, sporting, cultural or educational options that she could experience. Ryan and Deci (2001) argue that well-being needs both human flourishing (i.e.

actualisation of human potentials) and experiences of pleasure (i.e. entertainment activities). Therefore, if we consider that the internet has a “multi-purpose, multi-choice nature” (Kleine 2011, p.120), then it could be argued that Simone was using the internet to supplement her lack of entertainment options. This focus on experiencing pleasure may distract Simone from the fact that the internet can also be used for human flourishing activities. Nevertheless, it is important to state that Facebook is a tool that could be used for human flourishing activities also, as research has shown, for instance creating groups for exchanging information or facilitating group work among students (Mazman and Usluel 2010; Nadkarni and Hofmann 2012). However, this requires the individual to choose such usage.

Drawing on Nussbaum (2000), one might argue that Simone has constrained and accommodated her expectations (adapted preferences) to the life she thought she could have, which she had imagined based on her own experiences. Simone’s life, and the lives of those related to her, may have shown her what to expect and desire. Several authors mention that identity development is the result of social and cultural conditions: all she experienced and was able to experience was becoming part of who she was (Rossan 1987; Scourfield et al. 2006; Sibley 1995; Stevens 1996), and was influencing (constraining or expanding) what she expected or aspired to in her life (Clark 2009b; Conradie 2013; Conradie and Robeyns 2013b). This situation may also be understood from a Freirean perspective as having a limited vision of the world due to oppressive social structures – lack of cultural and leisure opportunities, poor quality of education and the financial constraints of her family, among other things. Indeed, when asked, Simone said she wanted to have a job, earn a good salary and be able to buy her own house. She also confessed that she had never devoted time to reflect on her future, and the aspirations she mentioned – job, money and a house - were the first to come to mind when I asked the question. In other words, when prompted about the future, she mentioned goals she might have thought I wanted to hear or that she might have heard from others, but when asked how she planned to achieve those goals, she laughed and acknowledged that she did not like thinking about the future, even if others her age did, and that she was not really interested in starting to plan her future.

Simone was choosing to live in the moment rather than planning for the future. This choice may, on the one hand, help her to enjoy what she is achieving and experiencing, without worrying about what she does not have. On the other hand, not having a vision for the future may cause her to miss opportunities that could help

her to have a better future. For instance, during the course, Simone limited herself to learning what the teacher explained, while Teresa (introduced below), who wanted to find a job, was asking the teacher questions and trying to learn other skills she thought she might need. Teresa showed a more proactive attitude to her own learning experience than Simone. Moreover, the methodology used by Jovem.com did not help Simone to challenge herself to learn new things, as this course was limited to skills related to how to navigate the internet and how to use Word and Excel, as explained in Chapter 7. In particular, Simone's choice for living in the moment might have been limiting her being a more proactive learner.

Teresa was 15 years old, and a high school student attending the same course as Simone. She mentioned having financial problems at home, as her single mother was ill and could not work full-time. Her father was an alcoholic and was not helping at home, so she wanted to find a part-time job and had thought of starting by taking the ICT skills course to improve her CV. However, when asked what she was using ICT for, she said she mostly used the computer to access Facebook and other social media. Even more, she shared that she liked dressing up and putting make up on to take many 'selfies', to post them on Facebook. On the one hand, it could be argued that as a teenager, she was building her identity within Facebook, an action that has been explored by several authors (Nadkarni and Hofmann 2012; Seidman 2013, see earlier point about self-presentation; Tosun 2012). Regardless of any challenges that they might be encountering in their lives – violent neighbourhoods, unemployed parents, missing teachers at their schools – within Facebook, young people like Teresa could build up happy and satisfied images of themselves through photos and posts, while interacting with their peers within this created environment. On the another hand, the kinds of images she was taking, and the time she was spending to achieve the right outfit and looks, might show how some gender stereotypes were being reproduced and even reinforced by her ICT use choices, and how these were influencing her priorities. Building up her identity and self-esteem and connecting to people by posting images on Facebook may be valuable to Teresa; however, the time spent on this activity could have been used or shared with her job hunting goal or learning other skills. This could be seen as a trade-off between immediate gains (interacting with friends) and long-term gains (finding a job and having an income).

This discussion encouraged a conversation about privacy. Teresa admitted not knowing about privacy settings; so all her information was public as this was the

default setting. Considering Teresa's age, 15 years old, displaying so many images without knowing how to protect her privacy may put her in danger. Palfrey and Gasser (2008) urge parents to pay attention to how children and teens relate to ICT. According to these authors, children who have been born into a world that already has ICT are building their identities under the influence of information, from many social media and websites, which older users did not experience. This means that it is not possible to know the outcomes of this influence, but also that they relate to technology in such familiar ways that "there is reason to believe that young people systematically underestimate the risks of disclosure" (p.24) of personal information<sup>26</sup>.

Using social media from an early age without supervision may not only influence teenagers' identity formation, but also put them in danger of abuse, paedophilia, cyber-bullying and/or other known online dangers (Bauman and Tatum 2009; Desiderá and von Zuben 2013; Dombrowski et al. 2004; Mishna et al. 2009). The 2012 and 2013 "ICT Kids Online Brazil" reports (Barbosa 2013b) support the need for better informed guidance, mainly because evidence shows there are "discrepancies between theory and practice – for example, [even though] most young people know they should not share information with strangers [... they still] make their social networking profiles publicly accessible to everyone on the internet – show[ing] that there is still much work to be done to improve the level of awareness of risks and forms of protection when using the internet" (Desiderá and von Zuben 2013, p.206). Even more, according to Barros et al. (2009), there is need for research, especially in Portuguese and about Brazil, to better understand how many of the dangerous events unfold in this particular context: e.g. online grooming techniques used in Brazil by potential sex offenders.

While JC did not address this concern with their students, CDI spent at least two sessions discussing the importance of privacy and how to protect oneself from online dangers. CDI has produced two leaflets with detailed information, which are distributed among the teachers and staff of the partner institutions, so that they could be informed to better guide the students. Also, CDI tried to encourage critical use of the computer over prohibitions. Namely, CDI encouraged its partners to avoid banning the use of social media or any other applications at their computer labs, because they would rather have their teachers discussing with the students how to safely use the

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<sup>26</sup> There is a growing literature referring to the risks and opportunities that the internet opens to children, which falls beyond the scope of this thesis. (Desiderá and von Zuben 2013, For more information please refer to: Dombrowski et al. 2004, Livingstone 2009, Staksrud et al. 2013, Tejedor and Pulido 2012)

internet and how to use social media for their empowerment. For instance, CDI also used Facebook, but this platform was not being used for entertainment and social connectedness. CDI's organisation page and groups within Facebook were used to share events and information about their courses and to support different social campaigns, among other things. Indeed, one CDI teacher used Facebook with her students to advertise the project they were working on together in class, therefore teaching them how to create an event and how to express their ideas within that platform, sharing it to their contacts to ask for their support.

As a consequence, using Facebook or, for that matter, any social media may increase people's social resources, particularly if they are isolated. However, users need to understand critically the risks that using these platforms may cause, so they can make informed decisions about how much time to spend on them, what to disclose and what they could expect from their use. As adaptive preferences will cloud people's aspirations and choices, it is argued here that the role of the intermediary – in this case the teachers from CDI and Jovem.com – is not only to teach ICT skills, but also to expand people's sense of choice and challenge people's adaptive preferences, in order to encourage ICT uses that will be meaningful and effective to people's development.

This reflection does not intend to undermine the development outcomes that entertainment activities may bring to a person. In the examples provided above, it could be argued that both Simone and Teresa increased their social resources, which is already a development success, albeit a small one. However, as these kinds of outcomes could be achieved by the students without help from a teacher, it could be argued that the role of the intermediary is to guide students into new ways of entertainment and flourishing ICT uses that they may not have learned on their own. For instance, keeping in mind that playing games can be used as a pedagogical tool for children and teenagers, both teachers of the CDI courses introduced educational online games to their students (five of nine teens), using them as part of their lessons, especially as the younger students were in any case using any spare time to play online games during the lessons (adventure games and racing games, among others). Therefore, the teachers introduced some educational online games to the students, so that if they had any extra time after completing their assignments, they could play them during lessons instead of the ones they were already playing. As a result, students were exposed to an alternative that was both fun and educational, increasing their sense of choice, which might

translate into use of choice in the future. Also, while observing their reactions to these different games during the lessons, it was possible to perceive that they were surprised that such games even existed, with these moments being some of the few where they were really engaged<sup>27</sup>. Teens were not the only ones enjoying educational online games.

*I go on Google or YouTube to watch videos [...] (laughing) Sometimes I also draw, in that program, remember? [Referring to the software Paint] I draw pictures and stay there fooling around. Also, I go into that game, remember? [Referring to the typing educational game mentioned above] That one that you need to write so the girl can jump? (laughing) (Joana, elder female, CDI student, ID3)*

Joana, and other adult participants from both courses, mentioned watching a variety of videos on YouTube (music, arts and crafts, etc.) for their own entertainment. Others expressed being interested in finding new cooking recipes, knitting patterns or simply looking at images on Google of places they had visited or wanted to visit. Nonetheless, the most surprising activities were drawing and playing educational games, mentioned by Joana. During the first interview, Joana revealed that she was having difficulties with her husband. When they both retired, he started drinking more often, becoming an alcoholic and spending all their savings. Although he always paid their bills on time, he did not allow her any extra expenses and even monitored her use of products in the home (from groceries to cleaning products), always demanding that she reduce expenses. The stereotype of a good wife in Brazil is a woman who is compliant and obedient to her husband. Accordingly, Joana's way of accepting all her husband's demands might indicate that she was fulfilling this stereotype, an attitude that was constraining her freedom. As Joana internalised constraining gender norms, her own attitudes were constraining her cultural resources. Joana's husband also controlled her time and geographical resources, as he would only allow her to leave the house with her adult children but never alone (enforcing gender norms).

Consequently, she tried to spend as much time as she could in her already adult and married children's houses. There, she would cook, clean or do other household

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<sup>27</sup> An example of a game was, for instance, a racing game in which the user has to type a word correctly and promptly in order to make the car move towards the finish line. This game aims to teach typing.

chores until they came back from work in the evening. This might give her the satisfaction of doing something she knew she did well, and by so doing, show her children how much she cared for them (psychological resources). But expressing her affection in this way might also reflect how her identity overlaps with the stereotyped gender role of mother. This could be seen as a further example of how gender norms have adapted Joana’s preferences. Rossan (1987) states that “women who adopt the pervasive, long-lasting roles of wife and mother, [...] add many elements from these roles, including the labels, to their core sense of self” (p.305), which in Joana’s case meant that she was expressing her affection to her children by helping them with their household chores.

Joana stated that talking with her daughter was what initially motivated her to take the course. As Joana recounted in her interview, her daughter learned how to use the computer in the same place (one of the CDI locations), and her experience was so positive that she was always talking about it with her mother and had eventually encouraged her to take it as well. Having the support of her daughter, emotionally, educationally and materially (she encouraged her mother, taught or helped her with some activities and provided access to a computer and the internet at her home) made an immense difference. Joana mentioned that the more she learned during the course, the more engaged she was in trying those skills at her daughter’s house. Therefore, this combination of the course plus her daughter’s support improved Joana’s material, psychological and educational resources (Figure 8-7).

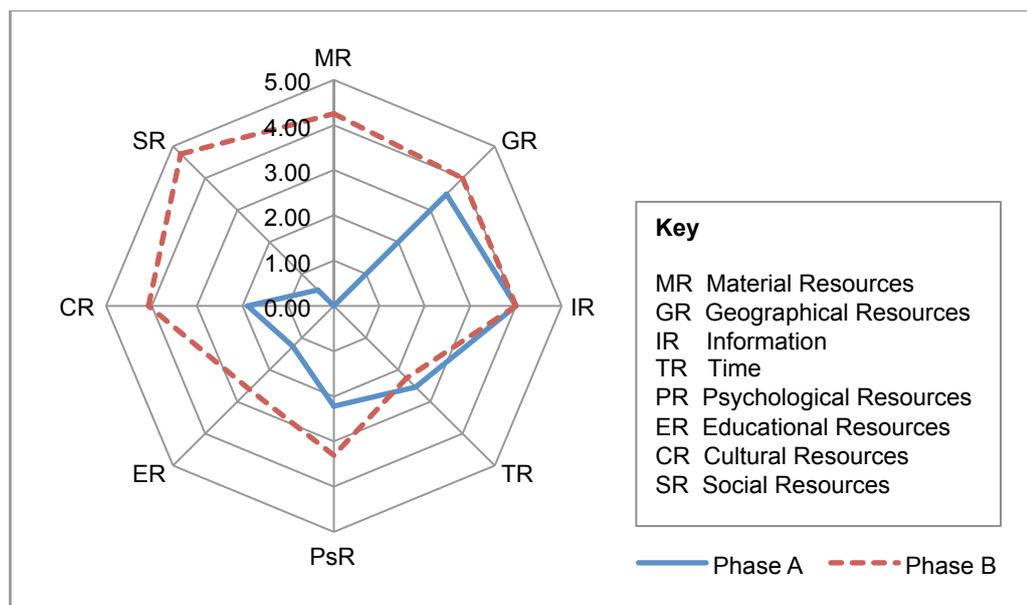


Figure 8-7: Changes in Joana's portfolio of resources

Finally, Joana told me, laughing, that instead of spending so much time helping with household chores, she was now practising what she learned on the course, and that she particularly liked painting and playing games, as shown in the quote above. These apparently shallow ICT uses were, in fact, changing Joana's use of choice, as now she was choosing her own creativity and enjoyment over re-enacting her socially accepted gender role, showing increased agency and challenging her constraining cultural resources. Her experience during the course allowed her to loosen up and be playful and creative. She was now spending her time in activities that had only the purpose of practising her new skills. Joana's change in attitude, from her first interview to the second, showed clear improvements in her self-esteem and self-image, demonstrating a strengthening of her psychological resources.

Overall, changes in Joana's portfolio of resources were accompanied by changes in her adaptive preferences, particularly visible in the fact that initially she was using all her available time for others and not for herself. In a way, Joana was gaining in self-awareness by challenging her internalised gender norms: i.e., she considered devoting her time to others as a virtue, as feminist scholars' research has shown (Besse 1996; Chant 2003b; 2003c). She was changing her perceptions by practising her ICT skills in friendly environments – for instance, spending time just for herself, playing an online game at her children's houses. This may relate to Freire (1970), who argues that conscientisation is only achieved by engaging in a permanent doing and reflecting on doing. This process allows the individual to experience what she has reflected upon to be able to have her own opinions based on her own experience, which will support her subsequent doings and reflections. Therefore, in Joana's case, the combination of her daughters' support and spending some time using the computer for her own entertainment (both during the course and at her daughter's house) could be seen by Molyneux (1985) as more strategic use of ICT or by Buskens (2014) as a more transformist use of ICT, as this activity was challenging constraining gender social structures, helping Joana to see herself as an individual entitled to leisure time.

Nevertheless, as this escape from some of the oppression she felt from her husband was only temporary, it could be argued that Joana was re-adapting her preferences, as her constraints were still in place and she had to continue to live with her husband. While I did not ask directly why she did not challenge him or leave, she mentioned some factors that might be part of the reason. For example, she said she had worked for years and the couple's savings enabled them to buy a

summerhouse. After he retired, Joana's husband started drinking, becoming more controlling. He started selling all he could to sustain his drinking. Bu the time of the fieldwork, he was receiving a pension, paying all bills and buying groceries; the rest he was spending on his drinking. Thus, Joana had no income and no savings: her only asset was the house she lived in. This, together with lack of self-esteem and fear of him reacting badly while drunk, might be why she remained married.

Overall, Joana also mentioned enjoying the time she spent on the ICT course, which matched other participants' experiences. Bruna even mentioned that she regarded the time she spent at the course as leisure time:

*I forget about the world while I am here [at the CDI course]... I forget I have a house and that I have grandchildren [who I have to care for]. It is so good; it is a delight to fiddle with the computer. I did not think it was going to be so good. I was afraid [technophobic<sup>28</sup>], but I am losing the fear. [Being here] is like therapy to me. (Bruna, elder female, CDI student, ID1)*

Bruna, as mentioned above, provides for her daughter and two grandchildren. When asked about her free time and how she used it, Bruna smiled shyly and said she did not have any free time, that raising children was a 24/7 job because they needed more than food and shelter: besides working and household responsibilities, she said she always dedicated at least an hour per day to play with her grandchildren as well as the time spent helping them to do their homework or caring for them.

It was her love and dedication to her grandchildren that motivated Bruna to attend the ICT skills course, as she was increasingly worried about what the children were seeing on the computer, a machine she did not know how to use. From a CA perspective, it could be argued that her most valued functionings were caring for her grandchildren: therefore, she was focusing all her efforts on that goal, by being able to provide food and shelter, but also by being able to provide informed advice and guidance. On the one hand she was achieving the functionings she valued, as she was able to care for her family as she wanted, but on the other hand, having little time for herself was also oppressing, as shown when she equated her time on the ICT course with therapy. It was only when she started the course that she realised there might be some benefits for herself. As stated in the quote above, being at the course was time off from her responsibilities, where she could enjoy the company of

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<sup>28</sup> Technophobia could be related to hate or being afraid of technology. In this quote it refers to fear.

some of her friends and where she did not have to worry about others but only about herself and her own learning. She felt so strongly about this that she compared it to ‘therapy’, showing the positive impact that this time had for her psychological resources (Figure 8-2). Moreover, it could be argued that by putting herself first, instead of the people she took care of, she was strengthening her well-being freedom, and also improving her agency.

### **8.3.2 Free choice and the labour market**

Chapter 5 described how Campinas’ service sector has been growing, providing many job opportunities. However, as more companies adopt ICT, they also require employees that have ICT skills. This was something that participants in this research were aware of, from the teenagers who wanted to have adequate skills for a future job, the unemployed woman who did not pass a training period in a job due to lack of ICT skills, and the retired lady who mentioned wanting ICT skills to be able to re-join the labour market. Then, as this chapter explores how the intermediaries’ support may improve the individuals’ meaningful use of the computer and the internet (RQ1), this section will explore whether the individuals’ aspirations, related to improving their access to the labour market, were met, and if so, how.

As the participants gained confidence in their new ICT skills, some ventured to apply them towards finding a new job:

*[I learned] getting into my email and save [documents] I typed my CV, then I saved it, [...] Then I went to the email and sent it to the Door Keeping Company [...] (Laughing) And then, they called me for an interview [...] I did it, I was so happy to be able to do that. (Raquel, adult female, JC student, ID46)*

After finishing the course, Raquel recounted how she was now able to write her own CV on the computer, save it and send it to the relevant company, showing how she perceived improvement in her educational resources. Moreover, as she said had also been called for an interview, she was experiencing the impacts of her new skills. She was seeing positive results of her learning almost immediately after finishing the course, which had a positive impact on her psychological resources.

However, as noticed during the observations of the course, the skills Raquel learned were very limited, more operational than strategic, as the course did not cover any formal, information or strategic ICT skills or any reasoning, problem-solving or decision-making skills. Conversely, it could be argued that finding a job could change her bargaining position in her household, thus becoming a more strategic outcome, but based on just the interview data, the results of Raquel's job hunting and the possible impacts on her life are unknown. Raquel and the other students spent a quarter of each class just practising typing, and the rest of the class learning how to use word and email. As they told their teacher that they needed to learn how to type faster, he tried to accommodate their request by giving them time to practice. Nonetheless, it could be argued that their time with the teacher was limited, so it should have been used to learn other skills, leaving the more mechanical practice for their own time. Also, as Freire and Guimarães (2011) argue, limiting the teaching of ICT to technical skills does not allow the students to free themselves, but only helps them to better to fit the constraining social structures.

Keeping this in mind, CDI's courses were more ambitious. Teachers asked their students to practice after class and tried to cover a variety of applications, depending on how fast their students advanced. For instance, one of the groups learned about Google Docs.

*I have a friend, we are always [developing projects together], and now I am going to tell her that we can do our work together, as we learned today, much easier, because now we don't need to always meet face-to-face to plan what we have to do. [Talking about Google docs] (Anna, adult female, CDI student, ID12)*

Anna was one of the women living in the periphery. Keeping in mind her lack of mobility and financial resources and her many household and childcare responsibilities, learning how to use Google Docs to be able to do collaborative work opened new possibilities for Anna. She mentioned being engaged with volunteering work, which she planned with a friend. However, as mentioned in the quote, meeting face-to-face was not easy: hence, this improvement in her educational resources was also improving her geographical (virtual mobility) and social resources. Indeed, learning this software expanded her sense of choice, as she said she had never expected anything like this to be possible using ICTs. During her final interview, she mentioned remembering the lesson in which they learned to use this tool as the

most important, because it motivated her to keep exploring to find more tools and new ways to use a computer. In a way, it sparked her curiosity, expanded her sense of choice, and with it, increased her agency. Nonetheless, it is important to remember that virtual encounters cannot completely replace face-to-face interactions, which was something that Anna herself mentioned in her interview. She indicated that she liked face-to-face meetings and was planning to continue to have them whenever possible, and that Google Docs was simply providing an opportunity for additional meetings with her colleague.

Anna's motivation to learn for herself was also visible in other participants from the CDI courses.

*I am looking at haircuts [on YouTube], looking for several trends. I am already putting them into practice. (Pilar, elder female, CDI student, ID6)*

Pilar was a hairdresser who mentioned that she was now working only a couple days a week, facing the challenge of her age in her work. She was suffering from wrist pains as a result of years of holding a hairdryer, so she wanted to focus more on cutting hair than hairstyling. However, for that, she needed to update her knowledge about trends so that she could satisfy her customers. Consequently, when she learned how to use YouTube, she started looking for new styles, as she recounted during her last interview. This idea of learning from the internet was mentioned during a class related to finding recipes or images, and Pilar herself adapted this more strategic skill to her own needs, thus demonstrating an increase in her educational skills and agency. Joana, who was also a retired hairdresser, also made this adaptation. She mentioned that her granddaughter was helping her to find new and modern hairstyles. Finally being able to put in practice this new knowledge represented for Pilar an opportunity to see the fruits of her efforts, boosting her self-esteem and therefore improving her psychological resources.

In brief, these examples from CDI's students show how, as well as having their sense of choice expanded and their educational resources increased, these students also learned how to translate their needs into a specific Google search (reasoning), how to identify interesting sources of information for their specific needs (problem-solving), and how to choose from a variety of options one that satisfied them (decision-making). It is also possible to see increased initiative, autonomy, motivation and curiosity, all psychological resources that could be related to

improved agency. These impacts from CDI's students may be related to CDI's differentiated pedagogical approach, showing how having a focus on the participants' needs (CDI methodology) instead of a focus on ICT (Jovem.com methodology) not only supports learning ICT skills but also encourages more independent ICT use. Students can be encouraged to explore the internet, and expand their choices.

## **8.4 Challenging social structures: towards collective action**

Section 8.2.2 mentioned how both organisations, Jovem.com and CDI, were interested in showing their students how they could benefit from online public services as a way of improving their citizen rights. For that reason, both introduced online services during their training programmes.

As Jovem.com belongs to the local government, they spent at least part of three or four lessons presenting the e-government services available in their municipality. The teacher would open a specific website and explain the available online services to the students and then proceed with the rest of class. No time was given for testing the service or exploring the website, as it was intended more as an introduction to the service. The teacher asked the students to ask detailed questions about the services after class. Outcomes from this learning experience were presented above in section 8.2.2.

On the other hand, CDI only spent part of one or two sessions introducing some e-government services, also in a brief and relatively superficial manner. Nevertheless, CDI tried to touch on citizenship and rights issues in every class, and dedicated at least a quarter of all sessions to discussions about how to use ICT to become more engaged citizens: for instance, Mariana mentioned how she learned to demand better services using ICTs.

*[During the CDI class] we talked about citizenship [...] about things that need to be done by us, as citizens [...] (things we can do when accessing) the website of the municipality [...] to ask for things we need [...] I learned that we need to fight for the things we want to have [referring to services in their neighbourhoods such as improvements in local safety]. (Mariana, adult female, CDI student, ID4)*

As Mariana recounts, during the ICT training, students reflected on their role as citizens and not just on how to use the municipality website. The teacher's aim was to first encourage dialogue around local issues to promote consciousness-raising, and second to show different ways in which computers and the internet could support actions to address the problems discussed. This methodology was not just a more reflexive and problem-solving approach than that offered by the Jovem.com programme, but also encouraged some transformations in the individual. By critically engaging with their own environment, according to Freire (1976), individuals recover their innate ability to intervene in reality in order to change it, seeking action as the means to achieve the desired change.

This ability is interconnected with the faculty of making choices that reflect their own decisions rather than those of other individuals. This process encourages an increase in critical consciousness while challenging constraining adaptive preferences. Also, the realisation of the innate power within may strengthen the individual's agency, self-esteem and confidence – i.e. psychological resources. These improvements will expand the individual's capabilities, supporting her in achieving what she values and has reason to value. Finally, by encouraging collective action, individuals may bond with their classmates and form a group or even join new groups in order to find similar-minded people, thus improving their individual social resources. Moreover, reflecting on collective action supports those involved to understand how constraining social structures are limiting individuals' capabilities and why collective action is necessary to promote change.

In Mariana's case, data from her interview and resource survey (Figure 8-8) show small but positive changes in her psychological and social resources. Changes in other resources correspond to changes in Mariana's activities, as she owned and worked in a small shop, which affected mainly her time availability. However, the quote presented above shows a strong statement. Mariana not only refers to herself as a citizen, but as one who has to 'fight' for her rights. This presents awareness of both her rights and her responsibilities as a citizen.

Thus, the quote shows how CDI's methodology differs from that of Jovem.com, encouraging greater critical consciousness and strategic ICT uses. However, although her quote does not show whether Mariana will engage in any form of collective action to effectively 'fight' for her rights in the future, observation during lessons allowed me to state that she actively participated in the course collective

action project – sending a complaint letter to the City Hall, an exercise explained in detail in Chapter 7.

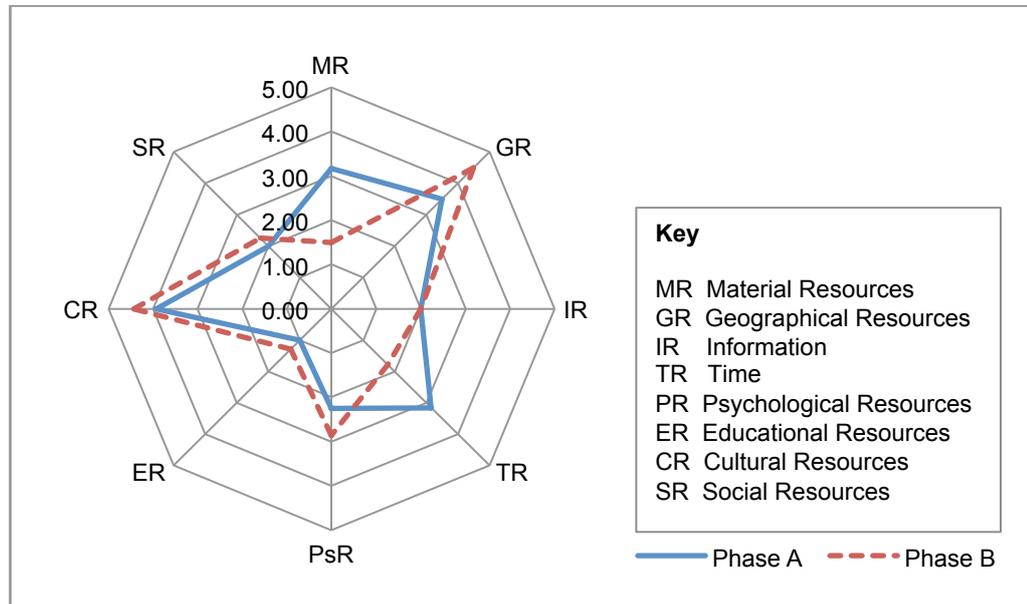


Figure 8-8: Changes in Mariana's portfolio of resources

Subsequently, based on Wacjman (2004), if a technology, in this case ICTs, improves citizens' participation, this technology becomes a tool to support change in current social structures. Thanks to the effort of her teacher, who encouraged the discussion about citizenship and people's responsibility to participate, Mariana was able to expand her sense of choice and realise that ICTs may be used in this manner. This outcome aligns with Freire and Guimarães (2011), who indicate that teachers should avoid a consumerist approach to ICT usage. Mejía (2004, p.67) argues that from a Freirean perspective, the central purpose of education is not primarily to overcome the material conditions of oppression, but to enable the student to be able to create an expression of her freedom. Education should help the students understand the interplay of structure and agency, being able to identify the underlying social structures causing them any constraints, subsequently supporting them to get the necessary skills to modify their realities. Thus, it could be argued that the ICT use mentioned above (writing a joint letter of complaint) was possible because Mariana was involved in a course that on the one hand promoted collective dialogue, identifying possible problems, reflecting on them and planning a collective action, while on the other hand, it also taught her the basic ICT skills to achieve the planned action.

However, changes in social structure will not occur just by improving online and offline citizen participation. As Freire (1970) states, collective action is one of the key ways in which those who are less advantaged can change social structures that constrain their development. However the same structures may be benefiting others, who will not easily relinquish these benefits. Therefore, even though Mariana's quote shows an increased awareness of the necessity of her participation for social change, her and her classmates' efforts may not be enough to actually change social structures.

## **8.5 Conclusions**

This chapter set out to explore how the students' portfolios of resources were affected (RQ2) by participating in the ICT courses provided by JC and CDI, to determine if and how their training impacted on students differently in each case (RQ1). Also, it sought to study any changes in the participants' adaptive preferences, as a way to explore if students were acquiring conscientisation (RQ3), and finally to investigate possible connections with social structural change (RQ4).

Examples provided showed how, irrespective of the course they attended (JC or CDI), students experienced improvements in their portfolio of resources, which varied from increased educational resources (i.e. ICT skills) to improved psychological resources (i.e. greater self-esteem). It was also possible to see that when students had family helping them (social resources) and easy access to a computer with internet connection – preferably ownership - (material resources), their improvements were greater than those of other students (for instance Joana, who had the support of her children and access to ICT in their houses).

Yet, when the students' adaptive preferences were analysed, there was a clear difference between students from JC and those from CDI. CDI's pedagogical methodology provided the students with additional information about programs and activities that they could execute on the computer and the Internet, facilitated dialogue with the students about safety and risks on the Internet, and encouraged them to use the internet towards collective action for social change. These different elements impacted on the students' sense of choice (for instance Anna expanded her ideas of what was possible to do with ICTs); challenged their adaptive preferences (for instance Joana changed some of her attitudes related to her

expected gender role as mother and wife and started dedicating time to herself) and strengthened their agency (for instance Pilar's improved motivation and autonomy encouraged her to find ways to learn new hairstyles using the Internet). Consequently, it could be argued that what CDI's students valued and had reason to value was also impacted by the process. For example, Bruna, who initially thought she valued taking ICT skills lessons to be able to guide her grandchildren, by the end of the course was valuing being able to use ICT for her own benefit too. In other words, CDI's students' experience of the course helped them to realise that they could use ICT for what they thought at the beginning but also for much more, which encouraged them to reassess their motivations regarding ICTs, moving their development forward.

Moreover, some students also showed evidence of greater political awareness (for instance Mariana's need to 'fight' for her rights), in keeping with Freire's (1976) proposed way to challenge current social structures and promote development. Nevertheless, CDI's pedagogical methodology may still be limited and considered insufficient when greater social change is required. It could be argued that the experience the students had during the training was intended not to change the social structures, but to teach them first that they could and should engage more with their own development, and second, the ways in which ICT could serve as tools to support this engagement. On the other hand, other activities that CDI undertook, as studied in Chapter 7, could be seen as a support to promote the social change that it is not possible to accomplish just by teaching the students.

# Chapter 9 Conclusions

## 9.1 Conscientisation for development

Using the CA and the Pedagogy of the Oppressed as a theoretical framework, this thesis aimed, first, to explore whether a Freirean approach to digital inclusion was better at promoting meaningful appropriation of ICT than other traditional approaches, identifying which resources the individual required for such an appropriation. Second, it aimed to conceptually link the CA and Freire's Pedagogy of the Oppressed and to further develop tools to operationalise the CA.

Four research questions were proposed, and will be responded to in turn.

Research Question 1 (RQ1): ***How can digital inclusion intermediaries support a meaningful appropriation of the computer and the internet?***

The conceptual framework presented appropriation as a requisite for individuals to be able to use ICT for their own development. Appropriation, according to van Dijk (2006), requires engaging in a never-ending cycle composed of four phases – motivation, material, skills and uses. These are represented in the theoretical framework used for this thesis as motivations, portfolio of resources and achieved functionings – each of which needs to be considered when adopting a new technology. In particular, the educational resources were operationalised using van Deursen and van Dijk's (2009) list of digital skills, composed of four kinds of skills: operational, formal, informational and strategic, each having a greater complexity but also greater impact on the individual's appropriation.

Thus, it can be argued that one of the roles of the intermediary is to facilitate that the individual experiences and learns about each appropriation phase and each type of skill, assisting the individual to appropriate the technology being learned, while providing skills that will help her appropriate any others that may come in the future. Accordingly, evidence presented in this thesis supports the idea that intermediaries, regardless of their methodologies, helped students to maintain their motivation to learn about ICT. Students not only felt they achieved what they aimed to learn by

attending the course, they also had new motivations to continue their learning. This may be due to an increase in their sense of choice about ICT. Data showed that when students started the courses they already had an idea of what ICTs were and what they could be used for. Nevertheless, these ideas were limited and the courses did aid the students to acknowledge other possible uses. Even students who reported knowing ICT skills prior to starting the course, indicated that the course had taught them new skills and had showed them new ICT uses that they had not known were possible, such as accessing public services online.

Interacting with an intermediary also improved their portfolio of resources in a range of ways, from increased educational resources (i.e. ICT skills) to improved psychological resources (i.e. greater self-esteem), as will be explained below. Yet, when the students' adaptive preferences were analysed, the process was indeed making a difference. Their adaptive preferences ranged from lack of trust in their own capacity for learning or putting others first so limiting the amount of time they expend on themselves, to limited aspirations or lack of vision for a future different from the arduous lifestyles of their family and/or friends. CDI's pedagogical methodology provided the students with additional information about programs and activities that they could execute on the computer and the internet. They facilitated dialogue with the students about safety and risks on the internet and encouraged them to use the internet towards collective action for social change. These different elements impacted on the students' sense of choice, challenged their adaptive preferences and strengthened their agency. However, adult participants showed greater changes than the younger participants when use of time was analysed. Evidence showed how adults started to dedicate time to learn, practice or play with the computer, time that was previously used in benefit of others. Moreover, some adult students also showed evidence of greater political awareness after the course, which is what Freire (1976) proposed as a way to challenge current social structures and promote development.

Regarding functionings – ICT usage, a range of different uses was analysed in Chapter 8. Some uses allowed participants from CDI and JC to expand their portfolio of resources; for instance, many adult participants were able to access public services via virtual mobility. Many participants, of all ages, reported an increase in social connectedness facilitated by social media. This in turn impacted positively on their psychological resources. Being able to apply for better jobs was also achieved by various participants at CDI and JC. This ability, however, was linked in particular to operational skills, such as being able to type at a reasonable

speed. In addition, one participant from CDI mentioned that learning about collaborative software –Google Docs, was helping her to work with a colleague at a distance, which shows some formal and information skills. This kind of example was not found from JC's students.

In conclusion, intermediaries play the important role of supporting the individual's appropriation of ICT. However, CDI's methodology was able to provide the students with a greater variety of skills than JC as will be explained below. This in turn impacted on how much the students could do with the technologies, enhancing or constraining their functionings. Accordingly, CDI's methodology was more successful in supporting a meaningful appropriation of the technology than JC. It could be argued that JC's methodology was also helping the individuals' appropriation, but did not help the students acquire the skills necessary to freely use the computer and the Internet.

Research Question 2 (RQ2): ***What resources do individuals need to meaningfully appropriate the computer and the internet?***

Reflecting back to the students' position prior to the course, how their portfolio of resources changed and what they were able to accomplish, shows some of the resources an individual requires to meaningfully appropriate the computer and the internet. The resources studied in this thesis were: material, geographical, time, information, psychological, educational, cultural and social. Regarding material resources, having free access to the computer and the internet allowed many participants to use these technologies, in particular, because they lacked financial resources. Yet, having ownership gave some participants the opportunity to practice the skills learned on the course, improving their skills over others who did not practice. It could be argued participants could practice at the free computer lab, however this relates to another resource: time. Participants had a limited amount of time, and adult participants in particular, had to make an effort to have the time required to attend the course. Consequently, having ownership of a computer and internet helped those who could practice at the random times they had free. This also highlights the importance of time as a resource for ICT appropriation. Time is not just required to use ICT, or to commute to the course location, it is also necessary to learn, experiment and test new skills.

In the case of geographical resources, these greatly impacted on the participants who did not own a computer. The closeness of the computer lab allowed them to be able to attend the course and to use ICT. Regarding educational resources, evidence showed all four types of skills, operational, formal, informational and strategic, mentioned by van Dijk (2011), do matter in allowing the students to have more meaningful uses of ICT. Operational skills allowed them to perform more technical tasks, for instance how to log in and to type, formal skills allowed them to send emails, to be able to exchange information with others, information skills permitted them to find relevant information about an specific goal, while strategic skills allowed them to use the computer and the internet as tools to solve their problems or to achieve goals. Although neither of the two organisations had the time to teach students all four kinds of skills in detail, CDI was able to introduce all four while JC only focused on basic operational skills. The superficial or initial understanding of all four kinds of skills that CDI's students acquired proved to be more important than being proficient in just operational skills.

Referring to psychological resources, having confidence was necessary for the students to try new skills. It was also possible to see that when students had family support (social resources) their confidence was greater than those who did not, helping them to be more secure and not afraid to fail while learning. The intermediary also played the role of providing support to the students while learning. With regards to information resources, it could be argued that more information expanded the participants sense of choice, which in turn opened up new opportunities for the students, making this also an important resource.

Finally, challenging cultural resources, for instance, internalised gender roles, proved to be a motivation for some students who dedicated more time to learn and practice ICT skills and to use ICT. Yet, all these resources (see Table 9-1) depend on the individual and her particular characteristics and context, as how these are then transformed into functionings depends on the interplay of all these elements. Table 9-1 summarises some of the resources found from the data, which related to increased meaningful ICT usage.

Material resources	Having access to a computer and internet connection.
Geographical resources	Having easy access to the location of the computer and the internet (could be as close as being at home, at a reasonable walking distance or accessible by other means of transportation available to the students).
Time resources	Having time to access the technologies, time to learn/practice old/new skills, time to use ICT.
Information resources	Having information about the opportunities available by using the computer and the Internet.
Psychological resources	Having the confidence to learn by yourself.
Educational resources	Initial knowledge of: operational, formal, information and strategic ICT skills.
Cultural resources	Challenge constraining internalised cultural discourses.
Social resources	Having the support of family/friends/teacher.

*Table 9-1: Resources for appropriation of the computer and the internet*

**Research Question 3 (RQ3): *Is there a relationship between conscientisation and meaningfully appropriating the computer and the internet?***

Appropriation here is understood as individuals being able to use ICT as tools to achieve what they value and have reason to value. If individuals are constrained by adaptive preferences, then achieving what they value will not lead to development. For instance, Joana's example (CDI student) in Chapter 8 showed how her internalised gender norms limited her ICT use, and when these internalised gender norms started to get challenged, she allowed herself more time to practice her skills and to use ICT in ways she was discovering she valued. Then, the conscientisation process, only used by CDI, provided extra help to the student to be able to identify what she valued and had reason to value, in relation to ICT uses, but also, this skill is expected to influence other aspects of her life, helping her improve her overall development. Consequently, conscientisation can be shown to be effective in aiding the individual to challenge her adaptive preference and to be able to appropriate the computer and the internet.

Research Question 4 (RQ4): ***Is there a relationship between meaningfully appropriating the computer and the internet and promoting social transformation?***

Evidence showed that social transformation was happening at two different levels in relation to CDI's efforts. The first was at the students' level. Some CDI students started to challenge some internalised social structures. This, with time, could lead to wider social change, although the data collected did not provide sufficient evidence to confirm this. On the other hand, CDI's methodology encouraged the carrying out of practical social interventions, which impacted on social structures twofold. First, it led students to start challenging their adaptive preferences, changing the way they saw themselves, from observers to agents. This, similarly to the example mentioned above, will lead to future changes. Second, as specific issues were tackled, for instance the park cleaned by Carmen's group or the letter of complaint by Francisco's group, other actors were also impacted, i.e. the community where the park was located and the institutions that received the complaints and reacted to these.

The second level at which social transformation happened was at the level of the organisation. CDI's multi-layered effort was providing an opportunity, to those who wanted to take it, to engage in a process of conscientisation, which involved not just individuals but CDI's partner organisations where these individuals came from. The support to the individuals via trainings and meetings was complemented by opportunities to engage with wider social issues. From the data collected, there is no evidence of a wider impact on social structures from CDI, but there is evidence of their efforts impacting positively on the CDI partner organisations, for instance, providing training that otherwise they would never be able to receive, which in turn serves communities beyond CDI's reach.

Evidence did show the intermediaries themselves are struggling with existing social structures. On the one hand, as institutions, they need financial resources to operate, which sometimes forces them to comply with rules from funders that, as shown in Chapter 7, constrain their monitoring and evaluation practices. On the other hand, the success of the intermediary relies on how well their staff are able to train the teachers, and how well teachers impart their lessons to the participants. As intermediaries are formed by individuals who are influenced by particular social structures, face different adaptive preferences, and have varied portfolios of

resources, these organisations need to address this complexity in order to guarantee their outcomes.

## **9.2 Theoretical contributions**

This thesis contributes to the growing literature in the Information and Communication Technologies for Development (ICT4D) field that uses the CA. Scholars in this field have argued for a more critical perspective of the concept of development, to keep focus on the individuals and to avoid failing to address social inequalities by prioritising the technologies (Kleine 2013; Oosterlaken and Hoven 2011; Zheng and Walsham 2008). Within the CA, this thesis also contributes to growing attempts to operationalise this approach, bringing its theoretical richness into practical applications (Ibrahim 2014). However, although the CA has invaluable merits, it has been subjected to criticism, in response to which this thesis contributes to the CA literature by proposing to integrate Paulo Freire's Pedagogy of the Oppressed into the CA and to strengthen concepts related to power, collective action and social change. This integration could be seen as a response to various authors who have called for a radicalisation of development practices, with particular reference to the CA (Frediani 2010), in order to promote emancipatory social change (Belda et al. 2012) that enhances individual capabilities as well as "valuable structures of living together" (Stewart and Deneulin 2002, p.9). In other words, they call for a development that focuses both on the individual and on social structures.

This thesis, contributes by proposing specific ways to integrate Freire's work into the CA. After analysing the strengths and weaknesses of both theories (Chapter 2) and based on evidence from the field (Chapters 6, 7 and 8), I argue conscientisation could be integrated into the CA: i) as a methodology to address and challenge individuals' adaptive preferences; ii) as an intrinsic characteristic of social arrangements to help focus on development that challenges current constraining social structures. Also, considering the result of conscientisation is critical transitive consciousness, I argue this kind of consciousness could be considered an essential characteristic of agency, one that allows individuals to enact their agency freedom, described as critical agency by some authors (Roberts 2015). If the individual is being oppressed, her choices may reflect someone else's choices: therefore, choices that may hinder her well-being as a trade-off of achieving other goals, may be considered valuable to the individual only if these reflect choices she has taken as a result of a critical reflection process.

This thesis contributes to the digital inclusion literature by integrating the CA, including Freire, into van Dijk's (2012) four successive phases for digital appropriation. Interweaving digital inclusion and the CA is seen as a way to focus the outcome of digital inclusion on human development. Accordingly, inspired by the choice framework (Kleine 2010; 2011b; 2013), the ICT Impact Chain (Gigler 2004, 2011) and van Dijk's digital appropriation phases, a framework was proposed to visualise the concepts explained above (see Figure 9-1). This framework aims to integrate the CA, the Pedagogy of the Oppressed and digital inclusion. This framework guided the work conducted with the partner organisations during fieldwork and was also used to analyse and interpret the data collected. This integration also contributes to the growing literature related to the operationalisation of the CA.

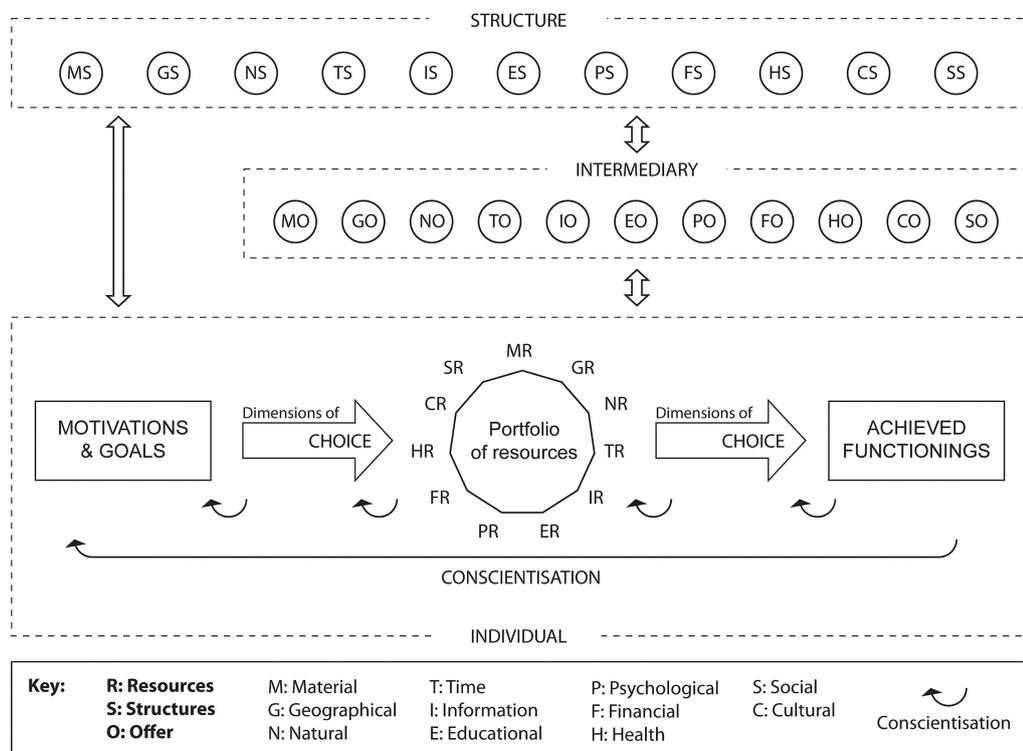


Figure 9-1: Appropriation for Development Framework. Developed by the Author based on Kleine (2013), Gigler (2011) and van Dijk (2012).

This thesis also aims itself at the gap in the literature identified by Gigler (2011), where he states that although having an intermediary proved to be useful, how these should approach the participants was unclear. In that respect, evidence presented in the empirical chapters supports the idea that intermediaries need to encourage conscientisation within their institutions and with their participants. Also, organisations need to acknowledge that their efforts with their participants are insufficient to change constraining social structures; therefore, their activities have to

reach beyond the boundaries of their organisations. CDI's organisational structure, for instance, is based on a network, working in partnership with other organisations to achieve their goals. This might not be the best, or only, way for an organisation to spread their efforts beyond themselves. However this goes beyond the scope of this thesis and may be touched upon in further research.

### **9.3 Methodological contributions**

As previously mentioned, operationalisation of the CA has been considered one of the main challenges of this approach. Kleine (2011b), explains that translating the conceptual richness of the approach into a "modus operandi" is still one of the main difficulties for CA adoption (*ibid.* p.119). In practical terms, to collect the wide informational base proposed by the CA, following an appropriate social choice exercise, requires a large amount of time and human and financial resources, which, it can be argued, are not always available for policy decision-making, development practice or research purposes.

This thesis aimed to contribute to this challenge by proposing a framework (Figure 9-1), which may be used with practitioners in the field to collect data using participatory methods. Accordingly, research done for this thesis tested these methods in the field. Participatory workshops were conducted with CDI to, collectively, first define what the concepts of the framework meant in practice, and second, to collect data about the intermediary's offer, as presented in Chapter 4. A questionnaire was designed as a result of this participatory process, which then facilitated the elaboration of visualisation diagrams showing the changes to the participants' portfolios of resources. This tool allowed for comparisons between different participants, different training courses and on each individual, changes between phase A and B. This tool (Figure 9-2) is also a contribution of how to operationalise and present information related to the CA. It aims to facilitate communication with stakeholders about the impacts of digital inclusion initiatives on the individuals undertaking courses, showing how their methodology does not only improve employability, but also helps the student to acquire a variety of soft skills which are not just valuable for the market place but for the well-being of the individual. It may also be used as a tool for conscientisation dialogue between teachers and students, like the dialogue I was able to have with students and staff in the various results workshops, as explained in Chapter 4. The methodology is

detailed in Chapter 4 and in Appendices 6 to 15, and can be replicated by any organisations seeing merit in it.

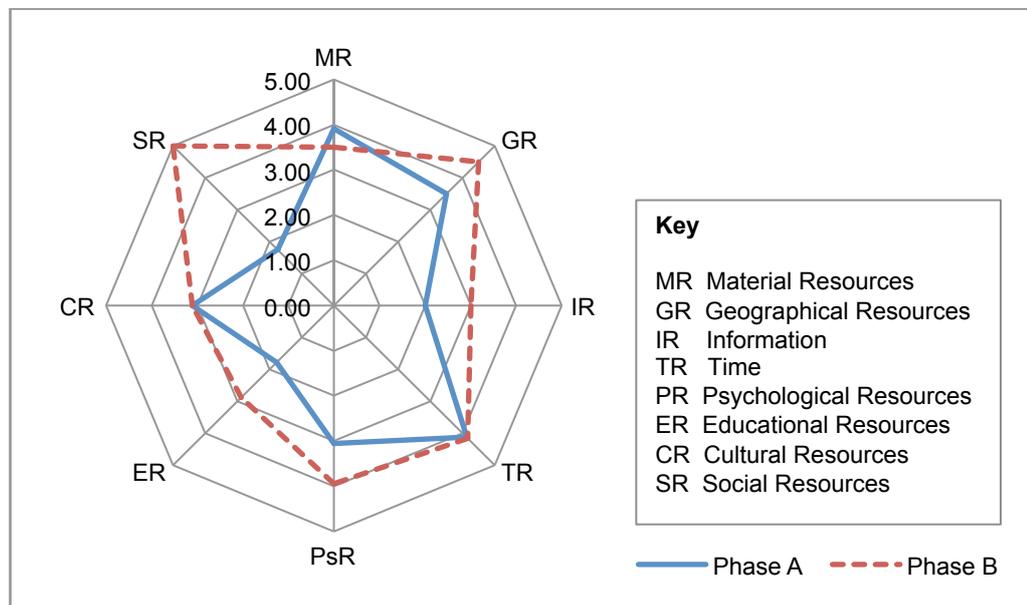


Figure 9-2: Example of a spiral web mapping: Each resource, calculated from data on the questionnaires, is placed on the web to visualise changes over time simultaneously.

Developed by the Author.

## 9.4 Empirical contributions

This thesis contributes to the literature on digital inclusion with a comparative study between two case studies, CDI and Jovem.com, an NGO and a Public Sector project respectively. Both cases are located in Campinas, Brazil, and offer digital inclusion courses for free to the most vulnerable populations of the city, thus permitting comparison between their practices. CDI's practices, inspired by Paulo Freire's methodology, were a good example to explore how Freire's ideas impacted on digital inclusion practices. It also provided an opportunity to combine the CA and Freire's work to study digital inclusion from a human development perspective. Work with CDI occurred using participatory approaches, defining together research objectives and research methodologies and methods to be used in the field, using the theoretical framework presented in Figure 9-1 as guidance. Work with JC can be considered more traditional and less participatory, as decisions agreed with CDI were reapplied in JC data collection. This was a decision made by Jovem.com, based on their lack of time and human resources to engage in participatory activities.

Data was collected from two groups of students from each organisation, using questionnaires, in depth-interviews and participant observation. Questionnaires and interviews occurred at the beginning and at the end of the courses that these students were attending. Course observation was undertaken in both organisations, and findings also drew on participant observation data.

As well as their courses, other activities undertaken by the two organisations were also observed and members of staff of CDI and JC were interviewed to provide evidence related to their practices. Data were then analysed using the theoretical framework proposed in Chapter 3. Results – coded data and spider diagrams - show that CDI has been able to translate Freire's methodology – used within a group - into a methodology to train and provide follow up and support to the teachers who would then train others. CDI's *Proposta Político-Pedagógica* (Pedagogic-political proposal - PPP), which was applied both in the classrooms and in every other activity they engaged with, was indeed scaling up Freire's methodology. However, CDI's PPP was not resolving the issue related to the necessary time and resources required to put this methodology into practice. Nevertheless, this is a contribution to the literature about Paulo Freire, especially addressing some of the criticisms Freire's pedagogy has received about the difficulties of scaling it up.

## **9.5 Suggestions for further research**

Limiting the study presented here to computers and the internet, on the one hand helped explore in depth the impact intermediaries had on students and on the other hand highlighted some areas that present great opportunities for further research. The first suggestion for further research is to study digital inclusion efforts that use other technologies besides computers and the internet. For instance, CDI's regional office in the UK has adapted their methodology to use App development instead of teaching basic ICT skills (CDI UK 2015). This is just to mention one example of others that may use mobiles or other ICTs to promote digital inclusion. Second, acknowledging the continuous evolution of information and communication technologies, blurring the boundaries of what used to be called new and old ICT, explained by the term media convergence, future research might explore the impact that intermediaries and digital skills courses have on the individual's relation with different media. Third, this study had a few teenage participants, which highlighted the need for further research on

critical and meaningful use of ICT by children and teenagers. This kind of research has to focus on ethics, security, and how to empower children and teenagers to face online dangers when unsupervised by any adults.

Fourth, regarding the theoretical framework, this study used only eight of the eleven resources proposed by Kleine's (2013) portfolio of resources. Further research is needed to investigate the impact of natural, health and financial resources on the individual's development. This research has to include how to collect data that might be sensitive for the individuals, such as revealing their actual financial struggles or any health conditions. Fifth, this research focused on collectives, applying Freire's ideas. However, the CA literature has also approached this subject and further research may consider focusing on the link between Freire and collective capabilities as seen by some authors working with the CA.

Sixth, I am aware that the data collection, as executed for this study, could be improved, which leads me to recommend for future research the simplification of the process to a level that could be adopted by practitioners in the field, enabling them to conduct evaluations inspired by the CA and the Pedagogy of the Oppressed, rather than performance assessments.

Finally, this thesis presented evidence supporting the value of adding conscientisation to digital inclusion programmes, as a way to guarantee that these social arrangements support the individuals' development while challenging their adaptive preferences. This combination aims to empower the individual to become a more engaged citizen, as one way in which the social structures that constrain her development will be challenged and changed. Governments do need the help of citizens to focus their efforts. However, this thesis focused only on digital inclusion programmes and it could be argued that conscientisation may be useful to any kind of social arrangements. So, although I will continue to research this field, I urge other researchers to also engage in further studies focusing on the relationship between conscientisation and social arrangements, to support governments and practitioners with evidence, methods for implementation and tools for monitoring and evaluation, to support development that aims for transformative outcomes using reformist and/or conformist efforts as a means towards transformation.

*[Final word count: 91,929 words]*

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## APPENDIX 1: Detail of Research Activities during Fieldwork

Date	Activity*	Role	Number of participants**	Length (hours per day)	Type of data collected
21-01-2013	Introduction meeting with the CDI's Pedagogical Coordinator	Organiser	1	2	Field notes
28-01-2013	Introduction meeting with CDI's Coordinator	Organiser	1	3	Field notes
29-01-2013	Introduction and conversations with CDI's Pedagogical team	Organiser	4	3	Audio recording, fieldnotes
01-02-2013	Attendance to CDI's Network bimonthly meeting	Participant – organised by CDI	30+	5	Field notes, photographs
04-02-2013	Attendance to CDI's Planning meeting	Participant – organised by CDI	12	4	Field notes
15-02-2013	Initial Participatory Workshop (day 1): settling objectives, goals and expectations, and, identifying current research tools	Organiser	9	8	Field notes, photographs, audio recording, secondary data
17 to 21-02-2013	Online discussion about research tools, questions and uses	Organiser	9	2	Field notes
22-02-2013	Initial Participatory Workshop (day 2): Defining our research questionnaire and implementation strategy	Organiser	9	4	Field notes, photographs, audio recording
22-02-2013	Attendance to the Forum da Cultura Digital de Campinas (Campinas's Digital Culture Forum)	Participant – organised by CDI	10+	2	Field notes
28-02-2013	Participatory workshop: identifying CDI's services offer	Organiser	9	5	Field notes, photographs, audio recording
08-02-2013	Meeting with Educator and Coordinator of each of the two sites chosen by CDI: Eufraten and EEE	Organiser	5	2	Field notes

<b>Date</b>	<b>Activity*</b>	<b>Role</b>	<b>Number of participants**</b>	<b>Length (hours per day)</b>	<b>Type of data collected</b>
06-03 to 03-07-2013	CDI's Social Educators training course. Every Wednesday mornings (8.00-12.30)	Participant – organised by CDI	14	4.5	Field notes, participatory observation, some interviews with participants
14-03-2013	Introduction meeting with Jovem.com Coordinator and Social Assistant	Organiser	2	2	Field notes
18-03 to 17-06-2013	Jovem.com Fellows Training sessions. Every Monday (8.00-12.00 and 14.00-18.00)	Participant – organised by Jovem.com	20	8	Field notes, participatory observation, some interviews with fellows
19-03 to 16-07-2013	Site 01 – CDI's Eufraten course (8.45 – 10.15)	Organiser	11 students, 1 teacher	1.5	Field notes, interviews, questionnaires, participatory observation
19-03 to 03-07-2013	Site 02 – CDI's EEE course (14.00 – 16.00)	Organiser	13 students, 1 teacher	2	Field notes, interviews, questionnaires, participatory observation
25-03 to 28-03-2013	Attendance to Semana da Cultura Digital (Digital Culture Week event)	Participant – organised by Forum da Cultura Digital	50+	6	Field notes, five interviews with speakers of the Forum
04-04 to 23-05-2013	Site 03 – Jovem.com Espaço Cultural EE –ECEE Telecentre (Cultural Space EE) (Thursday and Friday, 9.00 – 11.00)	Organiser	6 students, 1 teacher	2	Field notes, interviews, questionnaires, participatory observation
05-04-2013	Attendance to CDI's Network bimonthly meeting	Participant – organised by CDI	30+	5	Field notes, photographs, some interviews with participants
10-04 to 22-05-2013	Site 04 – Jovem.com Homem de Melo Telecentre (Wednesday and Friday, 14.00 to 16.00)	Organiser	7 students, 1 teacher	2	Field notes, interviews, questionnaires, participatory observation

<b>Date</b>	<b>Activity*</b>	<b>Role</b>	<b>Number of participants**</b>	<b>Length (hours per day)</b>	<b>Type of data collected</b>
08-04-2013	Seminar given to CDI's team about "Adaptive preferences"	Organiser	8	3	Field notes
13-04-2013	Attendance to the CDI's General Assembly	Participant – organised by CDI	15+	8	Field notes
06-06-2013	Mid-term workshop - Participatory workshop with CDI's team about second phase of data collection	Organiser	12	4	Field notes
14-06-2013	Attendance to CDI's Network bimonthly meeting	Participant – organised by CDI	30+	5	Field notes, photographs, some interviews with participants
21-06-2013	Participatory workshop: identifying Jovem.com services offer	Organiser	3	2	Field notes
15-07-2013	Seminar for Jovem.com Fellows: Presentation of results and discussions about ICT for Development	Organiser	20	4	Field notes, photographs
16-07-2013	Results presentation to CDI's Eufraten	Organiser	20+	4	Field notes, photographs
17-07-2013	Results/final workshop - Presentation of initial result to Jovem.com team and high-level representatives of the City Hall	Organiser	6	2	Field notes
22-07 to 25-07-2013	CDI's Coordinators training course. All week (8.00 - 12.30)	Participant – organised by CDI	8	4.5	Field notes, participatory observation, some interviews with participants
24-07-2013	Results/final workshop - Presentation of initial results to CDI's team and board members. Open discussion evaluating the results and research process	Organiser	10	4	Field notes, photographs

\* Individual interviews appointments have not been listed

\*\* Besides the researcher

## APPENDIX 2: CDI's letter of recommendation



Campinas, 26 de julho de 2013

Para quem solicitar:

A organização CDI Campinas - Comitê para Democratização da Informática, localizada na Cidade de Campinas, declara que a estudante Sammia Cristina Poveda, equatoriana, passaporte 1707955835, desenvolveu a sua pesquisa de doutorado junto à nossa Instituição. Seu trabalho foi realizado de forma participativa, usando seminários e reuniões não só para envolver a nossa equipe no seu trabalho, mas para que seu trabalho realmente represente a nossa realidade e possa ser usado novamente em nossa instituição. Além disso, a estudante ofereceu para a nossa instituição um curso básico de comunicação e uma formação para a equipe sobre "Preferências adaptativas". Ao finalizar as suas atividades conosco, a estudante realizou um seminário de apresentação e discussão dos resultados iniciais e das suas experiências durante estes meses em Campinas. É o nosso desejo continuar aplicando os instrumentos de pesquisa desenvolvidos, mas de forma imediata, a reflexão realizada na apresentação de resultados iniciais, já servem para aprimorar várias das nossas ações.

Agradecemos a disposição da estudante de se oferecer a continuar nos dando suporte virtual nos seguintes meses e aguardamos animadamente os resultados finais dessa pesquisa.

Este processo de pesquisa tem acrescentado além dos resultados, um aprendizado tanto para a equipe como para os nossos parceiros, educadores e coordenadores, e agradecemos as contribuições realizadas.

André Luís Bordignon  
Presidente CDI Campinas

Translation:

*Campinas, 26 July 2013*

*For anyone who asks:*

*The organisation CDI Campinas - Committee for the Democratization of Informatics, located in the City of Campinas, declares that the student Sammia Cristina Poveda, Ecuadorian, passport number 1707955835, developed her doctoral research together with our organisation. Her work was realised in a participatory manner, using seminars and meetings, not just to involve our team in her work, but to make her work to really represent our reality and for it to be able to be used by our institution. Besides this, the student offered to our institution a basic communications course and a training session for our team about "Adaptive Preferences". At the end of her activities with us, the student realised a presentation seminar and a discussion of the initial results and of her experiences during her months in Campinas. Is our wish to continue to apply the research instruments developed, but on a first instance, the reflection undertaken the presentation of the initial results, is already valuable to improve several of our practices.*

*We thank the disposition of the student, who offered to continue to give us virtual support during the next months, and we wait lively the final results of this research.*

*This research process has added beyond its results, it has been a learning experience both to our team and to our partners, teachers and coordinators, and we thank all the contributions made.*

*André Luís Bordignon  
President CDI Campinas*

## APPENDIX 3: JC's letter of recommendation



**PREFEITURA MUNICIPAL DE CAMPINAS**  
**Secretaria de Cidadania, Assistência e Inclusão Social**  
Avenida Anchieta, nº 200 – 12º Andar – Centro – Campinas/SP – CEP 13015-904

### DECLARAÇÃO

A Secretaria de Cidadania, Assistência e Inclusão Social – SMCAIS, da Prefeitura do Município de Campinas, **Declara** que a estudante **SAMMIA CRISTINA POVEDA**, equatoriana, passaporte **1707955835**, desenvolveu a sua pesquisa de doutorado junto ao nosso Programa, denominado **IOVEM.COM, no período de abril a julho de 2013**, constituindo de pesquisa de campo junto às atividades educativas desenvolvidas pelos bolsistas nos telecentros, e as atividades de formação desenvolvida pela equipe técnica junto aos bolsistas. Realizou também, duas apresentações de resultados parciais, uma para os bolsistas e outra para a equipe de gestão do **Programa Jovem.Com** e a Senhora Secretária Municipal Janete Aparecida Giorgetti Valente.

O estudo realizado pela doutoranda, junto ao **Programa do Jovem.Com**, foi bastante significativo para o momento de avaliação e reestruturação pelo qual está passando o Programa e os resultados apresentados servirão para alimentar o diagnóstico em processo, além de ter contribuído com aprendizado tanto para a equipe como para os bolsistas.

Agradecemos a colaboração da doutoranda e aguardamos os resultados finais da pesquisa.

Campinas, 25 de julho de 2013.

**JANETE APARECIDA GIORGETTI VALENTE**  
Secretária de Cidadania, Assistência e Inclusão Social

Translation:

**CITY HALL OF CAMPINAS**

**DECLARATION**

*The Municipal Secretary for Citizenship, Assistance and Social Inclusion – SMCAIS, of the City Hall of Campinas, **Declares** that the student **SAMMIA CRISTINA POVEDA**, Ecuadorian, passport **1707955835**, developed her doctoral research with our Programme, named **JOVEM.COM**, **from April to July 2013**, performing fieldwork together to the educational activities developed by the telecentre's fellows. She realised also, two presentations of partial results, one for the fellows and another for the management team of the **Jovem.com Programme** and Ms Municipal Secretary Janete Aparecida Giorgetti Valente.*

*The student realised by the student, together with the **Jovem.com Programme**, was very significant to the current situation of evaluation and restructuration our Programme is going through, and the results presented will serve to feed the diagnosis in process, besides having contributed with the learning both of the team and the fellows.*

*We thank the collaboration of the student and we look forward the final results of the research.*

*Campinas, 25 July 2013*

**JANETE APARECIDA GIORGETTI VALENTE**

*Secretary for Citizenship, Assistance and Social Inclusion*

#### APPENDIX 4: List of Interview Partners

	ID	Pseudonym	Occupation/Role	Age range	Age group	Gender	Interview		Questionnaires		Observation
							A**	B**	A**	B**	
CDI Students – CDI Comunidade Eufraten	1	Bruna*	Maid	51-60	Elder	F	x	x	x	x	x
	2	Clara*	Hairdresser	61-70	Elder	F	x	x	x	x	x
	3	Joana*	Housewife / retired hairdresser	61-70	Elder	F	x	x	x	x	x
	4	Mariana*	Housewife / Cashier in store owned by her and her husband	61-70	Elder	F	x	x	x	x	x
	5	Nicole*	Housewife	51-60	Elder	F	x	x	x	x	x
	6	Pilar*	Housewife / casual work as hairdresser	51-60	Elder	F	x	x	x	x	x
	7	Rae*	Housewife	51-60	Elder	F	x	x	x	x	x
	8		Unemployed	11-20	Young adult	M	x		x		x
	9	Sally*	Student	11-20	Teen	M	x		x		x
	10		Housewife	51-60	Elder	F			x		x
	11	Yara*	Housewife	51-60	Elder	F	x	x	x	x	x
CDI Students – CDI Comunidade EEE	12	Anna*	Housewife	31-40	Adult	F	x	x	x	x	x
	13	Daysi*	Housewife / casual work at husband's shop	21-30	Adult	F	x	x	x	x	x
	14	Jose*	Student	11-20	Teen	M	x	x	x	x	x
	15		Student	1-10	Child	F	x		x		x
	16		Student	11-20	Teen	F	x		x		x
	17	Jade*	Housewife / Informal employment	21-30	Adult	F	x	x	x	x	x
	18	Lucas*	Student	11-20	Teen	M	x	x	x	x	x
	19		Restaurant kitchen staff	51-60	Elder	F			x		x
	20	Rosa*	Student	11-20	Teen	F	x	x	x	x	x

	21	Regina*	Student	11-20	Teen	F	x	x	x	x	x
	22		Student	11-20	Teen	F	x	x	x	x	x
	23		Housewife / unemployed	41-50	Elder	F	x		x		x
	24		Student	11-20	Teen	M	x		x		x
<b>CDI Comunidade Teachers</b>	25	Carolina	Teacher at EEE			F		x			x
	26	Francisco	Teacher at Eufraten			M		x			x
	27	Paulo	Teacher other CDI Comunidade			M		x			
	28	Aline	Teacher other CDI Comunidade			F		x			
	29		Teacher other CDI Comunidade			F		x			
	30		Teacher other CDI Comunidade			M		x			
	31		Teacher other CDI Comunidade			F		x			
<b>CDI Local coordinators</b>	32		Coordinator of Eufraten			F		x			
	33		Technician at EEE			M		x			
<b>CDI Staff</b>	34	Carmen	Social Project Manager / Part-time university student			F		x			
	35	Valentina	Social Project Manager / Part-time university student			F		x			x
	36	Elsa	Coordinator			F		x			x
	37	Jeni	Administrator			F		x			
	38		Social Project Manager			M		x			
<b>CDI Directors</b>	39		Member of board of CDI's board of directors / Teacher at UNICAMP			M		x			
	40		Member of board of CDI's board of directors / Housewife			F		x			
<b>Jovem.com Students - Telecentre Espaço Cultural EE</b>	41	Aurora*	Housewife / Informal employment	31-40	Adult	F	x	x	x	x	x
	42	Eva*	Housewife / unemployed	31-40	Adult	F	x	x	x	x	x
	43	Kyara*	Single mother / unemployed	31-40	Adult	F	x	x	x	x	x
	44	Rute*	Housewife / unemployed	31-40	Adult	F	x	x	x	x	x
	45	Marta*	Housewife / Informal employment	21-30	Adult	F	x	x	x	x	x

<b>Jovem.com Students – Telecentro Homen de Melo</b>	46	Raquel*	Housewife / unemployed	31-40	Adult	F	x	x	x	x	x
	47		Student	11-20	Teen	F	x		x		
	48	Carlos*	Student	11-20	Teen	M	x	x	x	x	x
	49	Eduarda*	Single mother / unemployed	31-40	Adult	F	x	x	x	x	x
	50	Isabel*	Street sweeper	51-60	Elder	F	x	x	x	x	x
	51	Susana*	Student	11-20	Teen	F	x	x	x	x	x
	52	Simone*	Student	11-20	Teen	F	x	x	x	x	x
	53	Tereza*	Student	11-20	Teen	F	x	x	x	x	x
<b>Jovem.com Fellows</b>	54	Fabio	Jovem.com fellow – Monitor at Telecentre Espaço Cultural EE	21-30		M		x			x
	55	Gilberto	Jovem.com fellow and high school student – Monitor at Telecentre Homen de Melo	11-20		M		x			x
	56		Jovem.com fellow and high school student	11-20		F		x			
	57		Jovem.com fellow and high school student	11-20		F		x			
	58		Jovem.com fellow			M		x			
	59		Jovem.com fellow and high school student	11-20		F		x			
	60		Jovem.com fellow and high school student	21-30		M		x			
	61		Jovem.com fellow and high school student	11-20		F		x			
	62		Jovem.com fellow	11-20		F		x			
	63		Jovem.com fellow and high school student	21-30		F		x			
	64		Jovem.com fellow and high school student	11-20		M		x			
	<b>Jovem.com Local Coordinators</b>	65		Coordinator of ECEE	31-40		F		x		
66			Coordinator of Homen de Melo	31-40		F		x			

<b>Jovem.com Staff</b>	67	Sonia	Coordinator	41-50		F		x			
	68	Tania	Supervisor	41-50		F		x			x
	69	Ines	Supervisor	41-50		F		x			x
	70		Outsourced Teacher	31-40		M		x			x
<b>Speakers at Digital Culture Week</b>	71		Militant of the Open Software Movement	41-50		M					
	72		Manager of the Collective Unicomlivre	31-40		F					
	73		Teacher at the <i>Pontificia Universidade de Campinas</i> (Campinas Pontifical University) / Campinas City Councilman	31-40		M					
	74		Militant at the <i>Forum de Hip Hop</i> (Hip Hop Forum) and <i>Grupo Kilombagem</i> (Kilombagem Group)	31-40		M					
	75		Journalist and Editor of the Magazine "A Rede"	41-50		F					
<b>TOTAL</b>				<b>75</b>			<b>35</b>	<b>61</b>	<b>37</b>	<b>28</b>	<b>45</b>

\* Twenty eight students with a Complete set of data

## **APPENDIX 5: Key used in data collection**

S	Students
T	Teachers
C	Local Coordinator
M	Manager at CDI or Jovem.com
QI	Questions Interview
QQ	Questions Questionnaire
a	Phase A
b	Phase B

## **APPENDIX 6: Students' Interview Guideline Phase A**

- Q1a-S-01: What is your name, your age and what do you do on a daily basis?
- Q1a-S-02: Can you please tell me about yourself, so I can get to know you a bit better
- Q1a-S-03: Tell me step-by-step what you do in a normal weekday
- Q1a-S-04: Tell me step-by-step what you do in a normal weekend-day
- Q1a-S-05: Where do you live?
- Q1a-S-06: Can you tell me the things you like the most about living there?
- Q1a-S-07: Can you tell me more about those things you dislike about living there?
- Q1a-S-08: Besides studying here, do you attend any other courses or belong to any other groups?
- Q1a-S-09: Can you tell me a something challenging you experienced and how you faced it?
- Q1a-S-10: How did you know about this course?
- Q1a-S-11: Why did you want to do this course?
- Q1a-S-12: Have you ever used a computer before?
- Q1a-S-13: What would you do with the computer after you learn how to use it?
- Q1a-S-14: How do you envision your live in 10 years from today?
- Q1a-S-15: What do you thing Digital Culture means?

## **APPENDIX 7: Students' Interview Guideline Phase B**

- Q1b-S-01: Verify if anything in their lives have changed:  
(a) Address  
(b) Civil Status  
(c) Labour Status
- Q1b-S-02: What ICT skills did you cover in this course?
- Q1b-S-03: Which ICT skills were new for you?
- Q1b-S-04: Was there anything you learned the computer could do, you did not know about before the course?
- Q1b-S-05: Besides computers and the Internet, did you talk about anything else in the classroom?
- Q1b-S-06: What do you feel you learned?
- Q1b-S-07: Did you idea about what a computer is for changed in any way after finishing the course?
- Q1b-S-08: Do you think you have learned enough with this course to continue by yourself or do you feel you need to attend more courses?
- Q1b-S-09: Are you using the computer in new ways? Can you give me an example? Is there any activities you want to do from now on?
- Q1b-S-10: Everything can be good and/or bad:  
(a) For you, do you think the computer and the internet have positive features?  
(b) Any negative ones?
- Q1b-S-11: Did you like the course? Can you explain why?
- Q1b-S-12: Would you recommend it to other people? If yes, what would you say?
- Q1b-S-13: How is your life at home. When you face any challenge, who do you talk to or ask for help?
- Q1b-S-14: If nobody is home, what do you do?
- Q1b-S-15: What are the responsibilities of women and the responsibilities of men?
- Q1b-S-16: You responded in the questionnaire you participated (or not) of a religious group. Do you still engage with the group? Why you engage with them?
- Q1b-S-17: You responded in the questionnaire you participated (or not) of a community association. Do you still engage with the group? Why you engage with them?

- Q1b-S-18: How do you related with the community where you live? If yes, what do you do? If no, why not? Would you like to do something?
- Q1b-S-19: You responded in the questionnaire you participated (or not) of a political group. Do you still engage with the group? Why you engage with them?
- Q1b-S-20: Do you engage with the politics of your city (Campinas) or the politics of your country? Why yes/no?
- Q1b-S-21: When you want to know more about something, do you watch TV, listen to radio or read the journal? What else do you do to obtain the information?
- Q1b-S-22: Did anything changed in your life because of this course?
- Q1b-S-23: What do you thing of the demonstrations that are occurring everywhere in Brazil? Did you joined any of the ones happening in Campinas?
- Q1b-S-24: How do you envision your live in 10 years from today?

## APPENDIX 8: Manager's Interview Guideline

- Q1a-M-01: Name
- Q1a-M-02: Role at *CDI Comunidade/Jovem.com*, what are your tasks?
- Q1a-M-03: Do you have another role at your home institution?
- Q1a-M-04: Did you receive any training at CDI/Jovem.com to fulfil your role?
- Q1a-M-05: If yes, what do you think about the training?
- Q1a-M-06: On your opinion, what are the objectives of the courses offered to the managers by CDI/Jovem.com?
- Q1a-M-07: Do you agree with these objectives? Would you change anything?
- Q1a-M-08: On your opinion, what are the objectives of the courses offered to the community by the *CDI Comunidade/Jovem.com*?
- Q1a-M-09: Do you agree with these objectives? Would you change anything?
- Q1a-M-10: Which is the objective/mission of the home institution where you work?
- Q1a-M-11: What are the services offered to the community?
- Q1a-M-12: How do you finance your activities?
- Q1a-M-13: What is your target audience?
- Q1a-M-14: What does promoting Digital Culture or Inclusion means to you?
- Q1a-M-15: What are the main challenges of implementing CDI/Jovem.com's methodology?
- Q1a-M-16: Which are the advantages, in your opinion, of this methodology?
- Q1a-M-17: Have you ever received any complaints? If yes, which ones?
- Q1a-M-18: How do you interact with the students?
- Q1a-M-19: What results do you expect from the students after they finish the course?

## APPENDIX 9: Teachers' Interview Guideline

- QI-T-01: Name
- QI-T-02: Role at *CDI Comunidade/Jovem.com*, what are your tasks?
- QI-T-03: Do you have another role at your home institution?
- QI-T-04: Did you receive any training at CDI/Jovem.com to fulfil your role?
- QI-T-05: If yes, what do you think about the training?
- QI-T-06: On your opinion, what are the objectives of the courses offered to the teachers by CDI/Jovem.com?
- QI-T-07: Do you agree with these objectives? Would you change anything?
- QI-T-08: On your opinion, what are the objectives of the courses offered to the community by the *CDI Comunidade/Jovem.com*?
- QI-T-09: Do you agree with these objectives? Would you change anything?
- QI-T-10: Which is the objective/mission of the home institution where you work?
- QI-T-11: What are the services offered to the community?
- QI-T-12: How do you finance your activities?
- QI-T-13: What is your target audience?
- QI-T-14: What does promoting Digital Culture or Inclusion means to you?
- QI-T-15: What are the main challenges of implementing CDI/Jovem.com's methodology?
- QI-T-16: Which are the advantages, in your opinion, of this methodology?
- QI-T-17: Have you ever received any complaints? If yes, which ones?
- QI-T-18: How do you interact with the students?
- QI-T-19: What is the focus during your classes? Just computing?
- QI-T-20: How do you monitor free access? Do you guide people in any way?
- QI-T-21: How do you evaluate your students? What results do you expect from the students after they finish the course?

## APPENDIX 10: Coordinator's Interview Guideline

- QI-C-01: Name, role at the home institution
- QI-C-02: Role at *CDI Comunidade/Jovem.com*, what are your tasks?
- QI-C-03: Did you receive any training at CDI/Jovem.com to fulfil your role?
- QI-C-04: If yes, what do you think about the training?
- QI-C-05: On your opinion, what are the objectives of the courses offered to the Coordinators by CDI/Jovem.com?
- QI-C-06: Do you agree with these objectives? Would you change anything?
- QI-C-07: On your opinion, what are the objectives of the courses offered to the community by the *CDI Comunidade/Jovem.com*?
- QI-C-08: Do you agree with these objectives? Would you change anything?
- QI-C-09: Which is the objective/mission of the home institution where you work?
- QI-C-10: What are the services offered to the community?
- QI-C-11: How do you finance your activities?
- QI-C-12: What is your target audience?
- QI-C-13: What does promoting Digital Culture or Inclusion means to you?
- QI-C-14: What are the main challenges of implementing CDI/Jovem.com's methodology?
- QI-C-15: Which are the advantages, in your opinion, of this methodology?
- QI-C-16: Have you ever received any complaints? If yes, which ones?
- QI-C-17: How do you interact with the students?
- QI-C-18: What results do you expect from the students after they finish the course?

## APPENDIX 11: Students' Questionnaire 01 Phase A

Dear Participant:

Thank you so much for your time. The questionnaires, interviews and observation that will be conducted by the teachers and the student Sammia Poveda (University of London), are part of a pilot project developed together between CDI Campinas, Jovem.com and the student. This project has two main objectives:

- 1) Test new tools for data collection, with the aim of improve monitoring and evaluation practices of both organisations mentioned
- 2) Collect data for a doctorate project about digital culture.

Your participation in this research is completely voluntary. To make this clear (i) you can skip any question you don't feel comfortable with; (ii) all data collected will be treated with care and will be anonymised; (iii) you can choose to stop participating any time and for any reason.

By filling the following questionnaire, you are accepting to participate in this research. Thank you in advance for your time in filling this form and help us improve our practices.

QQa-S-001: Full name

QQa-S-002: Age, date of birth

QQa-S-003: ID number

QQa-S-004: Female \_\_\_ Male \_\_\_

QQa-S-005: Race (choose one): \_\_\_ Mixed, \_\_\_ Asian, \_\_\_ Black  
\_\_\_ White, \_\_\_ Indigenous, \_\_\_ Other

### **You and the Digital Inclusion Organisation**

QQa-S-006: Explain in your own words why you chose this organisation to take the course and not any other school/institution.

Please, indicate how much you agree or not with the following phrases about the location of this organisation: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

- QQa-S-007: This organisation is located in a place easy to find.
- QQa-S-008: Any person (with or without a disability, for instance, a wheelchair user) can access the classroom with ease.
- QQa-S-009: I can walk from my house to the organisation in less than 20 minutes.
- QQa-S-010: I can take public transport to arrive close to the organisation (bus stop located within at least 5 minute walk).
- QQa-S-011: Anyone in my community knows where this organisation is located
- QQa-S-012: I know everything that is offered by this organisation.
- QQa-S-013: I rather attend this course than staying at home during my free time .
- QQa-S-014: I had to find time and organise my responsibilities to be able to attend to this course.

Please, indicate how much you agree or not with the following phrases about the objective of the course you are taking: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

- QQa-S-015: The objective of this course is to qualify me for the labour market.
- QQa-S-016: The objective of this course is to teach me how to use a computer and various software.
- QQa-S-017: The objective of this course is to help me find a new or better job.
- QQa-S-018: The objective of this course is to get to know better my community.
- QQa-S-019: The objective of this course is to improve the quality of my life
- QQa-S-020: The objective of this course is to learn about citizenship

### **You and computers**

- QQa-S-021: Have you ever used a computer?  
 Yes  No (If no, go to question 30)
- QQa-S-022: Choose ALL places where you have used a computer  
 Home  
 Work place  
 LanHouse  
 School  
 Free access location (Telecentro, CDI Comunidade, others)  
 Friends or family
- QQa-S-023: Indicate with what frequency you use the computer per month.  
 Choose ONE option.  
 Every day  
 Every two days

- One time per week
- Two times per month
- Once per month

QQa-S-024: Indicate how much you pay to use a computer

- I do not pay
- From R\$1 a R\$15
- From R\$16 a R\$30
- From R\$31 a R\$45
- More than de R\$46

QQa-S-025: Have you ever used the Internet?

- Yes  No (If no, go to question 30)

QQa-S-026: Indicate what type of internet you use

- Wide band (cable)
- Dial-up (telephone)
- 3G (modem)
- Other or I don't know

QQa-S-027: Choose ALL places where you have used the Internet

- Home
- Work place
- LanHouse
- School
- Free access location (Telecentro, CDI Comunidade, others)
- Friends or family

QQa-S-028: Indicate with what frequency you use the internet per month. Choose ONE option.

- Every day
- Every two days
- One time per week
- Two times per month
- Once per month

QQa-S-029: Indicate how much you pay to use the Internet

- I do not pay
- From R\$1 a R\$15
- From R\$16 a R\$30
- From R\$31 a R\$45
- More than de R\$46

QQa-S-030: Explain with your own words for what purposes do you want to use the computer and the internet (If you have never used these before, after completing this question, go to question 32)

QQa-S-031: Please organise the following programs in order of which one is the most important to you (10) to the least important (1). For example, if you have just used Facebook and Word, and you like Facebook best, write 10 besides this program, and 9 besides Word, leaving the rest blank.

- \_\_\_ Word (or similar)
- \_\_\_ Excel (or similar)
- \_\_\_ PowerPoint (or similar)
- \_\_\_ Paint (or similar)
- \_\_\_ Wikipedia
- \_\_\_ Facebook
- \_\_\_ Twitter
- \_\_\_ Google Search Engine
- \_\_\_ YouTube
- \_\_\_ Online games

Please, indicate how much you agree or not with the following phrases about the uses of a computer and the Internet: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

QQa-S-032: Email, Facebook, Twitter, or other social media help people to communicate with others faster and cheaper than other media.

QQa-S-033: Learning new abilities such as cooking, knitting, fixing a bicycle or even graduating from university, is easier if you use the Internet.

QQa-S-034: The internet offers much more possibilities for entertainment than traditional media like TV or radio.

QQa-S-035: Buying things through the internet is easier than going to a store.

QQa-S-036: I rather use online government services than going in person to a public office.

QQa-S-037: I can talk with politicians using the Internet.

### **More about you**

QQa-S-038: Indicate the total income of your family

- \_\_\_ No income

- Till 1 minimum wage
- From 1 to 2 minimum wages
- From 3 to 4 minimum wages
- More than 5 minimum wages

QQa-S-039: How many people live in your house \_\_\_\_\_

QQa-S-040: Of these, how many are employed \_\_\_\_\_

QQa-S-041: Indicate your labour status

- Unemployed
- Autonomous
- Legally employed
- Housework
- Pensioner
- Retired
- Student

QQa-S-042: Indicate your personal income

- No income
- Till 1 minimum wage
- From 1 to 2 minimum wages
- From 3 to 4 minimum wages
- More than 5 minimum wages

QQa-S-043: Indicate ALL the government resources your family receives

- CACO - Pront
- Bolsa Família
- Renda Cidadã
- Viva Leite
- PAS Paulínea
- Ação Jovem
- BPC Idoso
- BPC Deficiente
- Alimony
- Others

QQa-S-044: Civil Status

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Single       | <input type="checkbox"/> Married   |
| <input type="checkbox"/> Stable union | <input type="checkbox"/> Separated |
| <input type="checkbox"/> Divorced     | <input type="checkbox"/> Widow     |
| <input type="checkbox"/> Other        |                                    |

QQa-S-045: Do you have children?

Yes  No (if no, please go to question 47)

QQa-S-046: How many children \_\_\_\_\_

QQa-S-047: Indicate your level of schooling acquired by you. Choose ONE.

No schooling

Incomplete Elementary School

Complete Elementary School

Incomplete High School

Complete Technical High School

Incomplete Technical High School

Complete High School

Incomplete University Education

Complete University Education

Post graduation

QQa-S-048: Have you ever taken other ICT skills' course?

Yes  No

QQa-S-049: If yes, indicate the name of the course and the school/institution where you took the course.

QQa-S-050: Without considering ICT courses, are you taking other courses?

Yes  No (if no, please go to question 52)

QQa-S-051: If yes, indicate the name of the course and the school/institution where you took the course.

### **Contact details**

QQa-S-052: Address:

QQa-S-053: Neighbourhood:

QQa-S-054: Post Code:

QQa-S-055: City:

QQa-S-056: Land line number:

QQa-S-057: Mobile number:

QQa-S-058: E-mail

## APPENDIX 12: Students' Questionnaire 02 Phase A

### You and your free time

QQa-S-059: After you finish all your daily responsibilities, at school and/or home, and/or work, do you have any free time to do what ever you want?

Yes  No (if no, please go to question 521)

QQa-S-060: How many hours do you think you have per day? Choose one of the following options.

One hour or less per week

One hour every two days

Less than an hour per day

Between one and three hours per day

Four or more hours per day

How do you use your time when you are alone. Below you will find various activities.

Please choose the phrase that reflects the most to what you think of each one:

QQa-S-061: Reading

I like it very much, I do it all the time

I do it whenever possible

I have done this, I do not like or dislike it

I have never done this

I do not like this, I will never do it

QQa-S-062: Watching TV or listening on the radio entertainment shows

I like it very much, I do it all the time

I do it whenever possible

I have done this, I do not like or dislike it

I have never done this

I do not like this, I will never do it

QQa-S-063: Watching TV or listening on the radio cultural/educational shows

I like it very much, I do it all the time

I do it whenever possible

I have done this, I do not like or dislike it

I have never done this

I do not like this, I will never do it

QQa-S-064: Paint, knit, building cars or any other manual activities

I like it very much, I do it all the time

- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQa-S-065: Play outdoor games, play cards, walk for pleasure, or any other outdoor activities

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQa-S-066: Visit cultural places such as libraries, museums, others

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQa-S-067: Do sports or some physical activity

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQa-S-068: Sleep or rest, without doing anything in particular

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

How do you use your time when you are with friends/family or other people?. Below you will find various activities. Please choose the phrase that reflects the most to what you think of each one:

QQa-S-061: We read, study or discuss current issues

- We like it very much, we do it all the time
- We do it whenever possible
- We have done this, we do not like or dislike it

- We have never done this  
 We do not like this, we will never do it
- QQa-S-062: We Watch TV or listen on the radio entertainment shows  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it  
 We have never done this  
 We do not like this, we will never do it
- QQa-S-063: We Watch TV or listen on the radio cultural/educational shows  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it  
 We have never done this  
 We do not like this, we will never do it
- QQa-S-064: We paint, knit, building cars or any other manual activities  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it  
 We have never done this  
 We do not like this, we will never do it
- QQa-S-065: We play outdoor games, play cards, walk for pleasure, or any other outdoor activities  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it  
 We have never done this  
 We do not like this, we will never do it
- QQa-S-066: We visit cultural places such as libraries, museums, others  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it  
 We have never done this  
 We do not like this, we will never do it
- QQa-S-067: We do sports or some physical activity  
 We like it very much, we do it all the time  
 We do it whenever possible  
 We have done this, we do not like or dislike it

- We have never done this
- We do not like this, we will never do it

QQa-S-068: We sleep, rest, without doing anything in particular

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

### **You and your relationships**

QQa-S-077: Do you have anyone at home that helps you with your problems, to whom you can talk about personal issues

- Yes  No (If no, please go to question 80)

QQa-S-078: Choose all the people that provide support to you at home

- Mother
- Father
- Daughter/Son
- Aunt/Uncle
- Sister/Brother
- Grandmother/Grandfather

QQa-S-079: Choose ONE phase that shows the kind of relationship you have with the people you mentioned above:

- They always support me with everything I do. They talk to me and give me advice.
- They help me, but only when I ask for help.
- They help me when I ask, but they get annoyed.
- They think I cause too much trouble, so if I ask for help, they expect the worst.
- I never ask for help, as I know they will not help me.

QQa-S-080: Do you participate in any religious group?

- Yes  No (If no, please go to question 82)

QQa-S-081: How frequent do you attend to their meetings?

- I go to all their meetings.
- I try to go to all of them, however I sometimes miss some.
- Maybe I go to half of them,
- Only once in a while.
- Rarely, maybe on special occasions.

QQa-S-082: Do you participate in any group at your community, for instance, a community centre?

Yes  No (If no, please go to question 84)

QQa-S-083: How frequent do you attend to their meetings?

I go to all their meetings.

I try to go to all of them, however I sometimes miss some.

Maybe I go to half of them,

Only once in a while.

Rarely, maybe on special occasions.

QQa-S-084: Do you belong to any political party, or any other group that discusses political issues?

Yes  No (If no, please go to question 86)

QQa-S-085: How frequent do you attend to their meetings?

I go to all their meetings.

I try to go to all of them, however I sometimes miss some.

Maybe I go to half of them,

Only once in a while.

Rarely, maybe on special occasions.

### **You and your community**

Please indicate or not whether you know if there are the following services at your community

QQa-S-086: Nurseries?  Yes  No  I do not know

QQa-S-087: Elementary schools?  Yes  No  I do not know

QQa-S-088: High Schools?  Yes  No  I do not know

QQa-S-089: Technical High Schools?  Yes  No  I do not know

QQa-S-090: Universities?  Yes  No  I do not know

QQa-S-091: Technical/professional courses?  Yes  No  I do not know

QQa-S-092: Community centre or similar?  Yes  No  I do not know

QQa-S-093: Police stations?  Yes  No  I do not know

QQa-S-094: Hospitals or health centres?  Yes  No  I do not know

QQa-S-095: Libraries?  Yes  No  I do not know

QQa-S-096: Cinema, museums or other cultural places?  Yes  No  I do not know

Please, indicate how much you agree or not with the following phrases about your community: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

QQa-S-097: People admire those with higher schooling levels

- QQa-S-098: People with certain last names are more respected than others
- QQa-S-099: Women and men are treated the same, for example, they have the same work opportunities
- QQa-S-100: Everyone, regardless of their race, are treated the same way
- QQa-S-101: The religion you practice may cause you to be discriminated
- QQa-S-102: Children, youth, adults and elder people are all treated with respect
- QQa-S-103: The street (community) where you live may cause you to be discriminated.

### **Self-evaluation**

Please, indicate how much you agree or not with the following phrases about yourself: (Completely agree, Agree, I don't know, Disagree, Completely Disagree). Try to be honest, there is no right or wrong answer.

- QQa-S-104: I think I can resolve the problems at my community if others help me.
- QQa-S-105: I listen what other people say.
- QQa-S-106: When I work in teams, I like to lead or to be the one responsible for organising the group.
- QQa-S-107: I like helping others to resolve their problems.
- QQa-S-108: Before studying or working, I see how much time I have available and plan my activities.
- QQa-S-109: When I decide something, I trust my decision.
- QQa-S-110: I feel OK about myself, even if others tell me bad comments.
- QQa-S-111: Even if it represents more work, I like fixing things my way.
- QQa-S-112: I believe I will have a good life I the future.

### **The media in your community**

- QQa-S-113: Do you have a community radio where you live?  
 Yes  No  I do not know (If no/don't know, go to question 117)
- QQa-S-114: How often you listen to this radio?  
 Everyday  
 Three to Four times a week  
 Once per week  
 Once per month  
 I never used it
- QQa-S-115: What do you think about the quality of this radio?  
 Very good  
 Good

Not good or bad

Bad

Very bad

QQa-S-116: If you know, please write the name of the radio

QQa-S-117: Do you have any community TC channel where you live?

Yes  No  I do not know (If no/don't know, go to question 117)

QQa-S-118: How often do you watch this TV channel?

Everyday

Three to Four times a week

Once per week

Once per month

I never used it

QQa-S-119: What do you think about the quality of this TV channel?

Very good

Good

Not good or bad

Bad

Very bad

QQa-S-120: If you know, please write the name of the TV channel

QQa-S-121: Is there any blog/s or web pages made by people of the community where you live?

Yes  No  I do not know (If no/don't know, go to question 117)

QQa-S-122: How often do you use this blog/web page?

Everyday

Three to Four times a week

Once per week

Once per month

I never used it

QQa-S-123: What do you think about the quality of this blog/web page?

Very good

Good

Not good or bad

Bad

Very bad

QQa-S-124: If you know, please write the name of the blog/web page

QQa-S-125: Is there any journal, magazine or other printed materials made by people of your community?

Yes  No  I do not know (If no/don't know, go to question 117)

QQa-S-126: How often you read this materials?

Everyday

Three to Four times a week

Once per week

Once per month

I never used it

QQa-S-127: What do you think about the quality of this printed material?

Very good

Good

Not good or bad

Bad

Very bad

QQa-S-128: If you know, please write the name of the printed material

**Thank you!**

## APPENDIX 13: Students' Questionnaire Phase B

Full name \_\_\_\_\_

QQb-S-001: After all you learned, can you write in your own words THREE REASONS why do you want to use the computer and the Internet.

Please, indicate how much you agree or not with the following phrases about the location of this organisation: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

QQb-S-002: It was easy to arrive to this location at the time of the course.

QQb-S-003: I spend little or nothing to get to this location to attend the course

QQb-S-004: I know everything that is offered by this organisation.

QQb-S-005: I want to learn more and I will attend more courses

QQb-S-006: I organise my time so I can use the computer and the internet often and use skills I learned.

What did you learn? Please, indicate how much you agree or not with the following phrases about the course you took: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

QQb-S-007: It helped me to improve my qualifications to access the labour market

QQb-S-008: I learned to use well the computer and various programs

QQb-S-009: The course helped me find a better job

QQb-S-009: I got to know better my community

QQb-S-010: I learned how to improve the quality of my live

QQb-S-011: I learned various things about citizenship

QQb-S-012: Choose all the programs you know how to use

Word (or similar)

Excel (or similar)

PowerPoint (or similar)

Paint (or similar)

Wikipedia

Facebook

Twitter

Google Search Engine

YouTube

Online games

QQb-S-013: From the list below, choose the THREE ACTIVITIES you do more often when you use the Internet

Watch entertainment content (for example: YouTube videos about jokes or music)

Talk with others (for example: Facebook, Twitter, email)

Search for information (for example: Google Search, Wikipedia)

Play with online games

Play with educational online games

Search information about the government services or use online governmental services

Look form job vacancies or search for information to help me on my current job

Study online

QQb-S-014: Choose at least THREE PROGRAMS you like the most and indicate why you like it and what you use it for.

Please, indicate how much you agree or not with the following phrases about the uses of a computer and the Internet: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

QQb-S-015: Email, Facebook, Twitter, or other social media help people to communicate with others faster and cheaper than other media.

QQb-S-016: Learning new abilities such as cooking, knitting, fixing a bicycle or even graduating from university, is easier if you do them on the Internet.

QQb-S-017: The internet offers much more possibilities for entertainment than traditional media like TV or radio.

QQb-S-018: Buying things through the internet is easier than going to a store.

QQb-S-019: I rather use online government services than going in person to a public office.

QQb-S-020: I can talk with politicians using the Internet.

### **You and your time**

QQb-S-021: How many hours do you think you have per day?

One hour or less per week

One hour every two days

Less than an hour per day

- Between one and three hours per day
- Four or more hours per day
- I do not have free time

When you are alone, what activities do you do? Below you will find various activities.

Please choose the phrase that reflects the most to what you think of each one:

QQb-S-022: I read books, magazines, others

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-023: I like watching soap operas or entertainment shows in the TV or listening the radio, or I use the internet to use Facebook or online games

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-024: I like watching documentaries or other educational programs in the TV or to listen to cultural shows in the radio, or I use the internet to learn new things

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-025: I like manual activities like painting, knitting or fixing things

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-026: I like to go for walks or to play cards, or any games I can play alone

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-027: I visit museums or go to music shows

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-028: I do sports or other physical activities

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-029: I take naps or do nothing in particular

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

When you are with other people, what activities do you do? Below you will find various activities. Please choose the phrase that reflects the most to what you think of each one:

QQb-S-030: We read, study or discuss current issues

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-031: We watch soap operas or other entertainment shows in the TV or listen on the radio entertainment shows or we use the internet to use Facebook or play online games

- I like it very much, I do it all the time

- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-032: We like watching documentaries or other educational programs in the TV or to listen to cultural shows in the radio, or we use the internet to learn new things

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-033: We like getting together to do manual activities like painting, knitting or fixing things

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-034: We like to take walks, play games or go together to parties

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-035: We visit museums or go to music shows

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this
- I do not like this, I will never do it

QQb-S-036: We do sports or other physical activities

- I like it very much, I do it all the time
- I do it whenever possible
- I have done this, I do not like or dislike it
- I have never done this

- \_\_\_ I do not like this, I will never do it
- QQb-S-037: We sleep, rest, without doing anything in particular
- \_\_\_ I like it very much, I do it all the time
- \_\_\_ I do it whenever possible
- \_\_\_ I have done this, I do not like or dislike it
- \_\_\_ I have never done this
- \_\_\_ I do not like this, I will never do it

### **You and your community**

Please indicate or not whether you know if there are the following services at your community

- QQb-S-038: Nurseries? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-039: Elementary schools? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-040: High Schools? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-041: Universities? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-042: Technical/professional courses? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-043: Community centre or similar? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-044: Police stations? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-045: Hospitals or health centres? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-046: Libraries? \_\_\_ Yes \_\_\_ No \_\_\_ I do not know
- QQb-S-047: Cinema, museums or other cultural places? \_Yes \_No \_I do not know

Please, indicate how much you agree or not with the following phrases about your community: (Completely agree, Agree, I don't know, Disagree, Completely Disagree)

- QQb-S-048: I have been discriminated because of my level of schooling
- QQb-S-049: My last name is well known and respected by people
- QQb-S-050: The income I earn (or I was earning) corresponds to my qualifications, it does not matter if I am a woman or a man
- QQb-S-051: I have been mistreated due to the colour of my skin
- QQb-S-052: If I do not practice any religion it does not matter, I am still well treated in my community
- QQb-S-053: I am respected because of my age
- QQb-S-054: I cannot tell where I live, as I might get discriminated

### **You and your relationships**

Do you participate of any activities? Below you will find various activities. Please choose the phrase that reflects the most to what you think of each one:

QQb-S-055: Religious groups (assist to mass or to religious courses)

- I go to all their meetings.
- I try to go to all of them, however I sometimes miss some.
- Maybe I go to half of them,
- Only once in a while.
- Rarely, maybe on special occasions.
- I do not participate in this kind of group

QQb-S-056: Volunteering groups, sport/dance groups, arts&crafts or similar (may be activities organised by a religious group)

- I go to all their meetings.
- I try to go to all of them, however I sometimes miss some.
- Maybe I go to half of them,
- Only once in a while.
- Rarely, maybe on special occasions.
- I do not participate in this kind of group

QQb-S-057: Political groups, discussions with local authorities, or similar

- I go to all their meetings.
- I try to go to all of them, however I sometimes miss some.
- Maybe I go to half of them,
- Only once in a while.
- Rarely, maybe on special occasions.
- I do not participate in this kind of group

### **Self-evaluation**

Please, indicate how much you agree or not with the following phrases about yourself: (Completely agree, Agree, I don't know, Disagree, Completely Disagree).

Try to be honest, there is no right or wrong answer.

QQb-S-058: I think I can resolve the problems at my community if others help me.

QQb-S-059: I listen what other people say.

QQb-S-060: When I work in teams, I like to lead or to be the one responsible for organising the group.

QQb-S-061: I like helping others to resolve their problems.

QQb-S-062: Before studying or working, I see how much time I have available and plan my activities.

QQb-S-063: When I decide something, I trust my decision.

QQb-S-064: I feel OK about myself, even if others tell me bad comments.

QQb-S-065: Even if it represents more work, I like fixing things my way.

QQb-S-066: I believe I will have a good life I the future.

### **You and the media**

Which of the following appliances do you have at home and how much you use them?

QQb-S-067: Basic radio

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-068: Radio with CD, MP3

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-069: TV

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-070: DVD

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-071: Landline

- Everyday
- Every two days

- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-072: Mobile with out Internet

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-073: Mobile with Internet

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-074: Computer

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-075: Laptop

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-076: Internet

- Everyday
- Every two days
- Once per week
- Twice per month

- Once per month
- I never used it

To you want to know any current news, which of the following activities you do and how often?

QQb-S-077: Listen to the radio

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-078: Watch News show in the TV

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-079: Watch other TV shows

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-080: Read a printed newspaper

- Everyday
- Every two days
- Once per week
- Twice per month
- Once per month
- I never used it

QQb-S-081: Read the newspaper in the Internet

- Everyday
- Every two days
- Once per week

Twice per month

Once per month

I never used it

QQb-S-082: Search for information in the Internet

Everyday

Every two days

Once per week

Twice per month

Once per month

I never used it

QQb-S-083: Follow Twitter

Everyday

Every two days

Once per week

Twice per month

Once per month

I never used it

QQb-S-084: Follow any news in Facebook

Everyday

Every two days

Once per week

Twice per month

Once per month

I never used it

**Thank you!**

## **APPENDIX 14: Teachers' Student Evaluation Phase A and B**

### **Psychological Profile**

Mark your student between 5 (s/he is very good at this ability) and 1 (s/he still does not has this ability)

- TQ1-001: S/he knows to work in teams
- TQ1-002: S/he is a leader, respectful of others
- TQ1-003: S/he organises well her/his available time
- TQ1-004: S/he has confidence and high self-esteem
- TQ1-005: S/he is very creative, does not copy ideas, adapting to each context
- TQ1-006: S/he is positive about the future

### **Educational Profile**

Mark your student between 5 (expert user) and 1 (s/he still does not know this ability)

- TQ1-007: Operational skills in using a Computer
- TQ1-008: Operational skills in using the Desktop
- TQ1-009: Operational skills in using a window
- TQ1-010: Operational skills in using internet browsers
- TQ1-011: Operational skills in using Internet-based search engines
- TQ1-012: Operational skills operating Internet-based forms
- TQ1-013: Formal skills for document creation
- TQ1-014: Formal skills for using Email
- TQ1-015: Formal skills used to navigate on the Internet
- TQ1-016: Formal skills in maintaining a sense o while navigating
- TQ1-017: Information skills used to locate requited information
- TQ1-018: Strategic skills: Reasoning
- TQ1-019: Strategic skills: Problem solving
- TQ1-020: Strategic skills: Decision making

## APPENDIX 15: Calculating the Spider Web Diagram

Each resource of Kleine's portfolio was operationalized by different questions, as explained in Chapter 3. Questionnaire responses were transformed in numerical values according to the following table:

Value	Literary response									
5	I do not pay	Completely agree	Everyday	One hour or less per week	I (we) like it very much, I do it all the time	They always support me with everything I do. They talk to me and give me advice	I go to all their meetings.	Everyday	Very good	Broadband
4	From R\$1 a R\$15	Agree	Every two days	One hour every two days	I (we) do it whenever possible	They help me, but only when I ask for help.	I try to go to all of them, however I sometimes miss some.	Three to Four times a week	Good	3G
3	From R\$16 a R\$30	I don't know	Once per week	Less than an hour per day	I (we) have done this, I do not like or dislike it	They help me when I ask, but they get annoyed.	Maybe I go to half of them,	Once per week	Not good or bad	Landline connection
2	From R\$31 a R\$45	Disagree	Twice per month	Between one and three hours per day	I (we) have never done this	They think I cause too much trouble, so if I ask for help, they expect the worst.	Only once in a while.	Once per month	Bad	Other / I do not know
1	More than de R\$46	Completely Disagree	Once per month	Four or more hours per day	I (we) do not like this, I will never do it	I never ask for help, as I know they will not help me.	Rarely, maybe on special occasions.	I never used it	Very bad	-

For each resource, it will be explained which questions from the questionnaires were used and how these were used for the calculation, differentiating from Phases A and B. In between phases, there was a follow-up meeting, as described in Chapter 3, which allowed me to reformulate some of the questions, simplify some of the calculations and/or improve some others, either adding or removing questions. After the calculation, each resource had a value between zero and five for each phase, A and B, which were then used to create the spider web diagram using Excel.

## Material Resources

### *Questions*

First question asks the student whether they have or not used the computer or the Internet. If the answer is NO, then the value used is Zero. If the answer is YES, then the value used depends on the answer of the following two questions.

QQa-S-021 or (QQa-S-023, QQa-S-024), QQa-S-025 or (QQa-S-026, QQa-S-028, QQa-S-029)

### *Calculation Phase A*

$$\frac{(Q021 \text{ or } \frac{Q023 + Q024}{2}) + (Q025 \text{ or } \frac{Q026 + Q028 + Q029}{3})}{2}$$

### *Questions Phase B*

QQb-S-063, QQb-S-064, QQb-S-065, QQb-S-066, QQb-S-067, QQb-S-068, QQb-S-069, QQb-S-070, QQb-S-071, QQb-S-072

### *Calculation Phase B*

$$\frac{Q063 + Q064 - Q065 + Q066 + Q067 + Q068 - Q069 + Q070 + Q071 + Q072}{10}$$

## Geographical Resources

### Questions Phase A

QQa-S-007, QQa-S-008, QQa-S-009, QQa-S-010.

### Calculation Phase A

$$\frac{Q007 + Q008 + Q009 + Q010}{5}$$

### Questions Phase B

QQb-S-002, QQb-S-003

### Calculation Phase B

$$\frac{Q002 + Q003}{2}$$

## Information Resources

### Questions Phase A

First question asks the student whether they have a determined information source. If the answer is NO, then the value used is Zero. If the answer is YES, then the value used depends on the answer of the following question.

QQa-S-113 or QQa-S-114, QQa-S-117 or QQa-S-118, QQa-S-121 or QQa-S-122, QQa-S-125 or QQa-S-126

### Calculation Phase A

$$\frac{(Q113 \text{ or } Q114) + (Q117 \text{ or } Q118) + (Q121 - Q122) + (Q125 - Q126)}{4}$$

### Questions Phase B

QQb-S-077, QQb-S-078, QQb-S-079, QQb-S-080, QQb-S-081, QQb-S-082, QQb-S-083, QQb-S-084

### Calculation Phase B

$$\frac{Q077 + Q078 - Q079 + Q080 + Q081 + Q082 - Q083 + Q084}{8}$$

### Time Resources

#### Questions Phase A

QQa-S-060, QQa-S-061, QQa-S-062, QQa-S-063, QQa-S-064, QQa-S-065, QQa-S-066, QQa-S-067, QQa-S-068, QQa-S-069, QQa-S-070, QQa-S-071, QQa-S-072, QQa-S-073, QQa-S-074, QQa-S-075, QQa-S-076

#### Calculation Phase A

$$\left\{ Q060 + \left[ \left( \frac{Q061 + Q062 - Q063 + Q064 + Q065 + Q066 - Q067 + Q068}{8} + \frac{Q069 - Q070 + Q071 + Q072 + Q073 - Q074 + Q075 + Q076}{8} \right) - 2 \right] \right\} + 2$$

#### Questions Phase B

QQb-S-021, QQb-S-022, QQb-S-023, QQb-S-024, QQb-S-025, QQb-S-026, QQb-S-027, QQb-S-028, QQb-S-029, QQb-S-030, QQb-S-031, QQb-S-032, QQb-S-033, QQb-S-034, QQb-S-035, QQb-S-036

#### Calculation Phase B

$$\left( \frac{Q021 + Q022 + Q023 + Q024 - Q025 + Q026 + Q027 + Q028}{8} + \frac{Q029 + Q030 + Q031 + Q032 + Q033 - Q034 + Q035 + Q036}{8} \right) + 2$$

### Educational Resources

#### Questions Phase A and B

Operational abilities (OA):

TQ1-007, TQ1-008, TQ1-009, TQ1-010, TQ1-011, TQ1-012

$$OA = \left[ \left( \frac{TQ007 + TQ008 + TQ009 + TQ010 + TQ011 + TQ012}{6} \right) \times 0.5 \right] + 5$$

Formal abilities (FA):

TQ1-013, TQ1-014, TQ1-015, TQ1-016

$$FA = \left[ \left( \frac{TQ013 + TQ014 + TQ015 + TQ016}{4} \right) \times 1 \right] + 5$$

Informational abilities (IA):

TQ1-017

$$IA = (TQ017 \times 1.5) + 5$$

Strategic abilities (SA):

TQ1-018, TQ1-019, TQ1-020

$$SA = \left[ \left( \frac{TQ018 + TQ019 + TQ020}{3} \right) \times 2 \right] + 5$$

*Calculation Phase A and B*

$$OA + FA + IA + SA$$

## **Psychological Resources**

*Questions Phase A*

Completed by the student

QQa-S-104, QQa-S-105, QQa-S-106, QQa-S-107, QQa-S-108, QQa-S-109, QQa-S-110, QQa-S-111, QQa-S-112

Completed by the teacher

TQ1-001, TQ1-002, TQ1-003, TQ1-004, TQ1-005, TQ1-006

*Calculation Phase A*

$$\left\{ \frac{Q104 - Q105 + Q106 + Q107 + Q108 - Q109 + Q110 + Q111 + Q112}{9} + \frac{TQ001 + TQ002 + TQ003 + TQ004 + TQ005 + TQ006}{6} \right\} + 2$$

*Questions Phase B*

Completed by the student

QQb-S-054, QQb-S-055, QQb-S-056, QQb-S-057, QQb-S-058, QQb-S-059, QQb-S-060, QQb-S-061, QQb-S-062

Completed by the teacher

TQ2-001, TQ2-002, TQ2-003, TQ2-004, TQ2-005, TQ2-006

*Calculation Phase B*

$$\left\{ \frac{Q054 - Q055 + Q056 + Q057 + Q058 - Q059 + Q060 + Q061 + Q062}{9} + \frac{TQ001 + TQ002 + TQ003 + TQ004 + TQ005 + TQ006}{6} \right\} + 2$$

*Cultural Resources*

*Questions Phase A*

QQa-S-086, QQa-S-087, QQa-S-088, QQa-S-089, QQa-S-090, QQa-S-091, QQa-S-092, QQa-S-093, QQa-S-094, QQa-S-095, QQa-S-096, QQa-S-097, QQa-S-098, QQa-S-099, QQa-S-100, QQa-S-101, QQa-S-102, QQa-S-103

*Calculation Phase A*

$$\left\{ \frac{Q086 - Q087 + Q088 + Q089 + Q090 - Q091 + Q092 + Q093 + Q094 - Q095 + Q096}{11} + \frac{Q097 + Q098 + Q099 + Q100 + Q101 - Q102 + Q103}{7} \right\} + 2$$

*Questions Phase B*

QQb-S-037, QQb-S-038, QQb-S-039, QQb-S-040, QQb-S-041, QQb-S-042, QQb-S-043, QQb-S-044, QQb-S-045, QQb-S-046, QQb-S-047, QQb-S-048, QQb-S-049, QQb-S-050, QQb-S-051, QQb-S-052, QQb-S-053

### Calculation Phase B

$$\left( \frac{Q037 - Q038 + Q039 + Q040 + Q041 - Q042 + Q043 + Q044 + Q045 - Q046}{10} + \frac{Q047 + Q048 + Q049 + Q050 + Q051 - Q052 + Q053}{7} \right) + 2$$

### Social Resources

#### Questions Phase A

First question asks the student whether they have a determine relationship. If the answer is NO, then the value used is Zero. If the answer is YES, then the value used depends on the answer of the following question.

QQa-S-077 or QQa-S-079, QQa-S-080 or QQa-S-081, QQa-S-082 or QQa-S-083, QQa-S-084 or QQa-S-085

#### Calculation Phase A

$$\frac{(Q077 \text{ or } Q079) - (Q080 \text{ or } Q081) + (Q082 - Q083) + (Q084 - Q085)}{4}$$

#### Questions Phase B

The question offers 6 options to the student. Numerical values for questions 1 to 5 can be found in the table at the beginning of this Appendix, while question 6: "I do not participate in this kind of group" has a value of Zero.

QQb-S-055, QQb-S-056, QQb-S-057

#### Calculation Phase B

$$\frac{(Q055) + (Q056) + (Q057)}{3}$$

## APPENDIX 16: Consent letter

Dear respondent:

Thank you for filling the following questionnaire. This form is part of a pilot project developed jointly by CDI Campinas and student Sammia Poveda (University of London).

This project has two main objectives: (1) Test new data collection tools, with the aim of improving CDI's network monitoring and evaluation processes; and; (2) Collect data for the PhD research project on digital culture.

Questions indicated as required are necessary for your registration as a student of this CDI Community. However, your participation in the more extensive pilot study is entirely voluntary. To clarify: (i) you can skip any question you are not comfortable with; (ii) all data will be anonymised and treated with great care; and; (iii) you can choose to leave this pilot any time you want.

Thank you for considering participating on this pilot, which is helping CDI's network to improve their work to offer you better programs.

**I would like to participate** \_\_\_\_

Full Name: \_\_\_\_\_

ID: \_\_\_\_\_

Signature: \_\_\_\_\_

If you are under 18 years old:

Full Name of the Adult responsible: \_\_\_\_\_

ID: \_\_\_\_\_

Signature: \_\_\_\_\_

**I will not participate** \_\_\_\_