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Critical Agency and Development: Applying Freire & Sen to ICT4D in Zambia and Brazil

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This paper draws upon critical theories and the capability approach. It argues for a conceptualisation of development as a process designed to enable people to free themselves from structural disadvantage. Amartya Sen has argued that people's 'critical-agency' to question and reject unjust social norms is 'pivotal' to human development and important for tackling inequalities of any kind. Freire's critical pedagogy, and critical feminism, go further by providing disadvantaged people with the practical means to do this; to identify the structural root causes of unjust social norms and the critical-agency to challenge and change them. Two empirical case studies of ICT4D are presented, from Zambia and Brazil, which draw upon these critical approaches but use them in different ways. The paper argues that ICT4D must go beyond addressing people's immediate practical needs for access to ICT tools and skills, to also address their strategic interest in identifying and tackling the root causes of disadvantage.

Keywords: ICT4D, Critical, Agency, Freedom, ICT, Development.

1 Introduction

Influential reviews of the research field have criticised an under-theorisation of the concept of development that ICT4D is intent upon (Andersson, Grönlund, & Wicander, 2012; Walsham & Sahay, 2006). In defining its conceptualisation of development this paper uses Sen's (1999) agency-based capability approach as a normative framework but relies on critical theories to address structural issues of power. The use of the

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capability approach in ICT4D is not new but the literature is still limited. Authors who have applied the capability approach to ICT4D include Gigler (2011), Zheng and Walsham (2008), and Kleine (2013). However, as Zheng and Stahl (2011) have claimed, Sen's reluctance to address power relationships means that critical theories offer some advantages when conceptualising development. It's the aim of this paper to provide a critical conceptualisation of development understood as people's agency to critically determine their own development priorities and to address them through their own agency. This development concept is not conceptualised upon technology diffusion as an end in itself, instead, it considers people's ability to self-determine and self-actualise their own conception of the good; concepts shared by the capabilities approach and critical theories.

Building on this claim, this paper aims to illustrate how ICTs can be used to enhance people's agency to address development challenges. To achieve this, the paper draws on two empirical case studies in which organisations introduce new technologies and use them to raise member's critical consciousness and agency to tackle development challenges that they experience. Both case studies draw upon critical theories to guide their practice and exemplify how people can use ICTs to self-determine and self-actualise their own development. The next section will review the literature to identify the comparative advantages of the capabilities approach and critical theories, before presenting the case studies from Brazil and Zambia.

2 Literature Review

According to Tanzanian President Nyerere (1973, p.7), a fundamental flaw in orthodox development economics was *"thinking of development in terms of things, and not of people"*. Nyerere argued for a human-centred conceptualisation of development in which people were the principle agents in their own development, arguing that *"People*

can't be developed, they can only develop themselves" (Nyerere, 1973, p.7). This agency-based approach was at the heart of Freire's (1970) work in Brazil, Fals-Borda (1979) in Colombia, and Tandon (1981) in India. This was known as *human development,* to distinguish it from orthodox *economic development.* It constituted a distinctly Southern approach (Tandon, 2008), which was popularised in anglophone development studies by Robert Chambers (1983; 1994) amongst others.

2.1 The Capability Approach

Human development was later re-articulated by Sen as part of the capability approach. Sen (1985) argued that a comprehensive understanding of development must extend beyond measuring income to include other important aspects of well-being and agency that a person has reason to value. In *Development as Freedom*, Sen (1999) argued convincingly that development was "*a process of expanding the real freedoms that people enjoy*" as well as "*the removal of major sources of unfreedom*" (Sen, 1999, p.3). Placing human freedoms at the forefront of analysis forces ICT4D researchers to go beyond ICT provision to consider how ICT may, or may not, contribute to expand people's freedoms and abilities to determine their own development. Sen's (1999) agency-based conceptualisation of *development as freedom* represents a valuable advance on orthodox economic development, as it widens the informational basis of development evaluation to include other aspects of agency and well-being that individuals have reason to value. Agency is defined here as a person's ability to act in pursuance of their own goals. Sen argues (1999, p.11) that individuals have reason to value their own agency in determining and pursuing their own goals rather than being *"the passive recipients of the benefits of cunning development projects*".

2.1.1 Adaptive Preferences

The ability to act in pursuance of their own goals is dependent upon a person's freedom and ability to reason, as well as their agency to act. This raises the question of the extent to which reasoning is really conscious and free. According to Stewart and Deneulin (2002, p.7) "*no-one is truly autonomous and independent of the influences of the society in which they live*". An individual's understanding of the world is partly a function of the culture that they have been exposed to since birth. Vygotsky (1978) is amongst scholars who have shown that a person's ideas, values and beliefs are predominantly assimilated uncritically from those narratives that happen to be dominant in a given society, which they then internalise unconsciously as if it were their own reasoned knowledge. Through this process, a person tends to internalise dominant norms and values set by those with power and control over social ideological structures such as education, religion, and the media (Althusser, 1971). Importantly, this may including negative ideas about their own gender, race or class (Davis, 1982), which leads to low self-worth and self-esteem. Internalising these dominant narratives can constrain an individual's critical ability to determine the kind of life that she has reason to value (Deneulin & Shahani, 2009; Evans, 2002) as her own preferences become adapted to conform to pervasive social norms and values.

This phenomenon of *adaptive preferences* (Johnstone, 2007; Nussbaum, 2000; Sen, 1999) can be understood as the internalisation of oppressive social structures operating both at the level of ideas, and materially. Women may internalise the pervasive social idea that men are better at maths or computing, or the persistent material grind of impoverishment may lead them to adapt their preferences to what they expect to be possible. As the phenomenon of adaptive preferences often occurs unconsciously, it can prove difficult to redress. Unfortunately Sen does not explain in

detail how this social conditioning occurs or how it can be addressed (Chan, 2010; Evans, 2002; Giri, 2000).

Some scholars of critical feminism and critical pedagogy have argued that in order for disadvantaged people to better self-determine their own development priorities and pursue them, they need first to enhance their critical consciousness and agency, or critical-agency[3] (Freire, 1970; Ledwith, 1997; Stromquist, 1995). This involves both their *critical* analysis of the root causes of the disadvantage that they experience, as well as their *agency* to act on those structures to transform their situation. This is particularly true where development initiatives aim to tackle the structural root causes of disadvantage. According to root cause analysis, only the removal of a root cause guarantees non-recurrence of the problem (Wilson, Dell, & Anderson, 1993). If the objectives of ICT4D initiatives include the non-recurrence of social problems, then identification and action to tackle the root causes of internalised and constraining social structures, both within individuals and society, are likely to be priorities.

2.1.2 Critical-Agency

Not all agency is good (Hoggett, 2001). Agency is also required to (re)produce inequalities. Sen (1992) has shown that in China and India the cultural preference for sons over daughters is responsible for millions of *missing women,* due to parents choosing sex-specific abortion or leaving new-born girls to die. In such circumstances, Drèze and Sen (2002) argue that increasing the mother's agency may make the problem worse and they propose critical-agency as the solution. What is needed, Dreze and Sen (2002, p.258) argue, is the *"freedom and power to question and reassess the prevailing*

[3] We hyphenate critical-agency to signify a unity of theory and practice in Freire's praxis of critique on action and action on critique.

norms and values. The pivotal issue is critical-agency" i.e. the ability to critically assess, and where necessary reject, existing gender norms and values. Drèze and Sen (2013, p.233) go on to argue that critical-agency is *"important in combating inequalities of every kind"*. We would add, that if this logic is accepted, it becomes difficult to imagine circumstances in which uncritical-agency would be preferable to critical-agency. We also argue that, if we take Sen's claims for the importance of critical-agency in development seriously, ICT4D initiatives should aim to enhance critical-agency.

In summary, while the capability approach is conceptually rich, it does not provide a systematic account or theorisation of the power interests that structure constraints on human development (Corbridge, 2002; Devereux, 2001; Robeyns, 2000; Stewart & Deneulin, 2002). The capability approach also lacks practical guidance as to how individuals might act to overcome structural unfreedoms, including adaptive preferences (Chan, 2010; Evans, 2002; Frediani, 2010). With respect to these questions, we turn to the literature of critical theories.

2.2 Critical Theories

Walsham et al. (2007, p.324) have argued that *"Research topics in developing countries are usually deeply intertwined with issues of power, politics, donor dependencies, institutional arrangements, and inequities of all sorts"*. We argue that if disadvantaged people are to identify for themselves the root causes of constraints on their development, and act to uproot them, then they need a practical means to identify what Zheng and Walsham (2008, p.236) call *the "deep-seated issues of political and institutional arrangements"* that give rise to and (re)produce development inequalities.

Geuss (1981, p.2) defines critical theories as "*a reflective theory, which gives agents a kind of knowledge inherently productive of enlightenment and emancipation*".

Geuss uses enlightenment here in the specific sense of perceiving what interests are being served by existing social arrangements, as well as enabling people "*to determine what their true interests are*" (Geuss, 1981, p.2). The implication is that people often misrecognise their own interests and adapt their preferences to those of the dominant power interests. The capabilities approach describes this phenomenon as adaptive preferences but unlike the critical theories in paper it does not provide any guidance on how to overcome these adaptations. Critical theory claims that dominant narratives often present structural (dis)advantage as justified, normal and immutable, and that, as a result, people who are persistently subject to dominant narratives often internalise those values uncritically as if they represented their own reasoned interests. Critical theory claims to be an epistemological means for people to critically evaluate existing social arrangements, norms and values, in order to inform their own agency to act in pursuance of valued goals. In this paper we argue that critical theory is a useful complement to the capabilities approach as it provides practical guidance about how to overcome adaptive preferences. This paper draws on two types of critical theory: critical pedagogy and critical feminisms.

2.2.1 Critical Pedagogy

Critical pedagogy grew out of the theory and practice of Brazilian scholar and social activist Paulo Freire (1970). Freire's critical praxis has influenced many community-based development organisations, with over 500 international development agencies having explicitly drawn on his methods to enhance the critical-agency of disadvantaged people in their projects and programmes (Duffy, Fransman, & Pearce, 2008; Riddell, 2001) including in ICT4D (Beardon, 2004; Poveda, 2016b; Roberts, 2016a). This history of operationalisation provides a rich body of practice case study, and theory, to guide practitioners who want participants in their ICT4D initiatives to become more

able to independently identify and overcome the circumstances that disadvantage them.

Freire (1970) introduced the concepts of critical consciousness and agency, where critical consciousness was an ability to read the world critically and agency was the ability to act in the world to change it. Later, scholars of critical pedagogy (Giroux, 1983; McLaren, 1995) created the compound term critical-agency to refer to this combination of critical consciousness and agency. Freire articulated an epistemology to enable disadvantaged people to effect a more critical reading of their world in a process called *conscientização* (conscientisation). In this process a facilitator leads a group discussion using a problem-posing methodology to enable participants to critically investigate their own circumstances. This may involve asking participants "Why does this inequality exist?", or "Who benefits?" challenging them to reflect on the root causes of the (dis)advantage that they experience. This process, known as the problem-posing method (Freire, 1970), aims to move people from being passive objects of other people's solutions to becoming the increasingly critical agents of their own self-development shares commonalities with critical feminist practice (Ledwith, 2005). Martín-Baró (1996, p.56) describes Freire's method as "*an active process of dialogue in which there is a gradual decoding of the world, as people grasp the mechanisms of oppression and dehumanisation, which opens up new possibilities for action*". The intended outcome of a process of conscientisation for participants is an enhanced *critical consciousness* of the structural basis of the (dis)advantage that they experience, and an increased sense of their own *agency* to act in the world to transform it. In this way, critical-agency becomes the means to overcome adaptive preferences, as well as tackle constraining social structures that cause inequality and injustice. However, Freire's work has been criticised for being androcentric and uncritical about gender inequalities (hooks, 1984; Ledwith, 1997). To correct this deficiency, in this paper we

integrate critical feminist pedagogy (hooks, 2000; Ledwith, 2005) and the capabilities approach as a theoretical framework for analysing ICT4D initiatives.

2.2.2 Critical Feminisms

The process of critical dialogue is not unique to Freire's process of conscientisation, it has also been central in gender consciousness-raising workshops used by some critical feminists (hooks, 1984; Ledwith, 1997; Sarachild, 1970). According to Molyneux (1985, p.233), this practice of group discussion, to translate women's practical experience and needs into critical consciousness of their strategic gender interests, *"constitutes the central aspect of feminist political practice".* Molyneux (1985) made a conceptual distinction between women's practical needs and their strategic gender interests. For Molyneux *practical gender interests* include access to employment, childcare and equal pay; whereas *strategic gender interests* concern ending men's power and control over women, violence against women, the gender division of labour and securing gender equality. Molyneux (1985, p.233) argues that, in order to struggle effectively for their strategic gender interests, women need a higher level of understanding of their deep root causes.

Molyneux's work has been critiqued by other feminists, including Longwe (1991) and Young (1993), for its binary distinction between practical and strategic gender interests. Longwe pointed out that resolving practical needs is often a pre-requisite for tackling strategic interests and that development initiatives should therefore incorporate both, using conscientisation as a bridging mechanism. Young (1993, p.156) argued that development initiatives should be assessed, in part, according to whether they, "*allow the interrogation of practical needs (by women themselves) to assess their transformatory potential",* that is whether they have *"the capacity or potential for questioning, undermining or transforming gender relations and the structures of*

subordination". By means of a collective excavation of the structural root causes of their situation, Young argued, such critical dialogue holds the *transformatory potential* for people to self-identify the conditions that oppress them and to take action together to transform their situation. Together, critical pedagogy and critical feminism, or 'critical feminist pedagogy', provides individuals with a gender sensitive process with which to critically evaluate their (dis)advantage, clarify their own values, and pursue social change that they have reason to value.

2.3 Theoretical Synthesis

In summary, we find the capabilities approach useful in extending the scope of development evaluation beyond economics to include a consideration of other aspects of well-being and agency that people value and have reason to value. We particularly value Sen's emphasis on adaptive preferences and the consequent need to enhance people's critical-agency for development. In these respects Sen's (1999) articulation of human development provides a normative framework for the conceptualisation of development proposed in this paper. However, in common with Zheng and Stahl (2011), Frediani (2010) and Chan (2010), we find critical theory a necessary addition in order to address shortfalls in the capabilities approach. Sen's lack of sustained analysis of the ways in which power structures development, and his inattention to how to actually enhance critical-agency in practice, leaves the capabilities approach ill-equipped to address structural disadvantage (Corbridge, 2002; Robeyns, 2000; Stewart & Deneulin, 2002) and its internalisation as adaptive preferences (Chan, 2010; Evans, 2002; Frediani, 2010). Sen argues that the conceptualisation of development should reflect what individuals have reason to value.

In this paper we propose that reasoning of value should be the result of a reflective critical analysis of the root-causes of experienced (dis)advantage. We offer critical-agency

as theorised by Freire and critical feminist pedagogy, and as practiced by hundreds of development agencies (Duffy et al., 2008; Riddell, 2001) as examples for ICT4D to draw upon. Critical theories provide a more sustained analysis of how power interests act to reproduce unequal social relations as well as more practical guidance on how to overcome such obstacles. The problem-posing method is a concrete mechanism for a facilitator to engage with people to stimulate a collective critical analysis of their social situation, its causes and potential collective action to redress the situation. The method itself aims to level power relations between the facilitator and the participants, allowing them to increasingly become active agents of their own development. It is here argued that incorporating this critical aspect into the capabilities approach helps us to understood development as the improvement of both well-being and critical-agency. This is important if we are to take seriously Sen's claim that critical-agency is pivotal to development and important in tackling all forms of inequality. The next section examines two empirical case studies of ICT4D that draw on critical conceptualisations of development.

3 Case Studies

To illustrate how the proposed critical re-conceptualisation of the capabilities approach adds value to the analysis of ICT4D initiatives, two distinct case studies will be presented. The studies are the result of empirical work conducted in Zambia and Brazil by the authors (Poveda, 2016b; Roberts, 2016a). Despite having different operating models, the two ICT4D initiatives considered in this section are both founded on Freirean epistemology and conceptualisation of development. Regarding the epistemology, in both projects the processes of knowledge production start from the lived experience and practical needs of participants. Also, projects used critical dialogue to enable collective investigation of the causes of inequality and involve people's realisation of their agency for change. For the conceptualisation of development, access

to ICTs is not seen as the end of development but as a means to development, understood as people's own ability to identify and remove obstacles to their own development. It is the aim of this paper to extend the existing literature on critical theory and capabilities approach by documenting and analysing evidence about how ICTs can be practically employed to tackle adaptive preferences and critically reflect on the power interests that structure unequal social relations.

3.1 Asikana Network, Zambia

This case study analyses the use of the ICT4D, by the women of Asikana Network, to tackle gender discrimination and disadvantage in Zambia's ICT sector. Gender discrimination in Zambia occurs at home, where girls drop out of school to undertake domestic chores (ADB, 2006); at school, where girls are half as likely to complete secondary education as boys (ZCSO, 2015); in further education, where women are especially under-represented as graduates in science and technology (UNESCO, 2012); and in ICT workplaces (ZCSO, 2015), especially in senior positions (ILO, 2012). This is particularly problematic for women as ICTs are becoming key to many aspects of modern life (ADB, 2006).

Women working in Zambia's newly emerging ICT sector created Asikana Network to actively address the gender discrimination and disadvantage they experienced. This non-profit organisation engages in a range of activities to mitigate the situation and effect change. Activities include the provision of training, mentoring and networking events to provide support to women experiencing gender discrimination. Asikana Network is "*a group of females aiming to empower women in ICT-related fields",* and uses "*participatory approaches to development, and the application of ICTs*

in development"[4]. At the time of the research Asikana had over one hundred members mainly between the ages of 18 and 23.

3.1.1 Methodology

This research used a participatory action research methodology to involve Asikana Network members in an investigation of the factors causing gender discrimination and the disadvantage they experienced in Zambia's male-dominated ICT sector. Asikana members were enrolled as co-researchers. The term co-researcher, which comes from participatory action research, signifies that the women film-makers were centrally involved in the collection and analysis of data (in the form of participatory videos) and that they used their own analysis of their own data to inform the strategic development of their organisation's on-going priorities and activities. They interviewed other women on film about the under-representation of women in technology. They screened their films to other film-makers and then collectively analysed that data to draw lessons about the roots causes of gender injustice which they used to inform their plans for Asikana Network's future priorities and plans. There were a total of 30 film-making co-researchers. Participatory video is a process in which a group of non-experts learn to make films about issues of concern to them as a means to enhance their critical consciousness and agency (Roberts & Lunch, 2015). In this research, Asikana Network members used participatory video to make films about the profound gender inequality experienced by women in Zambia's ICT sector.

The researcher adopted a type of *critical* participatory video practice, using Freirean problem-posing methodology, designed specifically to enhance critical-agency by enabling the women to critically investigate, and tackle, the root causes of the gender

[4] For a self-description of Asikana Network see http://asikananetwork.org/sample-page/

disadvantage that they experience. To accelerate both technical and critical learning, Asikana members taking part in the participatory video process departed from traditional participatory video practice, in which the whole group produce a single film over the course of one week (Lunch & Lunch, 2006; White, 2003). Instead participants were divided into three small groups equipped with cameras. Each group produced three films over a five-day period (a total of nine films). The facilitator was not allowed to touch either the cameras or the editing equipment in order to maximise participant time and confidence as users of the technology. The rapid iterative film-making process was designed to optimise what Bandura (1995) calls the mastery experiences necessary to enhance participants self-efficacy, as well as provide frequent opportunities for group reflection in critical dialogue sessions to accelerate enhancement of critical-agency.

Each group interviewed three or four women and asked them four or five questions. The interviews were then edited into a single film. Participants were free to devise their own questions such as "Are women equally represented in Zambia's ICT sector?", "Why is that?" and "What can be done?" At the end of each day the films were screened to the whole group followed by a discussion that first covered technical questions before opening up a critical dialogue around the gender themes raised in the films. The facilitator of these sessions used a Freirean problem-posing methodology. This involved probing with questions such as "but why is that?" to reach a deeper level of analysis of each issue raised. Each day, one or more of the issues that emerged from these critical dialogue sessions was selected as the subject of the next day's film-making assignment, for example "Where do we learn gender roles from?".

Involving Asikana Network members in making their own short films had a number of benefits. It allowed participants to meet their practical needs for vocational technical and communication skills and enhanced their self-efficacy. It also allowed

Asikana members to address their strategic gender interests by identifying and tackling gender inequality in Zambia's ICT sector. The new knowledge and insight that they produced served to inform the strategic and operational planning of Asikana Network. After the film-making semi-structured interviews were conducted with all film-makers, most of the women and men that they filmed, and with other Asikana founders and members. In total, 86 interviews with 58 unique individuals where conducted, 30 of whom were women film-makers and 28 of whom were other members of Asikana Network or the host tech hub BongoHive. The interviews took between 30 and 90 minutes each Data was analysed from transcripts of 36 films, 86 interviews, 48 research diary entries and 3 focus groups. Data analysis involved re-playing interview recordings whilst reading interview transcripts to open code data into conceptual themes (Flick, 2009). This inductive process of moving from data to open codes and themes toward theory was coupled with an inverse process of reviewing new academic theory, generating theoretical codes, and relating them deductively back to emerging themes and data. From this dialectical oscillation between induction and deduction the conceptual themes, which ordered the analysis and findings emerged and were distilled.

3.1.2 Findings

The research process highlighted the experience of discrimination and disadvantage from the standpoint of young women in Zambia's ICT sector. Asikana members were able to describe perceived constraints on their development and attribute causes. They articulated how they learn and internalise unequal gender norms through experience, observation and instruction at home, in school and in church. One research participant, Mercy, commented:

> If you talk about technology (at home) they will be like "No, you're supposed to be in the kitchen". You will find that your brother is outside, playing with cars, toys, planes, trying to figure out where this bit goes, but you will be in the kitchen washing dishes; you'll be there sweeping. I think it's the culture, how we are brought up.

Mercy was amongst those research participants who described the efforts of family members to discourage her preference for technology. This experience of discouragement had negative effects on some women's self-esteem, as Anne explained:

> OK for the low self-esteem it comes from us women … they look down upon us ... because some men think that we can't do what they can do. Which is not true ... We tend to have less confidence in ourselves because of the things that we hear from them. They discourage us making us to have less confidence.

Anne's analysis is clear; having your abilities and aspirations constantly undermined has the effect of reducing your self-confidence. Freire (1970, p.95) calls this internalisation of the projected diminution having *the oppressor within*. Another participant, Fortune, shared her experience of gender discrimination in recruitment:

> When I go for interviews, they would say "no we wanted a man to do this job", because if you are a woman … you would be giving them excuses about the children and what not. They said they wanted a man, not a woman for the job. It makes me feel bad. I feel demoralised. That's why I'm even thinking of doing something else.

Fortune was amongst the majority of research participants who commented on the discrimination and disadvantage experienced by women in Zambia's ICT sector. Her claim that it is more difficult for women to get promoted to senior positions resonates with evidence from other countries (Appelbaum, Neveen Asham, & Kamal Argheyd, 2011; Burke & Mattis, 2007; Cotter, Hermsen, Ovadia, & Vanneman, 2001; UNESCO, 2012)

In the second round of film-making and critical dialogue sessions participants went beyond listing constraints on their development to identify the institutional

mechanisms that (re)produce those constraints. Amongst the social institutions that they attributed causality to, family, school, religion and culture were most frequently mentioned. One Asikana member, Bella, described how girls are systematically steered away from science and technology subjects in school:

> They have been told they can't do it, you know "science and maths are for the boys, and home economics and literature for girls only", that kind of thing, so then they have lost their self-confidence.

This is consistent with UNESCO (2012) findings that girls are under-represented in science and technology subjects in Zambian schools. Riegle-Crumb(2012) has shown elsewhere that women's preferences for science and technology are shaped by pervasive social structures that reproduce cultural norms about what girls and boys should and should not do.

Gendered cultural norms in Zambia are also shaped by religious teaching. One film-maker, Freida, reported: *"When you go to church, that's where things start … they would give this respect to the man, because he's the head of the house"*. Freida's colleague Faith supported her assertion saying, *"They say in the bible, God says the man is the head of the house"*. Susan quoted accurately from the bible (Timothy 2:11) adding that: *"A women should learn quietness and full submission"*. In a country where the census records 87% as practicing Christians, such divine authority is significant in dominant norms.

When asked to dig deeper to answer the question " Where do family members, preachers and teachers acquire their gender prejudices?" research participants suggested tradition, custom and culture as causal factors. Elizabeth reported *"That's our culture. Women must do certain things and a man does certain things and you can't bring in other*

things." This attribution of causality of gender norms to culture was a pervasive theme in interviews conducted with research participants, including Eloise who reported:

> Since the beginning of time, there's just kind of been roles based on your sex, a man goes out and hunts and a woman looks after the children. ... It's still kind of in the back of everybody's minds, or ingrained in society.

The idea that unequal gender relations go back to *the beginning of time*, that they are unchanged and unchangeable, is a powerful obstacle to social change. However, through the medium of film-making, participants were able to deconstruct this idea of culture as immutable. Participants were set a film-making assignment, called "Three Generations of Zambian Women", to interview Zambian women of different generations about their experience of dating, arranged marriages, education and other gender issues. The films that they made provided evidence that, on every issue considered, Zambian gender conventions had changed in every generation. For some participants, this participatory video process enhanced their sense of agency to be able to bring up their daughter free of some of the gender constraints that they had experienced. One participant, Juliet, attributed her enhanced sense of critical-agency to these critical dialogue sessions:

> Because now we're really getting down to it, we're really discussing it, coming up with problems, solutions and people were giving personal experiences, and really talking about it at length, I got to understand what is really going on (...) I realise that I want to take part in that change process, so the problems themselves when we discussed them and I got to understand them. It gave me that desire to really want to make a difference.

This illustrates Freire's (1970, p.48) claim that: *"This pedagogy makes oppression and its causes objects of reflection by the oppressed, and from that reflection will come their necessary engagement in the struggle for their liberation"*.

3.2 Digital Inclusion in Campinas, Brazil

This case study analyses the use of ICT4D by CDI-Campinas in Brazil, to raise their students' critical consciousness and agency, whilst teaching basic ICT skills. Since its foundation in Brazil in 1995, CDI has become one of the world's largest digital inclusion organisations, operating in 13 countries. This case study is focused on their work in Campinas, in the South East of Brazil[5]. CDI's work is informed explicitly by Freire's critical pedagogy and uses digital inclusion as a means to enhance citizen's critical consciousness as well as their agency in social development. Their methodology fuses ICT skills learning with Freire's problem-posing education. They use a student-centred process of critical dialogue to enable participants to propose and execute social projects in their own communities, whilst learning to use ICTs as tools. The Campinas office of CDI was chosen as it served as a reference point for other CDI offices due to its advanced application of Freirean methodology.

CDI's work confronts stark inequalities. Brazil has the world's fourth highest population of internet users (CIA, 2016) and is the fifth largest market for mobile phones and home computers (Portal Brasil, 2013). However, these headline figures disguise severe inequalities. Internet access is 97% among Brazil's affluent elite, but only 6% in poorer populations (Barbosa, 2013, p.31-32); it is 44% in urban areas versus 10% in rural areas. Authors explain that Brazil has "*a world within"* (Neri, 2003), which has "*reproduced and promoted, the already embedded, inequality and social injustice structures that characterise Brazilian society*" (Mattos, Santos, & Silva, 2009, p.9).

[5] For a self-description of CDI refer to http://www.cdi.org.br/; for a self-description of CDI-Campinas refer to http://www.cdicampinas.org.br/.

3.2.1 Methodology

Fieldwork was from January to July 2013 and focused on two courses delivered by CDI Campinas. The aim of the research was to observe and analyse the current CDI practices and their impact on the students. 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. Namely, three workshops were held with CDI –director, staff and the teachers. The first was to discuss and decide the aims of the research, methods to be used and sites to be visited, making sure both the interests of CDI and the researchers where included. The second was to discuss the first round of data collection, reflect and adjust the process and keep everyone informed on the progress. The final workshop was to present initial findings and to reflect together on the meaning of the data collected. The organisation was considered a partner and all the results were co-produced and shared with them.

Data was collected from the students at the beginning and the end of each course using interviews and surveys, but also from interviews with the teachers and other members of staff. In total the researcher organised 4 meetings and 5 workshops, attended 6 activities, conducted 52 interviews (between 30 and 90 minutes long), 34 student questionnaires, 30 participant observation notes and extensive field notes. Both questionnaires and interviews aimed explore issues related to the theoretical framework. Namely, identify the individual's agency and available resources (i.e. level of education, ICT skills, social capital, internalised social norms), their motivation and how they chose to use ICT. Data was complemented by secondary data research to understand the communities in which the students and organisations were based. Data collected was coded in NVivo, evaluated using triangulation, and analysed using the theoretical framework –whether what individuals' valued and had reason to value was being considered while becoming active agents of their

own development, by *"focusing analytically on particular themes, patterns or processes … to infer conclusions about social relationships, processes or causalities that have a broader significance"* (Gilbert, 2008, p.81).

3.2.2 Findings

CDI courses were quite distinct from didactic approaches used to teach ICT skills. Students are free to experiment with software without restriction and the role of the facilitator is to guide rather than instruct in order that learning is lead by student's curiosity and interests rather than by an imposed curriculum. The CDI classroom is organised not in rows but in a horseshoe shape to enable a collaborative approach. CDI teachers design their activities to promote critical discussions alongside ICT skills learning. As facilitators, teachers will bring up a subject to be discussed and then ground learning in the lived experience of students. For example, teacher Carolina printed out a story about people standing against racism and asked the class to copy it to practice their typing skills. After moving to a different task, Carolina asked the students what they thought about the story. Rosa a high school student, said:

> 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.

Carolina used this opportunity to engage the class in critical dialogue about racism and identity, and the internalisation of racism that confused Rosa. The teacher began by telling the students that she identified as black too, that sometimes she had suffered from racism but she was proud of who she was. This theme generated intense critical dialogue as students shared their insights and questions about the subject. The conversation lasted 15 minutes before the teacher moved on to the next task. Carolina

was trained to combine ICT skills training with engaging students in a critical discussion and dialogue.

Another student Joana revealed that she spent as much time as possible at the homes of her adult children to escape the constraints that her alcoholic husband placed on her. At their homes, she occupied herself with what she felt she did best, which was cooking, cleaning and other household chores. The life that Joana led was largely shaped by her gendered role as a mother and wife. Joana's daughter had encouraged her to take the course in order to expand her interests. As her computer proficiency increased, Joana substituted time previously spent cleaning her children's homes for online entertainment and pursuits:

> 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, […] That one that you need to write so the girl can jump? (laughing)

Joana had used her ICT skills as a means to challenge the gender roles and norms that she had internalised, and realised her agency to enjoy some leisure time, using her new ICT skills.

CDI's critical objective was to enable students to challenge social structures that constrained their development freedoms. ICTs were a means to that end. To achieve their objective, CDI teachers were trained to apply a Freire-inspired methodology composed of five parts, which bear a close resemblance to the phases of action research (Lewin, 1946; Reason & Bradbury, 2006). First, the group of students were encouraged to discuss their neighbourhood, highlighting both positive and negative issues. This exercise fostered a sense of ownership and responsibility for their neighbourhood and encouraged them to identify issues that needed attention. Second, an issue was chosen by the group and problematised through critical dialogue to identify the root causes of

the problem. Third, a plan of action was designed in which students had to play an active part. Fourth, the plan was implemented, enabling students to realise their power as agents of change. Finally, participants evaluated the action to provide space for critical dialogue, learning, and motivating further cycles of planning and action. Different ICT skills were introduced and taught as tools to be used in this process, for example, how to use the Internet to research a problem, or to use word-processing software to write a formal letter to an elected representative.

Applying CDI's methodology was not simple, and some teachers were unable to complete all of the proposed phases. For example, Carolina was able only to perform the first phase. She took the students to explore their neighbourhoods, asking them to take digital photographs of things they liked and disliked. In the classroom, after learning how to download the images into the computer and save them in folders, Carolina asked the students to present their pictures, explaining why they liked or disliked them. Discussing this experience, Jose, high school student, mentioned:

> I learned that we need to really observe, and to really pay attention, not only to the bad stuff, but to what is good too… there were some things during our walk that were not so good, like, it was polluted, dirty, with litter, but I liked focusing on the positive.

This exercise gave Jose a sense of belonging, seeing his neighbourhood through different eyes facilitated by the digital camera. This is not to argue that Jose should ignore the bad things, but, for individuals who have lost their sense of agency, there is a need first to realise that they own their environment to then be able to change it. Conversely, Anna, an adult student, commented about the same experience:

> It was good that we talked about respect and citizenship. The City Hall comes and cleans, but people here don't respect. They just through out old furniture and garbage, then they complain there are rats in their houses… so we need more discussions like this.

Anna had more maturity than Jose and she valued the activity from a different perspective. She valued the opportunity to raise both her and her classmates' awareness of the responsibility they had for their neighbourhood and how they should be more respectful. Even though all five phases proposed by CDI's methodology were not completed, the exercise still provided great opportunities for dialogue and critical awareness. One case that accomplished all five phases came from teacher Carmen and her students:

> The group realised (during our course) 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.

People who have lost all power and trust in their own agency to produce change often benefit from experiencing that they are capable of initiating and achieving change. By engaging in small projects, like the one mentioned above, students from CDI were able to learn new technical skills, as well as social communication skills that strengthen their self-confidence, but the CDI approach went beyond digital skills to enhance their critical-agency to challenge constraining social structures.

4 Discussion

The critical pedagogy of Freire informed both the digital inclusion work of CDI in Brazil and the participatory video use by Asikana Network in Zambia. Both initiatives involved an agency-based process in which development was conceptualised as people's ability to analyse and tackle their own development challenges. In this conceptualisation of development, ICT was used as a means of achieving the wider

objective of human development. This contrasts with ICT4D initiatives in which ICT provision and skills are seen as ends in themselves or uncritically assumed to lead to economic development (Avgerou, 2010).

In both the Brazilian and Zambian case studies participants appropriated ICTs both to meet practical needs, including vocational and communication skills and increased self-confidence, as well as to tackle more strategic interests that required identifying the causes and mechanisms that give rise to, and sustain, the structural inequalities that they experience. Asikana participants in Zambia and CDI students in Brazil both reported increased technical skills as ICT users. Asikana members developed new competences in film-making and editing, and they reported gains in communication skills and self-efficacy. CDI students learnt basic computer and internet skills, and reported gains in self-esteem and self-confidence. Some Asikana participants gained internship, employment and studying opportunities, due in part to the participatory video workshops. It could be argued that all participants experienced positive impacts on their development (i.e. increased ICT skills, improve self-esteem and self-confidence). However, in and of themselves, these outcomes from Asikana or CDI, do not challenge or change the root causes of (dis)advantage. They address practical rather than strategic needs (Molyneux, 1985).

In the case of Asikana Network, these outcomes do not challenge or change unequal gender relationships or the power relationships that reproduce them (Buskens, 2014). In the case of CDI, the outcomes do not change the unequal economic and social relations that (re)produce poverty and social exclusion. These practical results were outcomes that participants valued and had reason to value, but this is not inconsistent with saying that, in and of themselves, they lack the transformatory potential (Young,

1993) to challenge or change the structural conditions that determine inequality and (dis)advantage.

However, other aspects of ICT use by Asikana and CDI did enable participants to address strategic interests. In Asikana's case, the use of participatory video enabled women to challenge their adaptive preferences, such as their internalised unequal gender roles, by progressively identifying the root causes of the disadvantage they experienced. This critical-agency motivated them to use ICT to tackle violence against women by designing and developing a Women's Rights mobile phone application. This initiative addressed women's strategic interests such as legal equality and the right to live free from violence. The Women's rights App provided users with information on their existing rights, the legal instruments that provide that legal protection, and the Zambian organisations that exist to help women whose rights are being violated[6]. The Women's Rights App was supported and distributed by Facebook's internet.org initiative in Zambia.

CDI also encouraged the appropriation of ICT to identify and tackle the causes of internalised oppression and material inequality. Using ICT gave CDI students the opportunity to meet practical needs, change their self-image and realise their agency, including the opportunity for some women to challenge their adaptive preferences, namely their internalised gender roles. CDI's methodology also encouraged students to engage actively as citizens in their neighbourhoods. Again group critical dialogue enabled them to identify the root causes of perceived problems and propose ways to act together to solve them. While the projects the students from CDI undertook were modest, they allowed people to realise and experience their own critical-agency. This practice also allowed them to experience ways in which they could exert control over

[6] A web-based example of the mobile app is viewable here: http://asikananetwork.org/wrapp/

their own environment, and challenge their adaptive preferences (for more information please refer to Poveda, 2016a; Roberts, 2016b).

Both organisations effectively combined developing technical skills with developing participants' critical capacity and intent to act to bring about development changes that they had reasoned and valued. In both Zambia and Brazil, researchers found that people were able to use ICTs to reflect critically on their own internalised self-limitations as well as wider structural (dis)advantage, later being able to use this knowledge to inform their self-determining agency for change and development action. The paper also illustrates that ICT4D can have a range of development outcomes which participants' value and have reason to value, some which challenge unequal social relations, and others which do not. This paper makes a theoretical contribution by combining the capabilities approach and critical theory and applying them to ICT4D. In doing so this paper addresses acknowledged limitations of the capabilities approach by using critical theories to extend analysis of people's use of ICTs to tackle power interests that frequently structure (dis)advantage and (under)development. The combination of capabilities and critical theory makes it possible to retain the normative framing and conceptual richness of the capabilities approach at the same time as being able to address structural power issues.

5 Conclusion

This paper has argued for a conceptualisation of development that goes beyond meeting peoples' immediate practical needs to also address their strategic interest in being able to free themselves from domination and disadvantage. Whilst we recognise that people value and have reason to value having their immediate practical needs met, if that were to be the full extent of development initiatives, and structural power was neither challenged nor changed, then the root causes of structural inequality and (dis)advantage

would always remain. We have argued that critical-agency is a practical means to enable disadvantaged people themselves to excavate the root causes of the (dis)advantage that they experience, determine their own development interests and challenge structural inequalities.

If we take seriously Drèze's and Sen's (2002, p.233) claim that "*critical-agency is important in combating inequality of every kind*" and that it is 'pivotal' to an agency-based conceptualisation of human development, then enhancing people's critical-agency is a necessary pre-requisite of any ICT4D which has these aims. The two case studies presented in this paper demonstrate that ICTs can play a productive role in enhancing people's capabilities as well as their critical-agency to identify and uproot the structural causes of (dis)advantage. Research participants from CDI and Asikana reported increased skills, self-esteem and self-confidence. They also reported greater awareness of the root-causes of (dis)advantage and acted to addressed them through organising community clean-up activities, film-making and building the Women's Rights App .

By adopting a conceptualisation of development that includes amongst its aims enhancing people's critical-agency to themselves identify, critique, and challenge constraining social structures, ICT4D gains the transformatory potential (Roberts, 2016b) to not only treat the symptoms of underdevelopment but also to tackle its root causes. Without such a conceptualisation of development, ICT4D may be limited to meeting people's immediate practical needs, whilst leaving the structural root causes of their underdevelopment unchallenged and unchanged.

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