

CRITICAL INTENT & PRACTICE IN ICT4D: A TYPOLOGY OF ICT4D INITIATIVES

Tony Roberts, Royal Holloway, University of London, UK

Abstract: The idea of 'Openness in ICT4D' begs critical questions including, 'open to whom?' and 'open to what development ends?' From the critical perspective espoused in this paper, 'Openness in ICT4D' should enable disadvantaged groups themselves to appropriate technology within their own programmes to overcome structural deprivation, discrimination and (dis)advantage. However influential reviews of the field suggest that ICT4D is currently characterised by 'top-down', technologically-determined processes in which 'intended beneficiaries' are insufficiently involved, and where the relationship between ICT and development is treated uncritically. Using a theoretical framework combining the critical pedagogy of Paulo Freire, the critical feminisms of Maxine Molyneux and Ineke Buskens and the critical theory of Jürgen Habermas, this paper outlines a conceptual framework for critical intent and critical practice in ICT4D. A typology of ICT4D initiatives is proposed, illustrated by a matrix of three types of development intent, and three types of development practice. The paper argues that an initiative is an example of critical ICT4D to the extent that it combines the critical-emancipatory practice of enabling the 'intended beneficiaries' of development to be the authors, architects and arbiters of ICT4D initiatives, with the transformist intent of tackling the root-causes of under-development.

Keywords: critical, openness, ICT4D, typology, matrix, conformist, reformist, transformist, intent, practice, emancipatory

1. INTRODUCTION

Michael Gurstein (2010) is among scholars who have shown that uncritical approaches to 'openness in development' can have the unintended effect of further accentuating existing inequality and (dis)advantage. He uses the example of 'open data'. When government data is made 'open', people's ability to exploit this new resource is shaped by existing patterns of structural (dis)advantage. Those who have privileged access to education, computers and the internet are afforded new opportunities by open data to exploit their advantage in new arenas. Those disadvantaged by lack of access to ICT and skills are further disadvantaged in relative terms (Gurstein, 2011). From this perspective 'openness in development' must be as much about building people's capacity to make "effective use" of technology as it is about providing access (Gurstein, 2003).

This paper will argue that what communities need to appropriate technology to make effective development use of it are not only narrow technical skills, but also critical skills to better determine their own strategic interests. As a result, this paper proposes that ICT4D initiatives should include activities designed to enhance participants' abilities to ask and resolve critical development questions such as, 'open to whom?', 'achieved by what means?', 'whose interests are being served?', and 'open to achieve what development ends?'

We are often unconscious of, and uncritical about, the relationships of (under)privilege and (dis)advantage structuring our lives. We live in societies where there is inequality (UNDP, 2014) and where that inequality and (dis)advantage is structured along intersecting dimensions including gender, 'race' and class (UNDP, 2014a, Davis, 1982; Crenshaw, 1989; Anderson and Hill Collins, 2010). We are all socialised into cultures that are grounded in unequal social relations (Buskens, 2014) and where dominant discourse has the effect of making these unequal social relationships appear 'natural' and immutable, rather than socially constructed and subject to change. Unless we are critically conscious of structural inequalities during the design and implementation process, there exists a real danger that our ICT4D initiatives reproduce and perhaps further accentuate (dis)advantage just as in Gurstein's (2011) open data example.

In order that ICT4D practitioners and project participants bring awareness about these issues to bear on project design and development this paper argues that an inclusive process of critical dialogue is desirable alongside other project activities. By involving all parties in deliberation about the development challenges faced, the underlying structural causes, and the kind of developments that they are co-intent upon producing, project actors are able to guard against reproduction of the unequal relationships that characterise the status-quo. By means of a collective analysis of their own political and cultural context (Heeks, 1999), and the underlying power interests, participants co-produce a 'critically conscious' understanding of their situation (Freire, 1994) that enables them to determine their own interests (Geuss, 1981), and to co-design ICT4D initiatives that address both their immediate practical needs and longer-term strategic interests (Molyneux, 1985).

To facilitate this process this paper presents a typology of nine kinds of ICT4D initiative. The typology differentiates between three categories of ICT4D *intent* and three categories of ICT4D *practice*. It is intended that this framework will contribute to a conceptual language that will enhance the design and evaluation of ICT4D initiatives by enabling practitioners, 'intended beneficiaries', and researchers to share their thinking about the intent, practices, and the underlying 'theory of change' upon which their initiatives are based.

2. WHAT IS 'CRITICAL' ABOUT CRITICAL ICT4D?

Influential reviews of the field of ICT4D have identified uncritical assumptions about the relationship of ICT to development as problematic (Avgerou, 2008, 2010), and identified a general failure to define the kind of development that ICT4D is intent upon (Walsham, 2006, 2013). It has been argued that this uncritical, technically-driven approach (Chamberlain, 2012), which limits the agency and participation of 'intended beneficiaries', is partly responsible for ICT4D's high failure rate (Heeks, 2002; Gao and Gunawong, 2014).

Alternative approaches are emerging. Dorothea Kleine (2010) is among scholars who have unpacked the 'D' in ICT4D and Kentaro Toyama's (2010, unpaginated) review of ICT4D projects in India contradicts technologically deterministic assumptions, concluding that, "*In every one of our projects, a technology's effects were wholly dependent on the intention and capacity of the people handling it*". Stahl (2008), Unwin (2009) and Zheng and Stahl (2011) are among those that have used critical theory to interrogate ICT4D, but so far this remains a minority approach and not one that is widely understood.

One challenge is the lack of clarity about what it means to be 'critical'. The term is used within academic writing with such a wide range of meanings that its significance has become unclear. In this paper I will use the term 'critical' in the explicitly political and emancipatory sense employed by the founders of critical theory from the Frankfurt School, as well as by Southern scholar-activists and radical feminists such as Paulo Freire (1974), Steve Biko (Arnold, 1978), and bell hooks (2000). Writing about Frankfurt School critical theory, Raymond Geuss (1981: 2) provides a useful definition, arguing that, "*critical theories have special status as a guide for human action, in that they are*":

- (a) *aimed at producing enlightenment*, i.e. enabling agents to determine their own interests,
- (b) *emancipatory in intent*, i.e they aim to free agents from coercion and domination, including internalised oppression,
- (c) *productive of knowledge* (including self-knowledge), and
- (d) *epistemologically reflective* rather than objectifying.

According to Geuss (1981) critical theory has dual roots in the psycho-analytical method initiated by Freud, and in the socio-analytical method employed by Marx. Critical theory involves its users in a process of critical reflection and critical dialogue to identify the often hidden or repressed, root causes of oppression. Critical theory offers the possibility of fundamental change by excavating beyond the symptoms of (dis)advantage to expose its root-causes. The intention is that by revealing the hidden mechanisms of domination embedded in culture, ideology, and the unconscious, people become better able to determine their own interests and to overcome the constraints on their own development (Ray, 1993). “A *critical theory, then, is a reflective theory which gives its agents a kind of knowledge inherently productive of enlightenment and emancipation*” (Geuss, 1981: 2). In the remainder of this section I will briefly review elements of the critical theory of Habermas (1972) and the critical practices designed to develop collective awareness developed by Paulo Freire (1970) and advocated by feminists including Longwe (in March, 1999) and Ledwith (2005).

Jürgen Habermas is the key living proponent of the founding Frankfurt School of critical theory. In *Knowledge and Human Interests*, Habermas (1972) argues that three basic human drives lie at the root of the three main knowledge constituting paradigms (Ray, 1993). Habermas sees the *'technical control of nature'* as the deep-seated human drive structuring the mode of enquiry and knowledge production that characterises the empirical-analytical sciences. Likewise the human drive, for *'communicative-understanding'*, in Habermas' view, structures the interpretive-hermeneutic sciences. The final *'emancipatory interest in overcoming domination'*, structures the critical-emancipatory mode of enquiry and knowledge production. Unwin (2009; 63) uses Habermas' knowledge-constitutive interests to frame his historical analysis of ICT4D and suggests that, “*this approach could usefully be developed further into a practical framework for a critically aware ICT4D practice*”, one that, “*empowers poor people sufficiently to overcome the conditions that have impoverished them*”. This paper aims to make progress in that direction.

In his book, *Pedagogy of the Oppressed*, Brazilian scholar and popular educator Paulo Freire (1970) developed a critical theory and practice with the emancipatory aim of enabling disadvantaged people themselves to overcome the conditions that impoverished them. This critical practice was adopted by more than 500 development agencies in more than 60 countries (Riddell, 2001; Duffy, 2008). Freire's assertion (1970, 1998) that poor people can and should be actively involved in critically analysing their own reality, and in determining their own action for development, continues to influence popular literacy, participatory rural appraisal and participatory action research (McIntyre, 1998: 3; Kindon, Pain, Kesby, 2010; 10). In his original analysis of the situation with Brazilian peasants Freire (1970) discerned three levels of consciousness, which he termed magical, naïve and critical. *Magical consciousness* was characterised by an apparent passive acceptance of the inequities of the *status-quo* and a fatalistic acceptance of an apparently 'natural' and immutable social order. *Naïve consciousness* was evidenced by increased awareness of unequal social relations, but also by a failure to question the structural root-causes of that inequality, or to recognise the potential of their own agency to bring about change. Freire's method was a question-posing dialogic process in which disadvantaged people themselves uncover the structural causes of the problems they face. *Critical consciousness* was characterised by peoples' awareness that their situation was not 'natural' and immutable, but rather socially-constructed by actors pursuing their interests. Freire

argued that this critical ability to 'read the world' enabled people to identify their own interests and informed their ability to 'act in the world' to transform it.

This method of group dialogue about people's immediate practical problems as a means to generate critical insight about the power interests structuring (dis)advantage, is not unique to Freire's process of 'conscientisation'. It is also a central methodological element of gender consciousness-raising workshops employed by many feminists (Sarachild, 1970; Ledwith, 2005) hooks, 2010) as well as to Black consciousness-raising in South Africa (Arnold, 1978; Magaziner, 2010) and class consciousness-raising by trade unions (Cooper, 2007). It is beyond the scope of this paper to review all of these approaches so I will confine myself here looking at one element of feminist practice that illustrates what it is to be critical.

Maxine Molyneux (1985) made a key distinction between women's immediate '*practical interests*' such as access to childcare and equal pay, and their '*strategic interests*', in securing change in the gendered divisions of labour, power, and control. Examples of strategic interests include ending male control over women, and women's responsibility for domestic work and child care. The challenge, Molyneux argued, is that practical interests are often symptomatic of deeper-seated structural issues of power and control, and it is the latter which must be overcome in order to achieve fundamental change. "[Addressing] *practical interests do not in themselves challenge the prevailing forms of gender subordination, even though they arise directly out of them*" (Molyneux, 1985; 233).

In critiquing Molyneux's categorisation, scholars including Sara Longwe (in March, 1999; and Young 1993) have argued that practical and strategic interests cannot easily be separated; that initiatives in the realm of practical needs often have consequences on strategic interests; and that therefore development interventions should target *both* practical needs and strategic interests. In order to enable the analytical tools of practical needs and strategic interests to be used in a more nuanced way, Kate Young (1993; 156) suggested the concept of 'transformatory potential'. The method that she proposed was, "*to allow the interrogation of practical needs (by women themselves) to see how they can become or transform themselves into strategic concerns. In other words have they the capacity or potential for questioning, undermining or transforming gender relations and the structures of subordination.*" As Molyneux had herself originally said (1985; 233) the group work of translating practical interests into consciousness of strategic interests, "*constitutes the central aspect of feminist political practice*".

In the terms of Geuss' (1981) definition these methods are all *reflective*, productive of *knowledge and enlightenment about interests*, and they aim at *emancipation* from both the external social and internal psychological constraints on people's self development.

3. CRITICAL INTENT

In this section I appropriate and adapt a matrix originally developed for gender research, in order to produce a typology of ICT4D initiatives. Whilst I do not anticipate that this typology is sufficient to adequately represent any but the simplest ICT4D initiative, I hope that it might serve as a useful conceptual tool for project participants and stakeholders to collectively discuss project ends and means, and to refine their intentions and practices at both the design, implementation and evaluation phases of the project cycle. Doing so may contribute to addressing the uncritical approaches to ICT4D identified by the influential reviews of ICT4D outlined at the beginning of Section 2.

In her work on gender awareness in development research, Ineke Buskens (2014) produced a nine-fold matrix for categorising researcher intentionality and choice of research methodology (Table 1, below). Drawing on Habermas' (1972) theory of knowledge constitutive interests, Buskens' table intersects the three main research paradigms with three categories of researcher intentionality, which she characterises as conformist, reformist and transformist. Buskens' categories of intent correspond with Freire's three levels of magical, naïve and critical

consciousness. In both cases it is only in the third category that intent is focused on the structural basis of (dis)advantage, or what Molyneux's might refer to as 'strategic interests'.

Buskens' **conformist** category refers to research that is, consciously or unconsciously, intent upon conforming with the status-quo. It does so by generating knowledge about how people might better cope with, or respond to, the existing unequal gender relations without challenging or changing those relations.

The **reformist** category is home to research that is intent on highlighting the unequal nature of gender relations and reforming them. It does so however without changing the socio-economic, political and religious structures that support unequal gender relations.

Finally the **transformist** category describes research that is consciously intent on understanding and transforming both unequal gender relations and the socio-economic, political and religious structures that support them.

It is possible to critique Busken's categories of development intent on the basis that, in conceiving of change only extending from the status-quo in an egalitarian direction, she does not acknowledge possible negative development outcomes. Neo-liberal theorists have argued that inequality is desirable and productive of economic growth (Hayek, 1976, Friedman, 1980). Informed by neo-liberal economic theory World Bank Structural Adjustment Programmes, certainly delivered 'reforms' and 'transformational' structural change, but in a quite different direction from the kind of 'development' apparently valued by Buskens.

Intent/Method	Conformist	Reformist	Transformist
Empirical-Analytical	Quantitative Research that aims to understand how to make women better respond to the demands of the existing socio-economic-political- religious structures that support, amongst other things, unequal gender relations.	Quantitative Research that aims to reform gender (labour) relations that are discriminatory, whilst leaving the socio-economic-political- religious structures that support such relations intact.	Quantitative Research that aims to transform the socio-economic-political- religious structures that support unequal gender relations, through understanding to what degree women are dependent on those structures for their needs and practical gender interests.
Interpretive-Hermeneutic	Qualitative Research that aims to understand how to make women better respond to the demands of the existing socio-economic-political- religious structures that support, amongst other things, unequal gender relations.	Qualitative Research that aims to understand the emotions and justifications women have developed in adaptation to their unequal gender relations in order to reform those unequal gender relations.	Qualitative Research that aims to transform the socio-economic-political- religious structures that support gender inequality through assisting women to understand their feelings, emotions and choices regarding their discriminatory realities.
Critical-Emancipatory	Participatory / Action Research that aims to assist women to better cope with unequal gender relations and the socio-economic- political-religious structures that support them.	Participatory / Action Research that aims to understand women's feelings, emotions and reactions in their relationships and situations in order to reform these unequal gender relations.	Participatory / Action Research that aims to transform unequal gender relations and the socio-economic-political- religious structures that support these, through assisting women to understand to what degree they are dependent on those structures for their needs and practical gender interests.

Table 1: Gender Research Intent and Methodology Overview: Buskens, 2014

Building on Busken's conceptual framework for gender research in development, in this paper I propose a conceptual framework for ICT4D that categorises practitioner intent and practice initiatives (Table 2.). My proposed framework differs from Buskens' in four main respects. Firstly my framework is not related to research activities but rather to operational ICT4D initiatives (projects, programmes and processes). Secondly, reflecting this objective change, I have used Habermas' concepts of practical human interests instead of the knowledge constitutive interests used by Buskens'. Thirdly the scope of my framework extends beyond gender to encompass other dimensions of inequality including 'race'-ethnicity and class-caste. Finally whilst I retain Buskens' categories of conformist, reformist and transformist *intent*; I modify her *method* categories to foreground three modes of operational development *practice* that I suggest are characteristic of ICT4D initiatives: techno-centric, comms-centric and human-centric. In the following paragraphs I outline the basic characteristics of conformist, reformist and transformist intent in ICT4D. It is worth noting that whilst in some liberal and progressive discourse the terms conformist, reformist and transformist can be used pejoratively - and can therefore elicit defensive responses - here they are used only in their original descriptive sense.

'Conformist ICT4D' includes those initiatives that use ICTs to improve the efficiency of existing social institutions but which do not disrupt the *status-quo*. Conformist ICT4D leaves inequality structured along dimensions including 'race'-ethnicity, class-caste and gender unchallenged (as well as the power interests that give rise to this inequality). In leaving unequal relations intact, conformist ICT4D initiatives are likely to have the effect of serving the power interests of those already privileged groups that most benefit from the *status-quo*. Examples might be an 'eGovernment' portal that offers online access to government information and services, or an 'Open Government' initiative that enables citizens to 'hack' government data about [transport](#). As a citizen one may have very good reason to value ICT4D initiatives that enable individuals to access data about cycle routes or to process a planning application online. However this is consistent with saying that it does not reform unequal social relations or transform the structures that support them.

'Reformist ICT4D' initiatives, in this categorisation, are those that use ICTs in ways designed to reform unequal social relations, but which do not attempt to challenge or transform the structural causes of those unequal social relations. Reformist ICT4D may, for example, meet the practical needs of rural women for access to information and services but it would make no attempt to tackle the power interests that structure (dis)advantage along gendered lines. Examples of Reformist ICT4D might include civic-tech initiatives that use social media to hold elected representatives to account, or a 'women in technology' project that aims to increase the number of women in the technology sector. As a citizen one may have very good reason to value such initiatives. At the same time it is fair to say that they do not necessarily target change in the political system and structures of male-domination that give rise to and support unequal gender relations.

'Transformist ICT4D', it will already be clear, are ICT4D initiatives that have the critical intent of transforming the structural root-causes of inequity in addition to unequal gender/'race'/class relations that are symptomatic of them. Examples of Transformist ICT4D in which disadvantaged people use technology to address their strategic interests include the [Take Back The Tech](#) initiatives to end violence against women, the citizen-led work of [Twaweza](#) that targets fundamental change in Tanzania, as well as the strategic use of social media in the so-called 'Arab-Spring' uprisings.

Although I have already made the point, it is important to underscore that no claim is being made here that only transformist ICT4D initiatives have value as development. As individuals we have good reason to value any ICT4D initiatives that meet our practical needs, irrespective of whether they we categorise them as conformist, reformist or transformist. In practice realising 'transformational potential' will often be built on reformist initiatives. All that is being claimed

here is that some initiatives will not challenge unequal social relations or transform structural inequality.

Having provided example initiatives to illustrate discussion of the above categories it is also worth repeating that I do not anticipate that this typology is sufficient to comprehensively represent specific ICT4D initiatives. In practice many ICT4D initiatives will contain aspects of more than one segment of the matrix and over the lifetime of an initiative it may traverse others. My intention for the typology is modest: that it might serve as a tool to stimulate critical deliberation amongst stakeholders about which forms of practice and intent they wish to incorporate in their initiatives.

4. CRITICAL PRACTICE

Along the vertical axis of Table 2. I locate ICT4D initiatives according to Habermas's (1972) three categories of practical human interests: technical control interests, practical communicative interests and emancipation from domination interests. In creating the related categories of technocratic ICT4D, communication-centric ICT4D and human-centric ICT4D my intention is not to claim that all ICT4D initiatives can be unambiguously fit within one or other category. My more limited intention is to provide a conceptual basis to initiate critical dialogue amongst participants and stakeholders of ICT4D initiatives about to what extent proposed practices align with their development aims. The following paragraphs characterise three forms of ICT4D practice.

Technocratic ICT4D: the first row in the table represents ICT4D shaped by Habermas' practical human interest of 'technical-control over nature'. These interests may be seen as giving rise to a particular kind of development logic that seeks to use technology to control human processes by means of top-down technical 'solutions'. The underlying empirical-analytical approach here asserts an uncritically positive relationship between technology provision and development impacts. This technologically deterministic logic effectively sees *technology-as-development*. This approach may be coupled with positivist claims that, for example, a certain rate of mobile phone registration is causal in GDP growth (GSMA, 2012). Examples of Technocratic ICT4D that may be seen as characteristic of technocratic logic are supply-side, technology- or data-centric solutions such as One Laptop Per Child, eGovernment portals or national healthcare MIS 'solutions'. This school of ICT4D is perhaps most close to the 'modernisation' development paradigm and the practice of facilitating

Intent/Practice	Conformist	Reformist	Transformist
Techno-centric ICT4D <i>Technical Control interests</i>	Tech- and data-centric ICT4D initiatives, addressing basic needs and services; that enable people to better cope with or conform to the existing unequal social relations of gender/race/class, whilst leaving the structures and interests that underpin them unchallenged.	Tech- and data-centric ICT4D initiatives, addressing practical interests, that enable people to better reform the existing unequal social relations of gender/race/class, whilst leaving the structures and interests that underpin them unchanged.	Tech- and data-centric ICT4D initiatives, addressing practical and strategic interests , that enable people to better transform the existing unequal social relations of gender/race/class, and the structures and interests that give rise to and support them.
	Communication-focused	Communication-focused	Communication-

<p>Comms-centric ICT4D</p> <p><i>Practical Communicative interests</i></p>	<p>ICT4D initiatives addressing basic needs, and services, that enable people to better cope with or conform to the existing unequal social relations of gender/race/class, whilst leaving the structures and interests that support them unchallenged.</p>	<p>ICT4D initiatives addressing practical interests, that enable people to better reform unequal social relations of gender/race/class, whilst whilst leaving the structures and interests that give rise to and support them unchanged.</p>	<p>focused ICT4D initiatives addressing practical and strategic interests, that enable people to better transform the existing unequal social relations of gender/race/class, and the structures and interests supporting them.</p>
<p>Human-centred ICT4D</p> <p><i>Emancipation from Domination interests</i></p>	<p>Human-centred ICT4D initiatives, that enable people's production of <i>new knowledge</i> about basic needs and services that enables them to better cope with or conform to the existing unequal social relations of gender/ 'race'/ class, whilst leaving the structures and interests that support them unchallenged.</p>	<p>Human-centred ICT4D initiatives, that enable people's production of <i>new knowledge</i> about their practical interests that enables them to better reform the existing unequal social relations of gender/race/class, whilst leaving the structures and interests that underpin them unchanged.</p>	<p>Human-centred ICT4D initiatives that enable people's production of <i>new knowledge</i> about their strategic interests that enable them to better transform the existing unequal social relations of gender/race/class, and the structures and interests that give rise to and underpin them.</p>

Table 2. Matrix of ICT4D Intent & Practices: author

technology 'transfer' from the global North to the global South (Melkote, 2001). The underlying theory of change in Technocratic ICT4D is: *under-development plus technology equals development* and is characterised by an absence of community actors in initiative conception and design.

Comms-Centric ICT4D: the second row in Table 2. represents those ICT4D initiatives constituted by Habermas' practical human interest of 'communicative-understanding'. Comms-centric ICT4D sees the role of ICT as a medium of amplifying communication-centric development. Initiatives from this school of ICT4D may have a theory of change of '*communication-as-development*' or a more nuanced '*people plus communication plus communication technology equals development*'. Examples of ICT4D initiatives that may be seen to be characteristic of this logic are communications and info-sharing platforms like the [Esoko](#) eAgriculture platform that enables farmers to find the price that crops command in different markets and enables online communication between potential suppliers and buyers. Some 'communication for development' initiatives such as disaster communications networks that convene dialogue around disaster preparedness, response and reconstruction might also be considered to fall into this category. A wide spectrum of communication modalities are encompassed here ranging from the 'monologic', top-down type that Freire (1974) characterised as *communiqué* rather than genuine 'dialogic' *communication*.

Human-centric ICT4D: the third row in the table represents those ICT4D initiatives shaped by Habermas' practical human interest of 'emancipation from domination'. This school of ICT4D is characterised by a bottom-up approach to development that is people-centred and may be characterised as *critical-dialogue-as-development*. This approach is shaped by the emancipatory

interest of humans to free themselves from internal and external forms of domination and coercion. 'Human-Centric ICT4D' sees development as a dialogic process of people progressively identifying and freeing themselves from constraints on their development, including both internalised (Fanon, 1963) and structural impediments (Fals-Borda, 1991). ICT4D initiatives located here will involve the 'intended beneficiaries' as the principal authors, architects and arbiters in the process of design and development and will aim to build people's own knowledge (including self-knowledge) as well as their organisational capacity to appropriate and to produce technology for development. Examples of ICT4D initiatives that might be considered to be characteristic of this approach include some Community Informatics initiatives (Gurstein, 2007), and the Freire-based [Reflect ICTs](#) process used by Action Aid, Practical Action and others (Beardon, 2004). The theory of change implicit here is: *people's agency plus critical consciousness plus technology equals development*.

Like any framework that tries to fit complex social reality into abstract categories, the typology offered in this paper is imperfect. In reality categorical boundaries are porous and subject to overlap. Some ICT4D initiatives will straddle more than one box. Other initiatives may migrate from one box to another over the initiative's lifetime. My intention is not to design perfect mutually-exclusive categories that over-simplify technology's role in development. My much more modest hope is to produce a visual aid and conceptual framework that adds to the vocabulary practitioners have at their disposal, allowing them to share thinking with participants and researchers about the critical intent of an initiative to produce change in the world.

Richard Heeks has written about the need for participatory design in ICT4D (Heeks, 2009a) and argued the need for ICT4D initiatives to be informed by an analysis of their political and cultural contexts (Heeks, 1999), rather than a continued over-reliance on technical assessments. This typology could be used as one means to critically review any particular sector of ICT4D in which there is a proliferation of initiatives. Mapping initiatives may be a means for actors to reflect and share their understandings of the project intent and underlying theory of change.

5. CONCLUSION

At the outset this paper posed the question, "What is 'critical' about critical ICT4D?" It is now possible to offer some answers and to make some tentative proposals regarding elements of a critical theory-practice of ICT4D. This paper has argued that the critical intent to identify and tackle the root-causes of unequal social relations is key to transformative development, and that the critical practice of conscientisation is an effective means to that end, used extensively in other development contexts. It is my conclusion that the combination of the *transformative intent* of structural change with the *critical-emancipatory practice* of conscientisation lies at the heart of critical ICT4D. By combining Geuss' (1981) definition of critical theory with the critical practice of Freire (1970) and feminists including Molyneux (1985) Young (1993) and Buskens' (2014) it is possible to propose that an ICT4D initiative is critical to the extent that:

- a) It is *reflective*, enabling participants to *produce knowledge* and *enlightenment* about their interests that informs their own *emancipatory* action for development.
- b) It involves disadvantaged people themselves reflecting critically on their practical circumstances and strategic interests to determine how they might best appropriate ICT4D.
- c) In practice this process of critical dialogue involves posing questions including, "What problems do we face?", "Who's interests are currently being served?", "How can our common interests better be served?" and "Can technology help us toward that end?"
- d) This paper proposes that an initiative is an example of '*Critical ICT4D*' to the extent that it combines the *transformist intent* of tackling the structural causes of underdevelopment, with the *critical-emancipatory practice* of making 'intended

beneficiaries' the authors and primary protagonists of ICT4D initiatives. This approach aims to de-centre technology as the driver of change and identifies collective human agency and political intent as the basis of transformational change. From this perspective those initiatives closest to the bottom-right corner of Table 2. constitute Critical ICT4D.

Looking forward, critical ICT4D theory and practice offers significant potential to enhance people's 'transformatory potential' (Young, 1993). By going beyond the provision of technology and narrowly technical skills, critical ICT4D practice holds the possibility to enhance people's ability to effectively appropriate technology to overcome the changing problems that they face. By building critical capacities ICT4D initiatives afford the potential to identify and target the root-causes of (dis)advantage, as well as treating its symptoms.

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