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# **ICT'S AND INFORMAL LEARNING IN THE SOUTH**

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# Contents

<b>Contents.....</b>	<b>2</b>
List of Tables.....	4
List of Figures.....	5
Word Count.....	5
<b>i. Abstract.....</b>	<b>6</b>
<b>ii. Declaration.....</b>	<b>7</b>
<b>iii. Copyright Statement.....</b>	<b>8</b>
<b>iv. Acknowledgements.....</b>	<b>9</b>
<b>v. List of Abbreviations.....</b>	<b>10</b>
<b>1. Introduction.....</b>	<b>11</b>
1.1. Three Approaches to ICT4D.....	11
1.2. Outline.....	12
<b>2. The Learning Approach.....</b>	<b>14</b>
2.1. Introduction.....	14
2.2. The Many Faces of ICT learning.....	14
2.3. Development Outcomes.....	19
2.4. The Learning Process.....	22
2.5. Strategies of Learning .....	25
2.6. Model of the Learning Approach .....	28
2.7. Summary and Next Steps.....	30
<b>3. Using Theory in Practice.....</b>	<b>31</b>
3.1. Introduction.....	31
3.2. Research Approach.....	31
3.3. Cases Studies.....	33

3.4. Ensuring Validity.....	34
3.5. Research Material and Methods.....	35
<b>4. Learning and Radio in India.....</b>	<b>36</b>
4.1. Introduction.....	36
4.2. Namma Dhwani.....	36
4.3. Wider Issues.....	39
4.4. Analysis.....	41
4.5. Outcomes.....	48
4.6. Summary.....	51
<b>5. Networked Cultural Learning in Brazil.....</b>	<b>52</b>
5.1. Introduction.....	52
5.2. The Emergence of Pontos de Cultura.....	52
5.3. Analysis.....	56
5.4. Outcomes.....	66
5.5. Summary.....	67
<b>6. Conclusions.....</b>	<b>69</b>
6.1. Introduction.....	69
6.2. Understanding ICT Learning in the South.....	69
6.3. The Three Directions.....	71
6.4. Critique of the Model.....	74
6.5. General Discussion.....	75
6.6. Further Directions.....	76
6.7. Summary.....	77
<b>Appendix 1 – Examples of the ICT Learning Approach.....</b>	<b>78</b>
(a)'Older' Technologies.....	78
(b) Recent Approaches.....	80
(c) Locating Examples in the 'three directions' .....	83
<b>Appendix 2: Analysis of Literature Validity .....</b>	<b>85</b>
(a) Namma Dhwani.....	85
(b) Pontos de Cultura.....	87

<b>Appendix 3: Map of Activist Projects, Brazil.....</b>	<b>89</b>
<b>Appendix 4: Original Portuguese Quotes.....</b>	<b>92</b>
<b>References.....</b>	<b>94</b>

## List of Tables

Table 2.1: Two views on social groups understandings and their respective 'mobilisations'....	24
Table 6.1: Summary of outcomes from the three directions.....	71
Table 6.2: Summary of ICT use within the three directions model.....	72
Table 6.3: Articulations of leadership within each of the three directions.....	72
Table 6.4: Some key issues related to the three directions.....	73

## List of Figures

Figure 2.1: Pawar and Toyama's taxonomy of ICT in education projects.....	18
Figure 2.2: Kabeer's model of empowerment processes.....	19
Figure 2.3: Sen's capability approach.....	21
Figure 2.4: Three directions of the learning approach.....	28
Figure 2.5: Positioning ICT learning examples in model.....	29
Figure 3.1: The cycle of theory construction and testing.....	31
Figure 4.1: Timeline of Nammi Dhwani.....	38
Figure 4.2: Communities of practice (COP) within Namma Dhwani.....	41
Figure 4.3: Four tensions in design for learning.....	43
Figure 4.4: Relating communities of practice to outcomes.....	50
Figure 5.1: The three generations of government ICT development in Brazil.....	53
Figure 5.2: Outline of constructionist learning.....	57
Figure 5.3: ICT's provide a learning environment .....	59
Figure 5.4: Siemens model of connectivist learning.....	62
Figure 6.1: Three directions model of ICT learning approaches.....	69
Figure 6.2: Understanding the differences and overlaps between the three directions.....	70

## Word Count

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# i. Abstract

In an *informal learning* approach, development outcomes will come through the ongoing *process* of using ICT's rather than from the *product*. Although all ICT4D projects will have a process of some form, this can be a more or less empowering process of learning.

This dissertation focusses on how informal learning can be the central focus of an intervention. We construct a theoretical model, building on a range of Southern examples, and drawing on theoretical work from development, the social sciences and pedagogy. We use the model through case studies to illustrate how one can analyse and explicitly design a project through reference to informal learning and ICT's.

## **ii. Declaration**

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## v. List of Abbreviations

**CMC:** Community Media Centre, with specific reference to the UNESCO CMC program

**COP:** Community of Practice

**FOSS:** Free and Open Source Software

**ICT:** Information and Communication Technology, used in the wider sense to include radio, mobile, audiovisual and TV as well as computers

**ICT4D:** Information and Communication Technology for Development

**ICTPr:** UNESCO's Information and Communication for Poverty Reduction program

**LPP:** Legitimate Peripheral Participation

**MYRADA:** Mysore Resettlement and Development Agency – Rural development NGO, India

**NGO:** Non Governmental Organisation

**OLPC:** One Laptop per Child project

**SHG:** Self Help Group

**Sugar OS:** Sugar Operating System, used by OLPC

**UNESCO:** United Nations Educational, Scientific and Cultural Organization

**VOICES:** Communication NGO based in Bangalore

# 1. Introduction

## 1.1. Three Approaches to ICT4D

Analysis of ICT use in the South has tended to focus on two families of approach. It has focussed on *informational* aspects, centred around using information systems for analysis. Benefit comes from the *product*, the output of the ICT, so success depends on this information being accurate and locally appropriate (Heeks 2002). A second approach, focusses on *educational* aspects of ICT's, improving employment prospects, through training a curriculum of ICT skills (Kawooya 2004).

Both these approaches have been critiqued. Such projects often come up against problems of appropriateness, scale-up and sustainability, and there is little conclusive proof of their economic benefit (Benjamin 1999, Batchelor et al. 2003, Kenny 2006). Often with a lack of such outcomes, projects instead defer to positive social development outcomes (in terms of empowerment, societal changes, rights). However, studies have also questioned the ability of these approaches to tackle such inherent societal problems in the long term (Foster 2008a, Marker et al. 2002).

Our aim is not to completely dismiss these approaches, but to illustrate the rationale for examining a third approach, which seems to offer a stronger potential within wider models of social development. In the *learning* approach, outcomes come through the ongoing *process* of using ICT's rather than from the *product* of ICT's. Although all ICT4D projects will have a process of some form, this can be a more or less empowering process of learning. This dissertation focusses on how learning through process can be the central focus of an intervention, and how it can be explicitly designed or shaped.

This leads onto the research question:

**How do we understand ICT learning communities and projects in the South? How can this help us in designing such approaches?**

As we will outline in the following chapters, our research is two-fold. Given the lack of a theoretical models for understanding ICT learning in the South, we answer the first part of the question by drawing on existing literature to build a model. Consequently, we use this model within specific cases to answer the second question, analysing the practical aspects of ICT learning projects.

## **1.2. Outline**

In **Chapter 2**, we show that there are a number of examples in the South where informal learning processes through ICT's can be seen as the main driver of development; within community multimedia centres in Asia, in cultural production networks in Brazil and in several other cases. However, there is little detailed examination of these examples and only loosely connected to theory. Consequently, we argue that even fundamental questions of potential (development outcomes) and best practice (ICT use, interactions and forms) remain unanswered.

Drawing on a number of areas of study we build a model to understand the ICT learning approach. From development studies, we gain an understanding that allows us to interpret the development outcomes. We relate work in pedagogy and social sciences to examples of ICT learning and construct the 'three directions' model to understand the process of ICT learning. This model sets out three different pedagogic approaches that ICT learning projects take which we argue will result in different outcomes, particularly at the wider level of social development.

In **Chapter 3** we outline how we will use 'three direction' model in more detailed case studies. We also outline the underlying critical, constructivist approach that we take, and how this effects the choice of case study and the analysis.

We present two detailed case studies to analyse the 'three directions' model and to understand its practical implications. In **Chapter 4** we analyse the ICT mediated group processes of radio production at the Namma Dhwani (Our Voices) community radio station in rural India. In **Chapter 5** we look at cultural production and sharing using ICT's in Pontos de Cultura (Cultural Hotspots) in Brazil.

These studies allow us to analyse the 'three directions' model and to illustrates how one could use this model practically. We summarise, the outcomes of these cases in **Chapter 6**, answering the research question and introducing further discussion stemming from our study.

We conclude that a learning approach can provide a useful analytical frame to understand ICT4D projects and is likely to become more important with the emergence of participatory production using ICT's in the South.

# 2. The Learning Approach

## 2.1. Introduction

In this chapter we move towards answering the first part of the research question, by building a theoretical model to understand and differentiate ICT learning projects. This will provide a basis for further analysis. We begin by detailing an extensive number of Southern examples where informal learning through process can be seen as the central driver of development outcomes.

We find that there is little literature which connects such examples together, or relates them to wider theory. By examining wider theory and relating it back to the examples, we construct the 'three directions' model to understand ICT learning in the South.

## 2.2. The Many Faces of ICT learning

### 2.2.1 Defining Scope

To gather Southern examples of the ICT learning, we have cast a wide net, moving beyond 'projectised' interventions to examine emergent communities. Equally we use examples outside conventional development paradigms. It is equally likely that we will find successful practices stemming from emergent communities, entrepreneurs and experimental works.

### 2.2.2 Importance of Learning Within Older ICT's<sup>1</sup>

Within older technologies, there are a number of examples of incremental and informal learning processes connected to ICT's. (Appendix 1a presents a more detailed description). Historically, the introduction of cassette tapes, a cheap participatory ICT, resulted in wider voice and production of local content in Northern India and Iran (Manuel 1993, Sreberny-Mohammadi 1990). Although initially small scale, informal distribution led

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<sup>1</sup> We adopt a wide definition of ICT's to include radio, mobile, audiovisual and TV as well as computers

to a growth of entrepreneurial industries, and in Iran such cassettes were important in the spread of political messages (ibid). Similarly in video technologies, learning processes of small-scale video producers, using cheap technology, were key in the early growth of the Indian and Nigerian film production and distribution industries (Larkin 2004, Sundaram 2005). In some senses, this informal learning and creativity with ICT's resembles Northern understandings of economies built on 'creative industries'. Given appropriate resources and an enabling environment, economic development can emerge from small scale entrepreneurs using ICT's, and become influential in the wider economy (Caves 2000, Castells 2000, Florida 2002)

Community radio has been used as an activist ICT in the South, more recently being embraced by donors as a model for community development (Buckley 2005, Asthana 2006, O'Connor 2004). Evidence suggests that such projects have the greatest effect on those chosen as programme makers and management, through the immersive learning process of group production, rather than the listeners (as illustrated in Slater & Tacchi 2004). However, this is likely to be only a small number of producers. Additionally, demands of the regulatory environment on community radio, can orientate stations away from participative learning (for example in India, policy requires a rather narrow 'development' focus with no political content) (Slater & Tacchi 2004, Venniyoor 2006, Nair et al. 2006, VOICES 2004).

Such 'older' examples of learning using ICT's may still be important in the future as highlighted by Edgerton's study of older technology (Edgerton 2007). He critiques the focus on technology *innovation*, arguing for a focus on *use*, and this is particularly pertinent in the South. Older technologies are often used for longer than expected, and although they may lose their visibility, they remain in use, having become appropriated and supported by established maintenance cultures (ibid). In the South, the older technology is not always worse than newer ones, particularly when it is already appropriated and supported within local settings.

### **2.2.3 Recent ICT Learning Approaches**

In the South, there are a number of examples of learning approaches where more recent technologies have been used (Appendix 1b presents a more detailed description). Community Media Centres (CMC's), are an example of a project that avoids Edgerton's

critique of an innovation blinkered focus, by integrating new technologies within local 'communicative ecologies', such as social networks, newspapers and oral forms (Tacchi et al. 2003). Through understanding local technologies of use, such centres often use innovative combinations of technologies, both old and the new (e.g. radio and computers, computers and newspapers). The resulting projects have been able to achieve change within their settings and high levels of sustainability, and it is notable that these projects have placed a strong focus on learning through media production (Tacchi 2005, Nair et al. 2006, Tshering & Martin 2007, Creech 2005).

Learning through digital video and audio production, has been used as a way to allow local communities to make their voice heard and gain understanding by documenting aspects of their lives (Swamy 2007, Asthana 2006, Gandhi et al. 2007). With lightweight digital technologies, and the centrality of participation, examples are emerging which question the telecentre model in the South. Portable 'media hubs' can be constructed, that can be taken to, and used for creative production within the community themselves. For example using a 'digital trash-bin' for radio production in Jamaica or a digitally equipped tuktuk<sup>2</sup> in Sri Lanka (Tacchi & Grubb 2007, Container Project n.d.).

In Brazil, the spread of community media centres has been build from the ground up through activist networks (Grassmuck 2005). Open methodologies of learning have been at the heart of this project, locally within centres through appropriation of open-source software, and through network sharing between like minded practitioners and producers (Fonseca 2008a). These activist networks models have been extended by the government project Pontos de Cultura (Cultural Hotspots), in an attempt to expand this model of cultural sharing throughout Brazil (Freire et al. 2005). Other projects have specifically focussed on how informal learning can be used to gain computing skills. The One Laptop per Child (OLPC)<sup>3</sup> and the Hole-in-the-Wall projects open up space to allow children to learn to use computers through playing and creating with them (Mitra 2005, 2003, OLPC nd).

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2 A local form of transport similar to the auto-rickshaw in India

3 As paper is being written. OLPC and the Sugar OS are in the process of separating or at least reclarifying their relationship. This is likely to have bearing on OLPC as the type of resource that we describe in the text



Using ICT's as a tool for ethnography, to document and disseminate daily life is another area where ICT use connects to informal learning. In the Cybermuhollah project, working with youth in slum areas in Delhi, learning comes through sharing and group dissemination of work in innovative ways, using a range of media (Srivastava 2007). Similar processes of learning through documenting have come from the Zexe project, an activist art project which gives high-end mobile phones to low paid workers to document their lives (Bar 2007a, 2007b, Zexe n.d.). We can also interpret a recent study of the 'Iranian blogosphere', as outlining processes of informal learning in bloggers through documenting their lives. This work illustrates the increasing regularity of cross-linking of blogs and discussion which can be seen as building of emergent learning communities (Kelly & Etling 2008).

#### **2.2.4 Theoretical Views**

We have highlighted a range of cases in the South, where informal learning through process is key to the outcomes of the project, yet there is very little within the literature that acknowledges the importance of such learning approaches. Thus, there has been few theoretical works on ICT learning and its outcomes. The examples detailed often defer to the rhetoric of development; empowerment, participation, community without a wider explanation of what these means and provide no connection beyond their individual case.

Madon's (2007) analysis of telecentres through the lens of contested 'social space' is an exception, suggesting that telecentres and informal learning might be connected to models of competing social groups on the ground. Pawar & Toyama (2005) build a taxonomy of ICT in education projects as shown in Figure 2.1. Whilst supporting our study of there being a wide range of approaches in learning, and the potential to bring them together within a model, the work offers little in the way of theoretical reasoning or practical understanding.

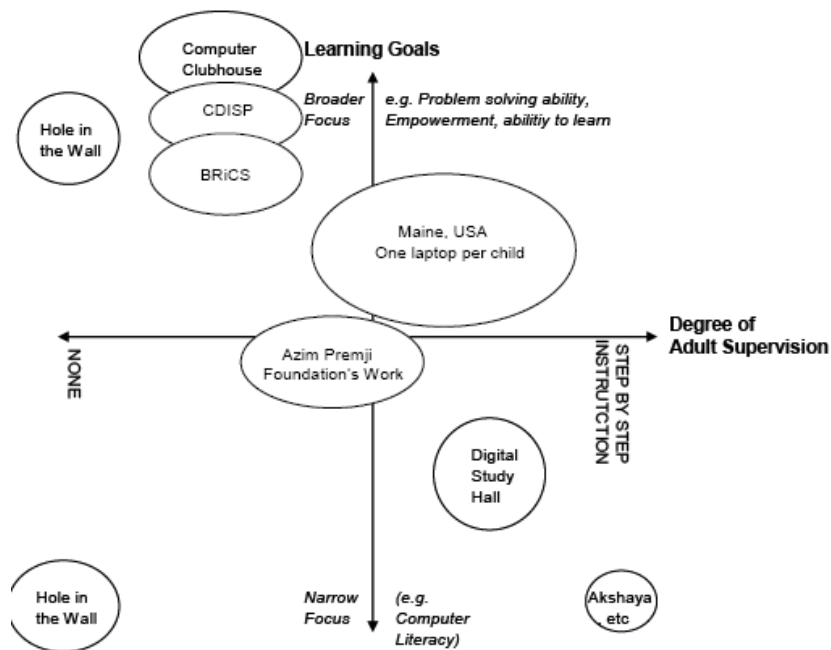


Figure 2.1: Pawar and Toyama's taxonomy of ICT in education projects. Source (Pawar & Toyama 2005)

Leach's (2006) research on ICT's for teacher education in Africa acknowledges that formal education could benefit by better integrating within informal group structures present in society. Yet, we argue that such ideas could have a wider relevance beyond children and be more appropriate outside the formal space of the school. The literature in technology appropriation in the South provides another useful theoretical approach (Heeks 2002, Ali et al. 2007, Edgerton 2007). Such appropriation can be equated to learning processes which lead to ownership, empowerment and wider use of technology (Bar et al. 2007). However, there has been little work to understand the conditions that enable such processes of appropriation to occur.

In sum, the fragmented theory that is available provides a number of potential directions, but no work offers a complete answer. For example Leach(2006) orientates us towards the importance of informal group learning which matches to examples of group production in community radio, but it does not really make sense with examples that are less focused upon a coherent group output such as Cybermuhollah or the Zexe project. We need to analyse the areas of theory more closely, to build a stronger underpinning.

## 2.3. Development Outcomes

Many examples of the learning approach refers to social development outcomes vaguely through words such as 'empowerment' or 'voice' (Hughes & Pringle 2005, Tacchi 2005, Kanungo 2004). According to Cornwall's analysis of 'buzzwords' in development, empowerment has “gained the most semantic range of all, with meanings pouring into development from...feminist scholarship, the Christian right, New-Age self-help manuals and business management”(Cornwall & Brock 2005:1046). One needs to be wary of how such a word becomes used; original meaning and power is negated, its use to “lend the legitimacy that development actors need to justify their interventions” (Cornwall & Brock 2005:1045). In this section, we will use more detailed studies of empowerment as a start point to move beyond these buzzwords and understand the development effect of ICT learning approaches.

Kabeer (1999) outlines three viewpoints for understanding empowerment. In population studies, empowerment is understood within 'status variables'. This corresponds to basic rights (water, sanitation, millenium goals) or may aggregate wider measures related to education and employment. In economics, measures of empowerment look towards earnings and assets (ibid). Whilst both approaches have some merits, their focus on the individual, neglects wider issues within society which limit empowerment. Kabeer's model of the processes of women's empowerment, shown in Figure 1, suggests that there are a number of power and structural issues that restrict empowerment (ibid).

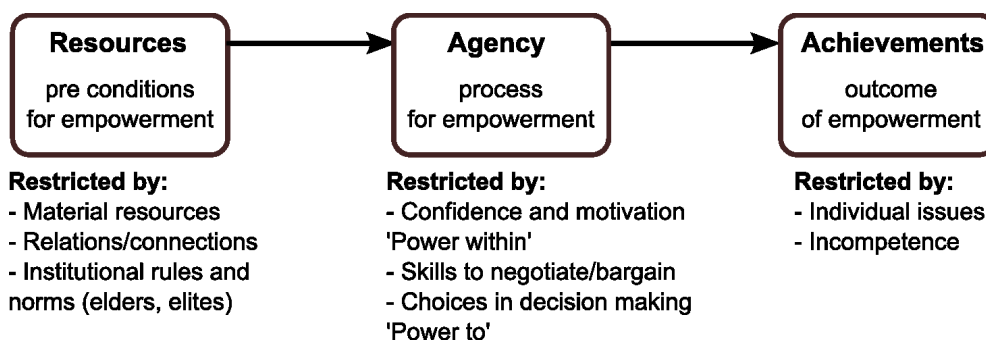


Figure 2.2: Kabeer's model of empowerment processes. Adapted from (Kabeer 1999)

Rowlands (1997) develops Kabeer's models, focussing on the key role of power within womens empowerment. She defines a number of different conceptions of power (Rowlands 1997:14):

- *Power over*, of one at another's expense
- *Power from within*, an individuals confidence, strength and vision
- *Power to*, the productive power (leadership) within a group which is of benefit.
- *Power with*, the power of a group

Each of these notions of power can have a respective empowerment, but it is often the first two that gain attention. *Power over* is seen negatively as the 'zero sum' case, where one persons empowerment will lead to another persons disempowerment, as compared to the more positive *power to* and *power with* which come through social group actions (Rowlands 1997, Kabeer 1999).

We argue that these gender studies approaches to empowerment have a wider applicability beyond gender analysis. They illustrate that disempowerment of individuals is related not only to the self, but to the inhibiting structures in society. Secondly, empowerment in the more positive case comes through social processes of *power to* and *power with* rather than through the individual. This conclusion is supported by social studies of poverty. Mosse(2007), argues that the socio-political and cultural structures reinforce exploitation in society whilst Bebbington (2006) has stressed the importance of group action by way of social movements as an approach to bring about poverty alleviation.

We do not reject individual empowerment as part of any outcome, Rowlands describes it as 'the core', the base from which all other 'empowerments' are built on. We argue that to understand empowerment one needs to take a multi-level view, of a process which moves beyond the individual, to challenge restrictive structures in society (Kabeer 1999, Longwe 2002, Rowlands 1997). In this sense, neither empowerment, nor any other individual orientated model (such as the livelihoods framework) can bring adequate social development outcomes in terms of the learning approach. Instead we orientate towards Sen's capability framework as providing a basis for a multi-level process of development.

Amartya Sen's (1999) capabilities and functionings framework suggests that individuals possess a certain number of possible life choices (capabilities), which through choice will result in functionings (Figure 2.3). Sen states that "Poverty must be seen as capability deprivation" (Sen 1999:87) and thus, development using this model can be considered to be the expansion of capabilities, and the ability to choose the appropriate functioning. This model encapsulates Kabeer's (1999) notion of agency and Rowlands (1997) focus on wider group processes. Crucially, it also illustrates the importance of attacking a wide number of levels from individual to wide societal issues, to bring about development.

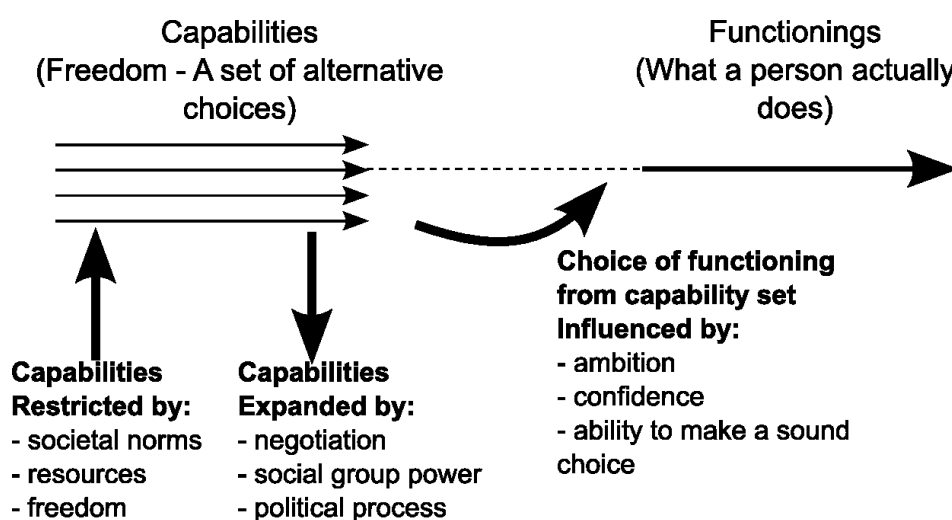


Figure 2.3: Sen's capability approach: Adapted from (Sen 1999)

We take Sen's model as a partial answer to the research question, *how do we understand ICT learning communities and projects in the South?* We have answered the question in terms of the development outcome of ICT learning, *to expand the capabilities and improve the ability to select appropriate functionings, through actions at multiple levels.* Given this base, we move on to analyse 'how?', what are the learning approaches that achieve these goals?

## 2.4. The Learning Process

### 2.4.1 Development and Learning

Participation has become integrated into many development interventions and has close connection to informal learning. Participative methodologies such as Participatory Rural Appraisal (PRA), use local artefacts such as stones and leaves, and the sharing of local knowledge to build a collective understanding of a local community (Chambers 1997). Such models reject the idea of the objective *outsider* in favour of a locally integrated *insider*, with understanding of local reality resulting in a more appropriate 'bottom-up' approaches to development (ibid). However, an idealistic view of such an approach can ignore uneven power relations that occur when outsiders integrate within localities. "One would expect its paradigm [the outsider worldview] to dominate and impose its logic, that is to instrumentalize participation to ends that are not participatory" (Sellamna 1999:30). This notion is the basis of a critique of mainstream participatory approaches, of being easily co-opted and used as a technocratic tool which have lost the radical power to change (Hickey & Mohan 2004, Cooke & Kothari 2001, Escobar 1995).

Learning approaches can also be understood within the realm of social capital. Putnam (1993) argues that social capital, the intangible structures and networks of trust, are what separates different levels in society. To bring about development one needs to build such connections, particularly within poorer communities and groups. Community driven projects which plug the poor into wider society are one approach to build such social capital (Mosse 2007). Some authors critique social capital concepts and its assumption that having connections solves unequal relations and exploitation of the poor (Mansuri & Rao 2004).

From this work in development, we see two views of the ICT learning approach. On one hand, group learning and understanding leads to transformative action, whether that be improved ownership of development or the gaining of social capital. This is the model that many participatory community radio projects have adopted with the goal of giving groups improved confidence, social capital and coherency enough to influence and mobilise their community (Gumucio Dagron 2001).

On the other hand, critiques of participation and social capital question the possibility of genuine participation and equitable relations. Madon's (2007) theorising of telecentres in terms of social space provide insight. Built upon Bourdieu's (1984) notions of *social space*, group spaces such as telecentres are seen as spaces for contestation. Cultural capital and power, are subtly embedded within the artefacts, practices and connections and it is these that reinforce the dominance of certain groups over others through the norms of behaviour (*habitus*) (Bourdieu 1990). In this critical view, learning should be related to attempting to reveal the 'invisible' cultures and practices which enforce the uneven power relations in society. For example, the Cybermuhollah project in Delhi, uses ethnographic observations and group connection, aimed at sense making, and making battles for *social space* within the local environment more visible (Sengupta 2004).

#### **2.4.2 Models of Mobilisation**

The two views of group learning we have described can be connected with different types of mobilisation. Social movement literature associates social movement with the idea of shared action based upon shared beliefs of multiple groups (McCarthy & Zald 1977:1216). Crossley's (2002) analysis of social movements connects the processes of social group formation with rational actor models. In such models, all sides of a contestation are modelled as rational, responding to each other and changes in the environment (*ibid*). Rational actor models can be related to group learning processes through *framing*, and *resource mobilisation*. Framing is the ability to give meaning to a certain state of affairs, for example to attach an emancipatory understanding to events (*ibid*). Resource mobilisation is the ability for members to mobilise, through organisations, structures or resources (Tilly 1985). Within the more harmonious view of groups, coherent communities who have developed shared understanding through learning are more likely to respond to framing by leaders. They are also more likely to be able to mobilise resources better and connect into wider social and political issues (Bebbington 2006, Hickey & Mohan 2005).

In the more critical view of group processes, we use the work of de Certeau (1998) to understand the connected 'mobilisation'. de Certeau's 'The Practice of Everyday Life' serves to illustrate the daily contestation between Bourdieu's (1990) micro forms of oppression (institutions, media, norms) and the micro-tactics that can be taken to resist these forms of power. De Certeau differentiates between a *strategy*, a conventional mobilisation that requires will and power, and a *tactic*, a ruse or action which "has at its

disposal no base where it can capitalise on its advantages” (de Certeau et al. 1998:xix). Tactics relate to quiet strategies of resistance and subversion by individuals or small groups. On the surface these might not seem to be powerful, but the literature suggests that whilst individually insignificant, when combined together these can result in wider contestations in society (Bayat 2000, Rakodi & Leduka 2003, Escobar 1992). For example, Tripp (2002) documents the influence of such behaviour within the informal sector in Tanzania which have influenced wider changes. Benjamin's (1991, 2000, 2001) grounded studies illustrate the power of such micro-politics in aiding the poor in resisting powerful political forces in India.

	<b>Groups Processes</b>	<b>Understanding of Mobilisation</b>
'Harmonious view' (Development studies)	Social groups, participation, social capital	Change through social group action (Framing, resource mobilisation)
'Critical view' (Critical theory and social sciences)	Making visible the 'invisible' structure, practices and artefacts that enforce societal norms	Tactics, Micro-politics, Quiet Strategies

Table 2.1: Two views on social groups understandings and their respective 'mobilisations'

Table 2.1 summarises the two views of groups. A more harmonious one adopts development notions of group actions leading to wider movements. A more critical one sees the world as one where power is imposed from many sources within society, acting through tactics and quiet-strategies given the dominant oppressive power, rather than traditional models of mobilisation.

### **2.4.3 Models of Technology Appropriation**

An alternative view of learning comes from examining ICT use. Questioning the idea that technology is neutral, social-shaping theories embed new technologies within conceptions of artefacts, which through their design, construction and marketing, perpetuate certain cultural or social norms (Deibert 1997, Castells 2004). However, it is possible that one can use these artefacts outside their intended function or modify them to be more appropriate. Learning is connected to the processes of exploring, bricolage (tinkering) and appropriation (Ali et al. 2007). Within the South, we see a number of examples that illustrate how appropriation can allow technology to become acceptable to groups, and spur local innovation through new forms and uses. This can lead towards more



entrepreneurial directions (Bar et al. 2007, Donner 2005, Chipchase & Tulusan 2007). For example, Horst and Miller (2006) describe the constant play and performance of Jamaicans with mobile phones which leads to the maximum use of many seemingly redundant features for wider benefits.

## 2.5. Strategies of Learning

We outlined a development view of the ICT learning approach, and then focussed on three different learning processes (harmonious group, critical group, appropriation) that have been observed within Southern examples. In this section we move to analyse the strategies of learning, how learning is actually implemented, connecting it back to these learning approaches and outcomes.

We highlight Paulo Freire and his work in adult education in the 70's and 80's in the South. Freire's methodology seeks to build a critical understanding in learners through *praxis*, the combination of reflection together with concrete action “a mere perception of reality not followed by a critical intervention will not lead a transformation of objective reality” (Freire 1972:28). He moves away from the notion of a teacher to that of a 'teacher-student', “The problem-posing educator constantly reforms his reflections in the reflections of the students” (Freire 1972:54). Freire's approach is influential. It illustrates that a successful model of informal education can lead to transformation, and his work has influenced both pedagogic theory and ICT learning practitioners, such as those within Pontos de Cultura (Villela et al. 2008)

Drawing on Freirian understandings, *Social constructivist* models of learning are based around the notion that knowledge exists within the social, and the idea of “learning as social participation” (Wenger 1999:4). Wenger described the centre of such a social view of learning to be the 'community of practice'. This is a group defined by persistent interaction, shared understanding and accountability between individuals (say a women's group, a certain clique of youth, a set of neighbours). Within a community of practice, individuals are not necessarily in harmony, nor are they equal, but they are bound together by the shared meanings, history, practice and accountabilities (Brown & Duguid 2002).

Within a social constructivist view, knowledge and learning relate to the local artefacts (reifications) and the actions, norms (participations) within a specific community of practice (Wenger 1999).

A specific community of practice may be connected to other communities of practice through common themes (shared objects) or people (brokers), and it is this loose 'constellation' of communities of practice as grounded in a locality that is conventionally referred to as 'the community' (ibid). Individuals may be members of multiple communities of practice, and the 'learning trajectories' of an individual within communities of practice, are related to an individual's social construction of identity (Lave & Wenger 1991). For Vygotsky, a key scholar within social constructivist learning, conscientisation is the goal of such learning. Whilst learning may be effected by locally situated norms and social construction of knowledge "the development of intellect and rationality beyond situations is the central aim of education" (Liu & Matthews 2005:392).

*Constructionist* pedagogy adopt a more individualised notion of learning and knowledge, albeit still situated within the social. It differs from a social constructivist approach in that "it then adds the idea that this [learning] happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity" (Papert 1991:3). Whilst crudely defined as 'learning by making', its philosophy is focussed on the individual where knowledge is "individually and idiosyncratically constructed or discovered" (Liu & Matthews 2005:387). In contrast to Vygotskian social constructivist ideas, there is no attempt to instil wider understandings to this learning, constructionist ideas are "more situated and more pragmatic" (Ackermann 2001:5) and in terms of approach "'diving into' situations rather than looking at them from a distance" (Ackermann 2001:8).

Although this difference may seem subtle, the outcome in terms of approach can be quite different. For example, community video production is grounded in social constructivist approaches, ICT's are used to allow communities to build wider understandings of their situation (Swamy 2007). For a constructionist projects such as the OLPC, the focus is on learning by allowing individuals to practically experiment and create through the 'Sugar OS' software (OLPC nd).

*Connectivist* learning approaches have developed from an understanding of the contemporary world where information is readily available but often fragmentary and contradictory “learning is a process that occurs within nebulous environments of shifting core elements - not entirely under the control of the individual” (Siemens 2005). Connectivist learning is about instilling the skills to evaluate this wealth of information and making connections between many sources. At a wider level it relates to network theory and how one can aid learners in connecting and using such information (Siemens 2005, 2006, Downes 2007b, Marcum 2006). We can see elements of such approaches in Southern ICT cases. For example, in the Iranian blogging community, bloggers through their linking to other articles, begins to build connections of knowledge and understanding. These self organising 'learning' communities are likely to result in a rich cross-pollination of ideas and coherency, whilst allowing individuals a unique learning experience (Kelly & Etling 2008).

These three learning theories (social constructivist, connectivist and constructionist) match closely to the three processes of learning described previously. In projects where social constructivist approaches are observable, the process of learning is likely to follow the 'harmonious view' of groups we outlined. For example, the UNESCO CMC projects, and their use of ethnography to understand existing practices, is very much connected to social constructivist ideas of understanding and integrating into existing communities of practice. This leads to learning processes which allow groups to work together in real spaces with ICT's to strengthen the coherency of these groups (Slater et al. 2002, Slater & Tacchi 2004)

Constructionist pedagogies can be seen within the processes of technology appropriation processes. For example, mobile phone appropriation, is often connected to constructionist play and exploration of a phones use and limits. This leads to individual appropriation strategies appropriate to the local situation, which may then be shared with others (Horst & Miller 2006, Tall 2004, Bar et al. 2007).

The 'critical view' of group processes, built around power, culture and competing groups, can be related to connectivist pedagogies. In this approach learners are guided to develop a more nuanced understanding of the multiple sources of information and connections beyond their locality. In Brazil, the work of activists groups using ICT's, occurs in complex

ecologies and shifting networks of members. Often the work is related to not only to producing culture, but doing so is a tactical way in an attempt to understand and challenge the dominant structures of society (Caetano 2006).

## 2.6. Model of the Learning Approach

### 2.6.1 The Three Directions of the Learning Approach

From our previous analysis we form a model. We use Sen's capability approach to understand the development outcome of ICT learning projects, in terms of expansion of capabilities and functioning decisions at multiple levels. All examples orientate toward outcomes of personal empowerment of some form (individual confidence, belonging) but beyond this 'core' outcome, wider outcomes will varies dependent on the pedagogic approach, and process taken. We argue that there are three principal directions, as shown in Figure 2.4

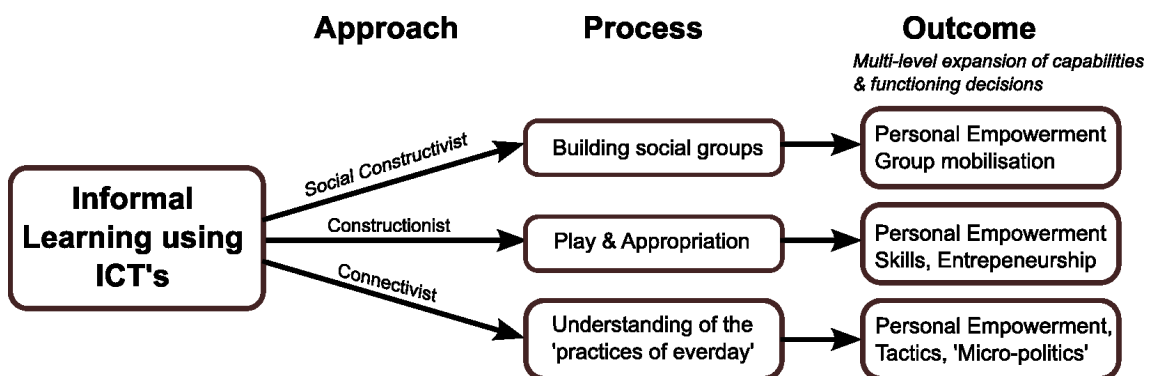


Figure 2.4: Three directions of the learning approach

For social constructivist approaches we refer to the work of Wenger and Vygotsky to understand the social, as a way to build more wider group conscientisation within learners. This leads to the strengthening of social structures which can be the basis of the processes of social mobilisation through framing and resource mobilisation. The second approach is based upon constructionist learning, a more pragmatic 'learning by making' approach. Cases are centred around play and exploration which will lead to appropriation of technology, new skills and possibly entrepreneurial opportunities. The third approach is built around connectivist learning. We connect this to more contested ideas of social space

and practice. This leads to building an understanding of 'the practice of everyday life' that give individuals the ability to adopt tactics to resist the many forms of dominance in society.

### 2.6.2 ICT Learning Examples Within the 'three directions'

In the ICT learning examples that we have covered, approaches are likely to mix the three directions we set out. We tentatively position these examples within a grid as illustrated in Figure 2.5 and justified in more detail in Appendix 1c

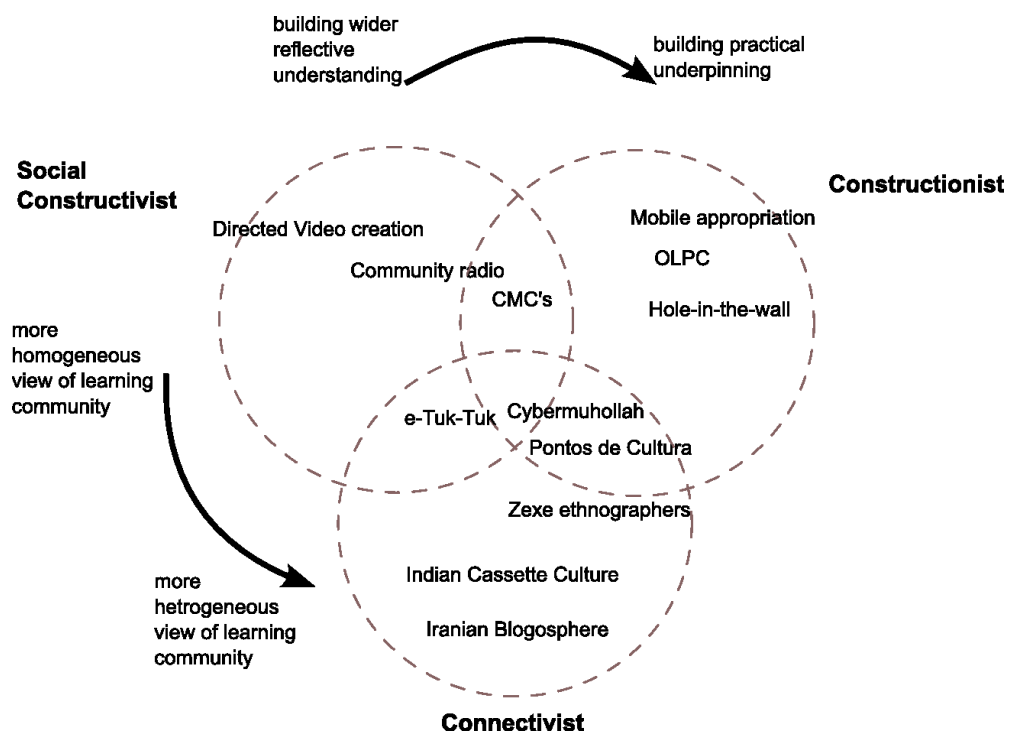


Figure 2.5: Positioning ICT learning examples in model.

Moving from social constructivist to connectivist learning, we observe approaches that begin to consider a greater heterogeneity and contestation of power as related to the community and its goals. Moving from social constructivist to constructionist pedagogies, we observe projects that begin to display practically-grounded rather than reflective learning.

## 2.7. Summary and Next Steps

Our work has led us to a model which answers the first research question. *How do we understand ICT learning communities and projects in the South?* We have used Sen's capability approach as our base for understanding the development outcomes. In this way we have moved beyond the narrower idea of empowerment as often used in the literature, towards a wider, multi-level approach to development that includes empowerment understandings but also wider transformative approaches that come through ICT learning.

In terms of the approach and processes of ICT learning, we have outlined three directions from our review of the literature. The 'three directions' model provides a base to begin to examine how such theoretical ideas translates to practice.

# 3. Using Theory in Practice<sup>4</sup>

## 3.1. Introduction

Given the 'three directions' model, we now outline how this can be related to practical examples. We examine the constructivist assumptions of the model, and how this influences the choice of a case study based approach, and the issues we need to explore in these cases.

## 3.2. Research Approach

### 3.2.1 Building an Iterative Approach

Wallace's cycle of theory construction and testing is shown in Figure 3.1, and illustrates how inductive and deductive research can be used together (Blaikie 2000).

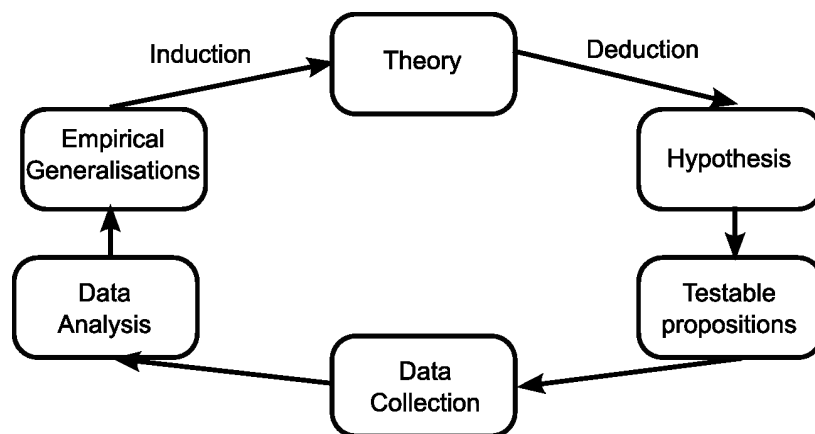


Figure 3.1: The cycle of theory construction and testing (Blaikie 2000)

In our work, we have started from theory and by producing the 'three directions' model of ICT learning, implicitly hypothesised certain behaviour with respect to the three directions. Hence, this deductive process provides us with a provable outline. However, we avoid

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<sup>4</sup> This chapter is an adapted version of (Foster 2008c)

treating data analysis as a way to simply prove the model, rather the data allows us to refine the model in an iterative manner through inductive processes (Miles & Huberman 1994, Yin 1994)

This leads to two questions to ask of the data, one looks to answer the research question by relating practical observations to the learning approach. The second uses the data to evolve the theoretical model we have built<sup>5</sup>.

### **3.2.2 Underlying Perspectives**

Situated learning theories, originate very much from within a constructivist epistemology, grounding itself in the idea that “meanings are constructed by human beings as they engage in the world they are interpreting....we construct meaning” (Crotty 1998:43-44). The idea of socially constructed meaning has important implications for the researcher, particularly in Southern contexts, one needs to avoid transferring ones own meaning onto such a context (ibid).

In such an approach, our goal is to create 'thick descriptions', critical case studies that begin to build an understanding of how meaning is locally generated (Deacon et al. 1999). In terms of research approach “method is thus not primarily a matter of data management...but is a reflexive activity where empirical material calls for careful interpretation” (Howcroft & Trauth 2004:203). It is not a matter of applying certain methods to a situation, but taking the materials available to build a critical understanding of the locality.

We define our scope of analysis as the 'community group' level (and how this relates to individuals), but from a constructivist viewpoint, holistic analysis of history, the social and political must be considered as this is likely to affect constructed meanings (Gray 2004). Cases are not intended to provide comparisons, but rather they are analysed to reveal underlying structures and meaning which can inform our framework, and an understanding of practice.

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<sup>5</sup> In Chapter 6, we critique the 'three directions' model using observations from our cases



Howcroft (2004) provides a useful guide for undertaking such critical research which we will follow. She defines three processes; *Insight*, the understanding of local knowledge and events, relating them to wider contexts and frameworks, *Critique*, a deeper reflection and reading of the contexts and *Transformative redefinition*, a move beyond the critique into suggesting a way forward (ibid).

### **3.3. Cases Studies**

#### **3.3.1 Sampling**

Miles and Huberman (1994) illustrates how one can make a purposeful selection of case study. In *Maximum variation sampling*, samples are selected dependent on “what cases the researchers could learn most from” (Patton 2002:233). In terms of the learning approach this means we will choose case studies that lie within different directions of the 'three directions' model (see Figure 2.5). This will allow practical understanding of the three direction and allow us wider scope to scrutinise the model. Further, our requirement for rich data will orientate us towards sampling based on *intensity* to give sufficient levels of detail required by a critical constructivist approach (ibid).

We have selected two case studies to analyse, Namma Dhwani, a rural community media centre in India which follows the social constructivist direction and Pontos de Cultura in Brazil which displays aspects of both constructionist and connectivist directions of our model.

### **3.3.2 Analysing Practice**

We detail a number of questions we need to ask about practice on the ground, which will lead us to answer the research question.

We are interested in how the three directions have attempted to expand capabilities and improve capability choice. In terms of approach we wish to understand the role of ICT's, and how these connect to the 'three directions' and from a socio-technical we are interested in the role of a leader or facilitator. We postulate that the 'three directions' will place different demands on leadership. Thus we summarise the key questions to examine in each case:

- What are the observable development outcomes from the specific case?
- What type of ICT's are used within a case? How are they used?
- What is the behaviour of leadership related to each case?

Given the underlying critical, constructivist point of view. These questions simply serve as a guide, to focus on specific areas where we wish to build a picture of the project and situated practices that effect it. We will use them in the conclusion to summarise aspects of the different approaches.

## **3.4. Ensuring Validity**

Using both secondary literature and first hand accounts, it is important that we analyse for validity. Given the critical, constructivist approach, we need to move beyond surface behaviours. Hence, biases relating to researchers position are important to be aware of. Validity can also be improved through critical reading of texts, and by understanding the role and position of the author. Investigator, methodological and data triangulation are all approaches which can enhance validity (Woodhouse 1998).

A further triangulation of sorts can come through a critical questioning of conclusions reached (Maxwell 1998). With respect to the constructivist position, questioning whether ones own situated knowledge has skewed understanding is a useful approach. We also follow Maxwell's advice, to scrutinise work for problems through the use of feedback and to focus on discrepant evidence (ibid).

### **3.5. Research Material and Methods**

Our main source of data for these two cases comes from textual sources<sup>6</sup>. In Namma Dhwani we combine a number of published and peer-reviewed work to produce our analysis. There is also an independent evaluation and a number of press articles which are useful for triangulation and further insights.

In this case, we use textual analysis to more closely analyse the reliability and verify the work. In particular, we compare contrasting descriptions of identical anecdotes, and this illustrates some potential biases within the case (see Appendix 2a).

In Pontos de Cultura, there is a wide amount of text sources, but they are less critical accounts of the wider project ideas, with little analysis of local projects on the ground. We conclude there is still insufficient documentation outside 'the centre', government and activist practitioners, to ensure that our work is fully valid. However, we argue that this interesting case can still provide insights, even if there will be need for it to be supported by more research in the future (see Appendix 2b).

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<sup>6</sup> With some contact with practitioners, but only at a sufficient level to triangulate specific issues and confirm general direction

# 4. Learning and Radio in India<sup>7</sup>

## 4.1. Introduction

The Namma Dhwani media centre is an example where ICT learning can be considered central. We position this project within our 'three directions' model and suggest that this project generally falls within the social constructivist learning paradigm.

Using this model helps to illustrate the effective outcomes of the project, and also to begin to understand some of the issues that have arisen.

## 4.2. Namma Dhwani<sup>8,9</sup>

The Namma Dhwani (Our Voices) media centre and radio station is located in Budikote, a rural town in Karnataka, India. It is a small village with a population of 3000 (Pringle & Subramanian 2004). The region, predominantly agricultural, has issues of poverty and vulnerability to drought and flooding. Namma Dhwani includes an office for the local NGO, MYRADA, an audio production studio which produces the radio shows and a media centre with computers.

Figure 4.1 outlines a detailed history of the project guided by two NGO's. Mysore Resettlement and Development Agency (MYRADA) has a long history of working in the region having been instrumental in developing local self-help groups (SHG), of which there were over 8,700 in June 2007 (MYRADA 2008:5). VOICES is an NGO based in Bangalore, two hours away, and works in communications for social change. In 1999, these two NGO's carried out a needs assessment and concluded that there was a severe information deficiency within the locality (Pringle & Subramanian 2004).

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7 In the following two chapters, there are several quotations without cited page numbers. These quotes have been taken from online documents

8 Appendix 2a analyses the research validity issues as related to the literature in this case

9 Sections 4.2, 4.3 & 4.4 have been produced from an amalgamation of a number of sources on the case (Hughes & Pringle 2005, Pringle & Subramanian 2004, Slater & Tacchi 2004, Nair et al. 2006, Bailur 2007, 2008, Tacchi 2005, Nair 2004, Pavarala & Malik 2007, Creech 2005, Subramanian et al. 2005, MYRADA 2008). Where specific numbers or examples have been used, then specific reference has been made to the literature

As Figure 4.1 illustrates, growth has been a gradual process, starting from a small project producing content for the local SHG's evolving into a fully equipped digital media centre. In a key period of growth, the centre was supported by the UNESCO Community Media Centre (CMC) and ICT for Poverty Reduction (ICTPr) projects. This enabled the project to purchase equipment, improve infrastructure and financed the presence of a local researcher.

Namma Dhwani follows paradigms of development through community radio, but the term 'radio station' is used in the loosest possible sense. In India, until 2006, there was no law permitting community radio. To get around this, Namma Dhwani has taken three technology approaches; it produced shows on cassettes, played in SHG meetings, it 'narrowcasts' shows, locating loudspeakers within spaces such as markets, and it 'cablecasts', transmitting through the cable network to televisions or modified radios. Computers in Namma Dhwani are mainly used to support radio operation. Namma Dhwani offers computer and production training, MYRADA uses the computers in its SHG activities, radio producers use the internet for research and they can be used casually by locals.

This project can be considered as successful in many ways. It is close to being a sustainable media centre in a rural area, supporting itself through a combination of SHG subscriptions, training courses and selling its radio programs (Balakrishnan 2007). The volume of local content produced is likely unsurpassed by any other rural community in India, the station producing 2 hours of content per day. Pringle(2004:26) reported that by the end of 2004, a total of over 800 programmes been produced, mostly in the regional language Kannada. At a wider level Namma Dhwani has been crucial example in supporting advocacy for changing India's community radio policy (Buckley 2005).



Figure 4.1: Timeline of Namma Dhvani. Sources: (Pringle & Subramanian 2004, Hughes & Pringle 2005, Bailur 2007, Nair et al. 2006, Rachovides & Frohlich 2007, MYRADA 2008, Acharya 2008)

Literature on Namma Dhwani, has often looked towards informational approaches to understand its successes (Nair 2004). Whilst this has been important (for example information dissemination of cassettes within the SHG's), evidence indicates that radio listenership is small from the cablecast<sup>10</sup>, whilst Bailur (2008, 2007) reports that some of the loudspeakers were cut-off, seen as a noise nuisance. Hence, we contend that the learning approach through media production has played an important part in the centre, as alluded to in Slater (2004) and Tacchi's (2005) studies. The continuing sustainability of the media centre and many of the positive outcomes make more sense if one analyses the importance of the media producers, and how their learning processes are closely related to many of the transformative situations described in the literature.

### 4.3. Wider Issues

One significant historical issue that needs to be considered in this case, is India's decentralisation policy and the recognition of the traditional *pachayati raj* (village council) as a level of government. The 73<sup>rd</sup> amendment was established in 1992 in India, giving powers to the *pachayati raj* with civil society able to scrutinise actions through transparent processes (Johnson 2003). However, it has been argued that such measures have been resisted at state level where politicians have tried to avoid acceding power to local bodies, particularly where opposition political parties have a foothold (ibid). Although Karnataka has been seen as a more progressive state in terms of implementation (Blair 2000), there is still deep concern, both from above and below related to corruption, elite capture and politicisation within the local *pachayati raj* (GOK 2003)

Within our case study it is important to consider this issue. Johnson (2003) mentions that state governments have begun to use self-help groups (SHG) as an alternative system to distribute development finance at a local level which bypasses the *pachayati raj*. In Karnataka there is some suggestion that this could be occurring in the MYRADA SHG's, as alluded in MYRADA's analysis of SHG's, which concludes that

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10 The most recent audience given for cablecast is 27.3% in August 2005 (Nair et al. 2006:23). If we take the reported figure of 361 sets in the village, this translates to 99 sets listening (ibid). Considering that there will be households involved in production, this is a monthly figure, and that there will be those who are untruthful in such surveys (Bailur 2007:11), it is likely that listenership per show is very small.

*“Federations should not be viewed as part of the delivery chain of Government or of any other promoting agency. They are not the last link in the delivery system.” (MYRADA 2008:4).*

Hence, whilst potentially still being a local institution that can provide accountability, and transformation, we need to consider behaviours towards Namma Dhwani's in light of its association with SHG's. It is likely to be seen negatively by certain local groups as being an undemocratic competitor to the *pachayati raj* and the 73<sup>rd</sup> amendment.

Another angle on this issue comes from analyses of local government and NGO's in nearby Bangalore. In Bangalore, the NGO rhetoric of 'transparency and openness', often neglects the fact that NGO's do not work with the most poor and often short circuit the lowest levels of local government (Foster 2008b). Conversely, the poorest may actually have the most leverage within the (albeit chaotic) local levels of power. Thus in Bangalore, NGO interventions can often be seen as both weakening the poor and their best political ally, the lowest level of government (Benjamin & Bhuvaneshwari 2001, Benjamin 2000, Foster 2008b). Whilst the situation is very different within the rural Karnataka, there is some evidence of a similar situation. Slater (2004:31-39) suggests that the involvement of the most marginal is not likely within the ICTPr project and Miller (2005) makes some interesting observations on the new systems of decentralisation and *pachayati raj* in Budikote

*“This system has considerably reduced corruption and appropriation of power. One of our key respondents in the village, belonging to the lower caste, is the local representative at the Block level and though he does not have administrative powers he still manages to exert pressure by giving the members of his community a voice at these levels.” (Miller 2005:24)*

In summary, this analysis suggests two points when approaching the case. We need to move beyond simplistic ideas of the corrupt local government versus the sanctity of the campaigning NGO. Instead we orientate towards a more nuanced understanding of two competing socio-political institutions, competing for space within a locality.

Another historic issue that is crucial is the community radio policy in India. Namma Dhwani's use of appropriate technology has resulted in it being one the few examples in India where community radio development paradigms have been possible and UNESCO and VOICES, have become closely involved with advocacy for a change in policy. Thus, players are likely to want to highlight the positive developmental elements of the project,



and this may remove local autonomy and participation. It also suggests that we need to be wary of the reliability of literature, which may enhance positive and minimised negative outcomes. We discuss this at length in Appendix 2a.

## 4.4. Analysis

### 4.4.1 Communities of Practice

Examining the case in terms of its learning approach and processes, we use the *social/constructivist* direction and the associated concept of communities of practice to analyse the case.

As shown in Figure 4.2 we consider that there are a number of communities of practice within Namma Dhvani, based upon the definition of a communities of practice as a persistent interaction, shared understanding and accountability between individuals (Wenger 1999) We also point out (on the right) those who less likely to be within Namma Dhvani's communities of practice.

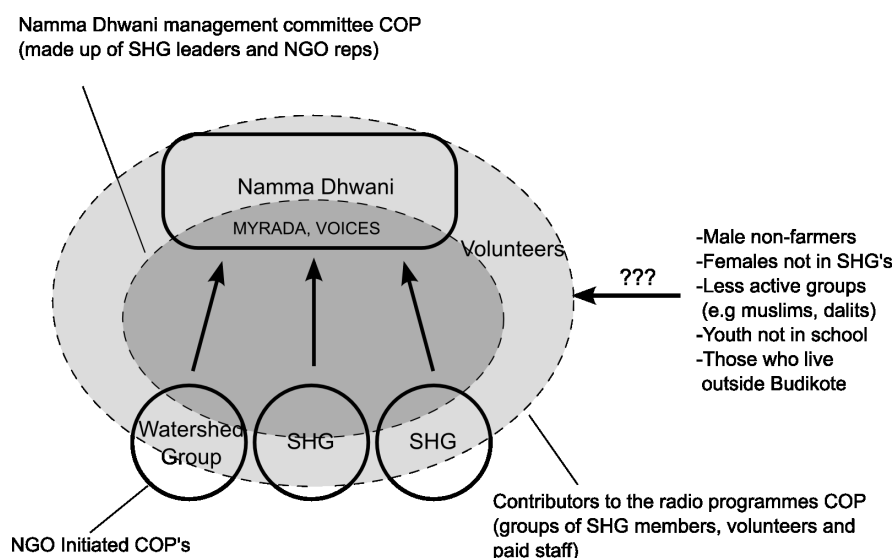


Figure 4.2: Communities of practice (COP) within Namma Dhvani

The community groups (SHG and Watershed Groups) have grown over a number of years with assistance from MYRADA. The SHG's are small groups of women who have been able to gain group access to credit. Over time, the NGO has also launched several watershed groups made up of male farmers (MYRADA 2008). These two groups are most

likely to contribute content, and produce radio programmes in Namma Dhwani. The Namma Dwani management committee is made up of SHG leaders who meets to oversee programming and management issues. Another less formal group, are the contributors, presenters and producers of the radio shows (we will refer to them collectively as 'producers'). Often a number of locals will work together to produce one of the shows; paid staff, SHG members and volunteers. We will particularly focus on the producers as a crucial community of practice in this case, due to them being the most active in processes of learning related to ICT use.

#### 4.4.2 Intra-Communities of Practice

Wenger (1999) argues one can analyse existing communities of practice, and potentially improve their functioning through reference to four tensions, in meaning, space, time and power.

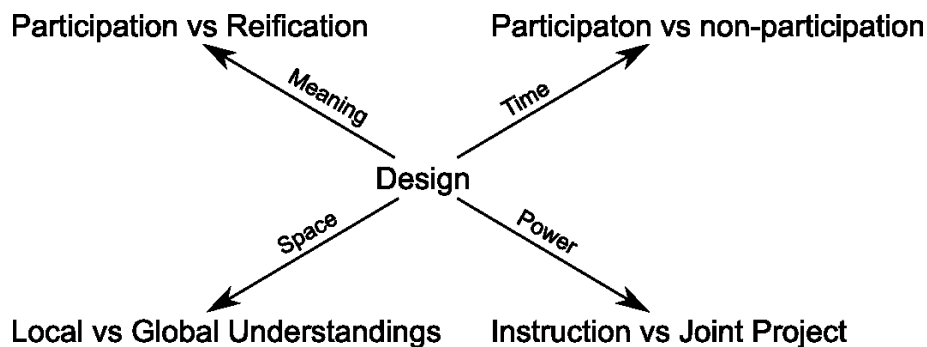


Figure 4.3: Four tensions in design for learning. Adapted from (Wenger 1999, 2001, Lave & Wenger 1991)

Figure 4.3 illustrate these tensions<sup>11</sup>. We define the *space* tension as the balance between practices related to understanding local issues and wider learning. *Meaning* in a community of practice is negotiated through regular actions (participation) and objects and rules (reification), too much participation can lead to a lack of coherency over time whilst too much reification can result in the inability to evolve due to the historic weight of such reifications (ibid). *Time* is related to a balance between participation which maintains the communities and the ability not to participate fully, which allows peripheral membership to new members and those with little time (Lave & Wenger 1991). *Power* is summarised as the tension between the need for guidance and a joint project which allows the community to negotiate meaning rather than have it dictated.

#### Space – Local vs Global Understandings

Namma Dhwani is transmitted through *coherent, sequential media*. ICT's used are radio, TV, cassettes and videos, all which provide content to the audience in the form of a coherent narrative, where the aim is to explain a specific issue (For program list see Pavarala & Malik 2007:175). The process of production is complex and requires a number

11 We modify the original tensions described in (Wenger 1999:232) to be more appropriate to ICT CoPs and improved sense. Ideas are taken from Wenger's study of Northern technology for online communities of practice (particularly the section 'Combining dimensions: convergence in the market' (Wenger 2001:43)) and Lave's work on legitimate peripheral participation (Lave & Wenger 1991)

of people to produce the content. Thus, not only is there the a need for coherent presentation of issues due to the media, but also a coherency between the producers in the community of practice to allow them to work together.

Thus, the technology directs the producers community of practice to move beyond their own situation and examine issues more widely. Working in the community of practice means a common vision needs to be agreed to some extent and the notion of an audience, will direct producers to modulate their own local experiences within the wider context for the audience.

This notion follows very closely Friere's idea of *praxis* (Freire 1972). The presence of a facilitator is more minimal than in Freire's conception, instead learning within the community of practice in hand with the technology has influenced the producers to relate their local experience towards wider understandings.

One recommendation that could be made in this dimension, is towards increased sharing between community centres. As recommended in the UNESCO CMC evaluation, this would expand local communities perception of wider issues through connection to similar rural radio practitioners (Creech 2005).

### **Meaning - Participation vs Reification**

Documents (audio archives) are important in the producers community of practice, as they build a history of the group practice which will encourage consistency, which simplifies group practice. However, this has to be balanced against the need to renegotiate existing knowledge and adapt to the changing world and technologies.

In Namma Dhwani, the use of the eNRICH content management system to archive radio shows is likely to solidify practices of production (Slater & Tacchi 2004). The similar origin of producers (the SHG's, the same village) means there are likely to already be common practices and rituals, allowing the producers to work well together. The encouragement for producers to go out into the locality, collect stories and conduct interviews ensures that the producers community of practice is outward looking and this will aid the evolving of practice over time (Pavarala & Malik 2007:171).

## Time – Participation vs Non-participation

We use the notion of *legitimate peripheral participation* (LPP) to understand this tension (Lave & Wenger 1991). In a *peripheral position* within a community of practice, members can contribute less and still be part of the community of practice, for newcomers this provides space to learn the practices without being a full member (*cognitive apprenticeship* (ibid)).

Time is at a premium for those who live close to poverty in rural settings. For example, in the ictPR projects, two understandings of lack of participation of the most marginal was due to the “Lack of spare time” and “The need to earn daily wages” (Slater & Tacchi 2004:31). In the radio producers community of practice, time demands are high, particularly for inexperienced ICT users, with production often being done by only the most experienced

*“[on the producers]...it depends upon this small team to reflect community needs and in the long term creates ongoing dependence upon them to produce radio programs and hinders the emergence of a genuine community capacity”*  
(Nair et al. 2006:19)

To improve this issue, it may be possible to redesign production processes for more delegation, or design specific simple jobs in the content production chain to allow LPP. Purchasing more user-friendly production technology might also be a possible option for the future.

At present content produced is often of high quality (OurMedia n.d.). However, we argue that accepting lower quality production, might be beneficial in increasing participation by reducing the demands on the producers community of practice. This brings up the conflict between the informational needs and learning needs of the project. In the case of Namma Dhwani the widespread use of information for development paradigms within the project mean that the informational aspect are likely to be given precedence (VOICES n.d.)<sup>12</sup>

For newcomers or outliers groups the communities of practice are already well established and it is questionable if newcomers will be able to integrate within the existing structures. The SHG's are “based on affinity among members” (MYRADA 2008:1), to ensure there

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12 This also questions the recent wisdom of Namma Dhwani's future desire for a community radio broadcast licence. In such a situation, will regulatory demands for quality make it possible for volunteers to participate, when quality and time demands will be even higher?

efficient working as credit schemes. It is unlikely that individuals could join such groups through peripheral membership, particularly if they do not conform to the homogeneous characteristics of these groups. This indicates a potential problem in the desire of Namma Dhwani to grow outside its locality, if additional groups cannot be integrated within the communities of practice.

There is stronger potential for LPP within the producers community of practice. Pringle recount the story of Srinivas who went from

*“fixing cable networks, learning to use the computers, accompanying other staff on field visits and finally making his own programmes...In April 2004, Srinivas was recruited to the position of the community resource person at the station” (Pringle & Subramanian 2004:42)*

The computer training and schools clubs might also be considered an LPP of sorts, where learning is not just about the skills but sensitizing learners to the practices and shared meanings of the centre. However, the potential of LPP is likely only to come to more proactive local and unlikely to reach marginal groups without explicit outreach plans (Slater & Tacchi 2004:80).

### **Power - Instruction vs Joint Project**

A number of problems related to this direction have been highlighted in the conflict between locally ownership and need to achieve 'developmental' outcomes (Bailur 2007). Time available for volunteering can be minimal, affecting participation and Nair notes that “since June 2004 women from the management committee have not convened a meeting owing to pressure such as lack of time, constraints on their mobility, and pressures from some members usually male of their households” (Nair et al. 2006:26), in terms of the producers community of practice “volunteers occasionally pitch their ideas although when they participate the paid Community Resource Person invariably guides them” (Nair et al. 2006:18). These statements together suggest that over time, the centres operation is being run by fewer locals, often replaced by remunerated volunteers and staff (ibid). We concur with Bailur's(2007) argument, that whilst the content of programs are articulated as meeting of community needs, there a number of influences that push the producers community of practice in narrow developmental directions. We can see this in the makeup of the management, “to participate in running the station – one has to be the head of a self-help group” (Bailur 2007:9), the increasing importance of centre workers,

and the inflexible programme schedule which “conforms to an original programme schedule worked out in consultation with local community groups such as SHG's, teachers, doctors etc” (Nair et al. 2006:21).

Giving the producers and other local groups a stronger participative base to define direction is crucial to allow them to derive meaning from their work and evolve. However, the external need to be seen as a development success, has reduced the ability for communities of practice to guide their direction.

#### **4.4.3 Inter-Communities of Practice Issues**

To connect between communities of practice, Wenger's (1999) discusses the importance of shared connectors, practices and object which make a constellation of communities of practice more coherent. We identify that Namma Dhwani's presence has resulted in increased *shared practices* between communities of practices through inter-SHG interactions as well in the shared practices of radio production and radio listening. There are increasing numbers of *boundary objects*, particularly in shared representation placed on ICT objects and the media centre itself. There are also increasing number of *brokers*, members who connect multiple communities of practice together; the radio producers, NGO workers and others who visit the project (Slater & Tacchi 2004). Hence Namma Dhwani can be seen as central to strengthening relations between local communities of practice.

## 4.5. Outcomes

Examining the project in terms of communities of practice has been fruitful in explaining many of the phenomena occurring. We bring this work together, examine the wider outcomes of the project.

### 4.5.1 Empowerment, Mobilisation and Framing

Within the production groups, there is much evidence to suggest that learning has taken place within communities of practice resulting in individualised empowerment, with improved confidence, skills and status. For example Slater describes one local women Divvya, “officials from All India Radio described her as a 'silent scared girl', her transformation to a courageous dynamic inspiring women has been phenomenal” (Slater & Tacchi 2004:61). Beyond individual empowerment, we see how group actions have become more prominent through Namma Dhwani. A range of programmes have been made which tackle local issues such as the importance of elections, the drainage system in Budikote and discussion about the role of women in society (Pringle & Subramanian 2004:47). Women have also tackled societal issues within their rural community for example

*“[the] tradition of having women sit isolated from others during menstruation. The female studio manager made a programme on how such a tradition came about and its logic and ill effect.....Later women, who were initially shy about speaking about their bodies on radio, admitted to the studio managers that they felt good, about having to discuss something so personal”(Nair 2004)*

Whilst we do not know whether such actions actually resulted in any changes, we can clearly see the producers beginning to use their productions to explore important societal issues. Namma Dhwani has also been used to gain leverage on political issues. We use the example of recording local Panchayat meetings to illustrate this. The village Panchayat meeting were initially recorded by Namma Dhwani who began



*“cablecasting proceedings of panchayat meetings that made a few people go red in their face” (Nair 2004).....“after several months the panchayat disallowed the practice.....[so, at the next Panchayat election] each candidate was also asked 'If you win, will you allow Namma Dhwani to cover and record all the local panchayat meetings...?' Although most of the candidates agreed, newly elected members all recanted saying they 'needed to consult with other members.' “ (IFAP 2005:71)*

We see many parallels with rational actor theories in this example. Viewing Namma Dhwani and the Panchayat as competing socio-political institutions (see section 4.3), open meetings can be seen as a specific point of contestation. Using *framing*, Namma Dhwani tries to frame the idea of recording the Panchayat meetings as connected with openness and democracy (which is reinforced by production of a number of radio shows on corruption (Pringle & Subramanian 2004)). In terms of *resource mobilisation*, Namma Dhwani uses it increasingly aligned resources, radio productions and SHG's to sway and mobilise the opinion of local villagers. Namma Dhwani has been able to mobilise and begun to contest power with the incumbent institution. But this is not the end of the story, the competing power is rational and modifies its behaviour. In this example the Panchayat has been able to avoid the demands on multiple occasions.

This illustrates the importance of moving beyond the idea of one-shot achievement of 'voice' or 'empowerment' towards an ongoing process of group contestation. It is only through constant evolving and coherence of the communities of practice that comes through the shared processes of learning, that these groups will be able to continue to contest the behaviour of such institutions.

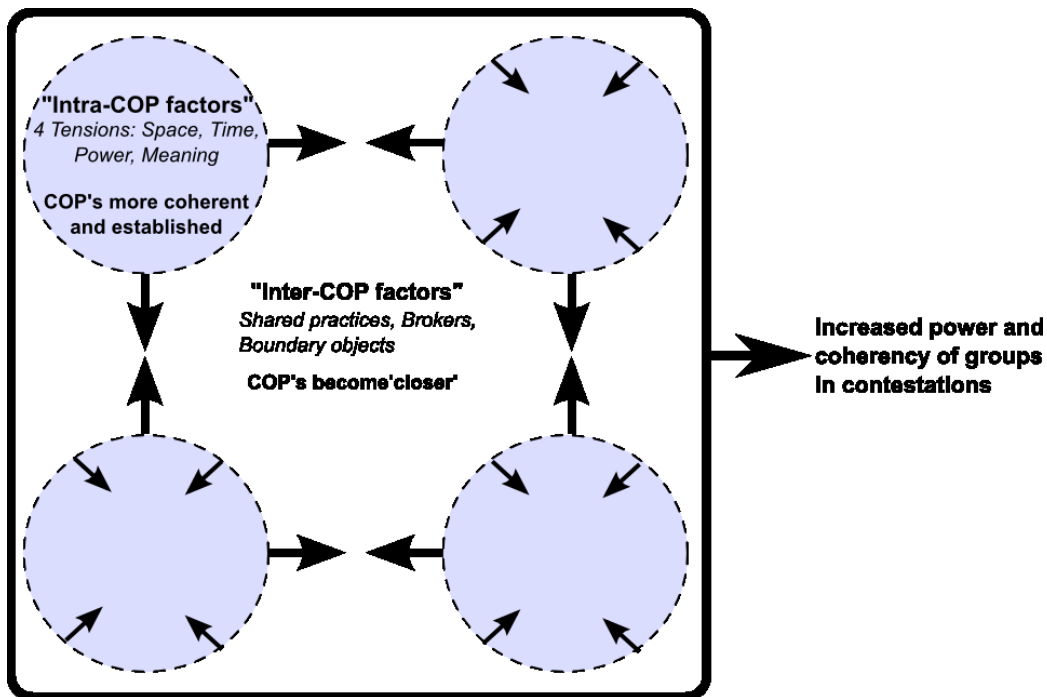


Figure 4.4: Relating communities of practice to outcomes

Figure 4.4, brings to together the analysis, and illustrates the factors that result in an increased alignment within and between communities of practice, which gives them their increasing influence as a coherent constellation.

The case study supports the fact that development outcomes do not simply happen at one level, but at a number of different levels and degrees at the same time. Rowland's (1997) notions of *the core* of individual empowerment rings true, and this expands through social constructivist learning into wider coherent groups and contestations. ICT's has been a central part of a learning process, particularly for the most active locals, the producers and SHG's, and has guided group actions to become a more coherent.

#### 4.5.2 Participation and Response to Changing Society

This view of success needs to be tempered by the critiques we have made in the analysis. In particular, our analysis suggests that only a selective number of groups, the producers and SHG members, have been able to take advantage of Namma Dhwani through informal learning approaches involving ICT's.

Additionally, for these active groups, given the rational actor model, group contestations which widen capabilities are not necessarily guaranteed over time, particularly when there a number of problems within the project. In the computer training component

*“after conducting two – three month in-house training courses where the syllabus was largely loose and informal, the project workers decide to switch to a more formal mechanism of training...without a certificate the value addition would not be recognised by the job market”(Slater & Tacchi 2004:44).*

In an evaluation of the UNESCO's projects, the future of such projects is likely to be less open to flexibility that has been possible previously.

*“[the embedded researcher was]...an intriguing methodology that has helped..identify marginalized groups....[but]...A much simpler process for self assessment and planning needs to be developed....that takes into consideration the limited time available.” (Creech 2005:32)*

As the project matures, we see a move toward more formal designed programmes at all levels. We consider this to be extremely problematic for the active communities of practice to remain relevant. In Karnataka, wider developmental changes are taking place which are transforming rural society (Heitzman 2004). Most houses in Budikote now have cable television, and a mobile mast has been recently installed (Jones et al. 2008). Yet if the media centre moves towards formality and managerialism, communities of practice will become closed and less able to adapt through their practices to such changes.

In essence, social constructivist learning is built on the idea that meaning of a local situation is negotiated through shared practice and learning amongst localised groups. But with only a small number of active learning communities engaging with ICT's and without the ability to direct and modify their practices, communities of practice will be unable to evolve.

## **4.6. Summary**

In Namma Dhwani, communities of practice have grown and become increasingly interconnected through the *shared processes of production* connected to the media centre, and the use of *coherent, narrative technologies* for dissemination, guiding producers to move beyond their local understanding to wider global views. Namma Dhwani and the ICT

processes has been at the heart of this increasingly coherent set of communities of practice, which have begun to contest as a group, socio-political situations within the locality.

Rejecting the idea of the sudden 'moment of empowerment' and instead modelling local changes as a process of competing rational actors, we have outlined a number of issues. The active communities of practice engaging with ICT's are presently small and the project is moving away from its more open practice, towards more formal and closed practices. Given the processes of modernisation occurring in the region, local groups will need to respond and absorb these changes, and if not the media centre will become a less relevant part of locality.

# 5. Networked Cultural Learning in Brazil

## 5.1. Introduction<sup>13,14</sup>

Pontos de Cultura (Cultural Hotspots) is a scheme instigated by the Brazilian Ministry of Culture to promote local production of culture using ICT's. In this section we detail the history of this project, particularly its close connections to the vibrant Brazilian activist movements.

Building on our model of the learning approach using ICT's. We will analyse this project by referring to the constructionist and connectivist directions.

## 5.2. The Emergence of Pontos de Cultura

### 5.2.1 Three Generations

Pontos de Cultura has been described as part of the third generation of Brazilian ICT projects as shown in Figure 5.1 (Grassmuck 2005). In the first generation, the goal was to provide subsidised computers and training. In the second generation, the focus was on access and 'digital inclusion', with a large number of parallel telecentre schemes (Minuano 2007). The third generation originates from the Ministry of Culture and using ICT's and the internet as part of cultural exchange and production. This model tracks models of the 'three generations of ICT4D' developed by Heeks (2008) and we note particularly his observations of "no sharp dividing line that lets us say, 'ICT4D 1.0 stopped here; ICT4D 2.0 began here.' On the ground, there is a sense of evolution, not discontinuity" (Heeks 2008:32).

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13 In this chapter we include a number of translated Portuguese quotes. Where indicated as translated, original Portuguese text has been included in Appendix 4 for reference

14 Appendix 2b analyses the research validity issues as related to the literature in this case

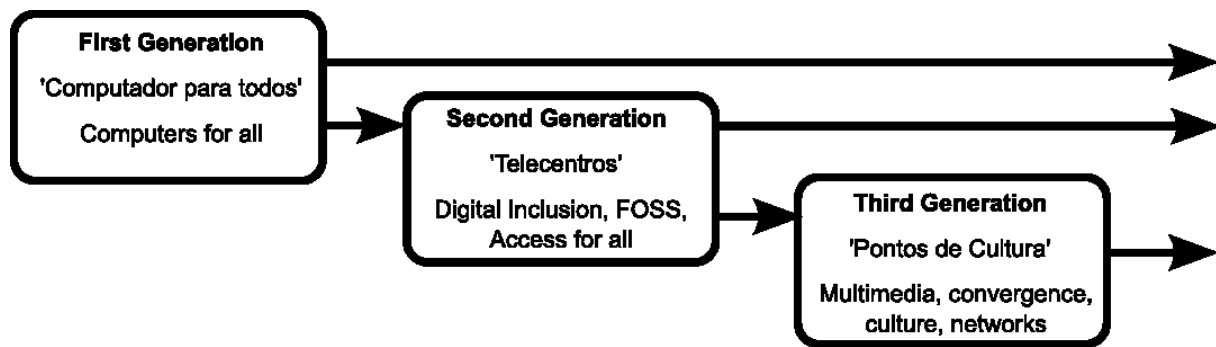


Figure 5.1: The three generations of government ICT development in Brazil. Source: (Grassmuck 2005, Garcia 2004)

## 5.2.2 Telecentros and Critique

Connected to the notion of digital inclusion, a large number of telecentres throughout Brazil have been sponsored by the government, private companies and municipal funds (IBICT 2008, Souza 2007). Such programs have led to large numbers of people using telecentres within Brazil. Reihart (2006) reports that in Sao Paulo there were 177 telecentres and 550,000 regular users in 2006 and present national figures suggest that there are 5000 official telecentres in Brazil (IPSO 2008). Evidence suggests that the entrepreneurial sector is even larger, supporting rising demand for internet access and gaming (Minuano 2008). Telecentres on such a large scale have often been implemented through public-private partnerships, and whilst there are schemes that focus on the poor (Ferraz et al. 2004, Batchelor et al. 2003) private partners have often implemented telecentres in a top-down manner (Reinhard & MacAdar 2006, Madon et al. 2007).

We can see the wide implementation of the telecentres as a double-edged sword. Telecentre schemes have increased understandings of ICT's and ICT users within Brazil. We also connect telecentre growth with the expansion of Portuguese speaking communities online and the increasing entrepreneurial opportunities in the sector (Brunet 2005, Kugel 2006, Minuano 2008). On the other hand, telecentres have been increasingly critiqued as mirroring the neoliberalist, consumptionist models of media present in Brazilian society. The critique of the media in Brazil is one of a "mediatized society of a particular virulent nature in which vast swaves of the population were literally narcotized by Globos [the dominant Brazilian media corporation] diet of soap operas" (Garcia 2004). Hence, the strong activist communities in Brazil have articulated the potential of ICT's, drawing on existing notions of tactical media and counter-hegemony (Garcia & Lovink

1997, 1999, Downing 2001) In this light, telecentres are critiqued as mirroring the dominant mediascape “offering little other than access to the net. So what if its all run on Linux if all that the visitors do is chat and go to Globo websites or the porno” (Garcia 2004)

Such critiques have provoked a number of activist projects and communities. These were greatly influenced by several large 'hacker labs'<sup>15</sup> that took place in Brazil such as the presence of 6000 hackers at the Tactical Media Lab in 2003 (Grassmuck 2005) and the focus on activism and open source at the World Social Forum in 2005 (Lessig 2005). Such activist projects work on a smaller scale but are often connected through gatherings and connection between groups. For example, *Autolabs* was a tactical media project built on participatory production taught by activists in three centres in Sao Paulo (Garcia 2004), *radiolivres* (free radio) (radiolivres 2008) connects a network of practitioners using (often illegal) low power radio transmission in community based media (Caetano 2006). Appendix 3 presents a detailed 'map of the network' of activist projects produced by the research site descentro in 2006, and illustrates the volume of activist projects (descentro 2007). Projects often come together, managing to obtain small amounts of funding in a sporadic manner. Whilst many of the initiatives are only fleeting and disappear, they inevitably lead to lessons, new collaboration and further projects.

### **5.2.3 Third Generation - Pontos de Cultura**

Pontos de Cultura emerged for two main reasons. Firstly, the growing presence of activists into what might be traditionally be considered 'development' or 'government intervention' territory. Secondly, was the appointment of Gilberto Gil, the popular Brazilian musician, as the Minister of Culture and Gil's appointment of Claudio Prado to the Ministry. Both Gil and Prado were heavily involved in Brazilian counter-culture in the 60's, and the movement of *Tropicalismo* (Prado 2005). During his early days in the Ministry of Culture, Prado began attending activist events and became interested in the ideas being articulated by these groups (ibid). This is not surprising, as there are many parallels between the *tropicalismo* movement and the technology activists, particularly in their use of strategies of *Cannibalismo* (cannibalism), a Brazilian understanding of literally 'eating alive' outside cultural resources and absorbing them into the Brazilian culture (Villela et al. 2008, Bar et al. 2007). This idea, first appeared in the 1920's and 30's to rationalise modernism and the

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15 We use the notion of a 'hacker' or 'hacker groups' in this section. In our use we are referring to the more positive connotation, of groups or individuals who are experimenting, modifying and adapting software and hardware for specific purpose using available resources

need to “cannibalise the foreign, thereby eliminating its threat while incorporating its power” (McCann 2004:131). Hence, activist groups and their unique interpretations of ICT production and *cannibalismo* fits closely into historic Brazilian ideas of cultural change and modernisation.

Pontos de Cultura emerged when Prado began to work with activist groups. The program financed by the Ministry of Culture supports existing local centres working in local cultural production by providing ICT's, training and finance to encourage them to begin to use digital media as a means of disseminating and sharing (Freire et al. 2005). The goal is of an autonomous network resilient to changes in policy or government (Prado 2008, Balvedi 2005). Aims of the project have been described in a diverse terms, in terms of preserving culture, creativity, empowerment and alternative media (discussed in section 5.4). We illustrate a number of examples of local Pontos de Cultura to show the diversity of projects:

- The 'Associação Piauiense de Hip Hop' (Piauiense Association of Hip-Hop) works with at risk youth in Sao Paulo through music and urban arts (Pimentel 2004)
- The Pontos de Cultura Mocambos is also based in Sao Paulo and supports the quilomobo people, African decedents who are often victims of discrimination. The focus is on activist campaigning and employment through digital production (Cultura viva 2007, Projecto Taina n.d., Inclusao Digital 2007)
- Pontos de Cultura Navegar Amazonia, is located in the Amazon region. The Pontos works through internet and video production, producing documentaries and TV programs for cultural awareness and to encourage tourism (Navegar Amazonia 2005)

We will mainly focus on the early period of the project from 2004 to 2006 (due to availability of literature), in this time the project financed 152 *Pontos*, working mostly in urban areas, with youth, the poor, slum dwellers, minority ethnicities, women, gay and lesbian groups (MinC 2006a). Projects are mostly connected to existing local groups working in culture, often moving into the digital realm for the first time (ibid).

The project continues to grow. At present there are 644 *Pontos* spread throughout Brazil (IPSO 2008), the government is seeking rapid expansion to 10,000 by 2010. Further, the goal over the preceding years is the “development of a methodology for replication of the pilot project, formulated in the next four years into a broad public policy.....[resulting in an] estimated 200 to 300 thousand organizations”[translated] (MinC 2006b)



## 5.3. Analysis

### 5.3.1 The Learning Approach Rationale

Given this unique approach and its ability to bring together broad partnerships, it is inexplicable that no mainstream ICT4D literature has examined this project and its relevance to wider understandings. Given the availability of data, we only skirt these issues. Rather we illustrate how the learning approach can serve as a theoretical approach in understanding Pontos de Cultura.

We postulate that one of the reasons for the lack of ICT4D literature is connected to a lack of theoretical understanding of Pontos de Cultura. The project has an increasingly heterogeneous understanding of its users, and this results in diverse actions and messages. Interpreting such outputs in terms of the information value and noise/data/information/knowledge chains espoused by information system is problematic.

A start point to understand the learning approach is McLuhan's (1967) seminal work 'The Medium is the Message' and medium theory. Changes in media, influence the form and contents generated by that media. Thus, McLuhan argues for a focus on the medium itself; its properties and the relationship to users, rather than the message, as a way to bring understanding. Thus, the learning approach, allows us to step away from the increasing complexity of information and gain a perspective by looking at the ongoing relationships between the media and its users.

Referring back to the 'three directions' of learning approach, we will use the *constructionist* and *connectivist* directions to analyse this project. There is evidence that are also elements of *social constructivist* approaches within individual centres, likely following the analysis from the previous chapter. However, we argue that Pontos often moves in different directions.

### 5.3.2 Constructionist Models of Learning

Seymour Papert's (1991, 1993, 2000) association with the OLPC, and his work with children and sciences has resulted in his work being pigeon-holed far more narrowly than it deserves. In this section we build on his constructionist notions, that ICT's can serve as

fruitful learning environments where learners learn through creative construction and exploration. Figure 5.2 summarises three aspects of constructionist learning that we will use to analyse the methodologies of Pontos de Cultura.

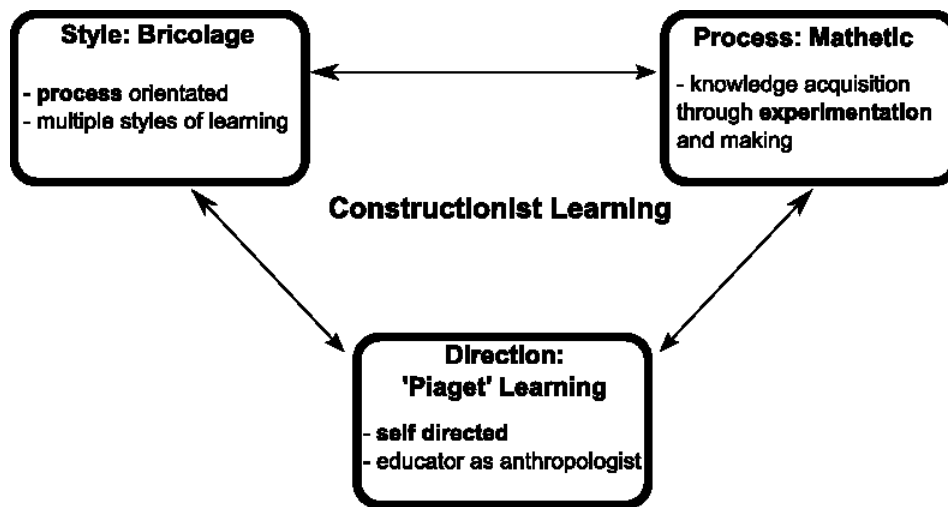


Figure 5.2: Outline of constructionist learning. Adapted from (Papert 1993)

## Bricolage

Papert uses the notion of bricolage to understand the cognitive processes related to learning (Turkle & Papert 1992). Often one takes false paths during learning, and it is in the adjustment of mistakes and the understanding that comes out of these adjustments, that results in knowledge becoming absorbed by a learner (Papert 1993). In formal education, this style is often neglected in favour of notions of mastery through repetition (ibid). Papert rejects such approaches instead looking to allow learners the room to follow their own styles of learning, grounded in bricolage (Turkle & Papert 1992). This is relevant in Brazil where learning styles are likely to be mediated through processes of informalism and 'making do' rather than formal education (Villela et al. 2008)

It is no accident then, that Pontos de Cultura has used the ideas of *meterecyclagem* (meta-recycling), learning through recycling of computers, and the use of free and open source software (FOSS) and open licensing within cultural production (Freire et al. 2005). Beyond economic issues, FOSS can be seen as an environment that encourages *bricolage*, "the use of FOSS is active, and requires a learning approach, because it puts an end to the idea of a finished product." (Balvedi 2005). The Ministry of Culture also reflects

on the importance of this type of pedagogic approach, “The development of collaborative work requires humility from both parties, to acknowledge the limitations of the educator and the learner as unfinished beings and imperfect” [translated] (MinC 2005:5)

### **'Piaget Learning'**

Papert adopt several concepts of the educator Jean Piaget. Learning should not be connected to a curriculum of teaching. Constructionist models create *learning environments*, where complex real-world concepts are more easily explored through processes of bricolage. In this light the goal is to create “conditions for children to explore 'naturally', domains of knowledge that have previously required didactic teaching” (Papert 1993:187)

Papert's life work has focussed on building such learning environments using ICT's, such as *logo* for exploring mathematics and physics. He admits the limits of these artificial learning environments and his vision (in 1993) was of future learning environments as “powerful new social forms [that] must have their roots in the culture, not be the creatures of bureaucrats” (Papert 1993:181). In this light one can see the educator as an anthropologist (ibid). The educator needs to be “sensitive to what is happening in the surrounding culture and use dynamic cultural trends as a medium to carry their educational interventions” (Papert 1993:181). Hence, we envision learning environments that move away from abstract software, becoming more entwined with local culture. Surprisingly Papert's associations with the OLPC and its single cross-cultural interface do not follow his own vision of the future.

Our interpretation is of learning environments that are highly variable, dependent on setting, where the 'educator as anthropologist' is able to use ICT's to somehow build the complexities of daily life into an educational learning environment. In Pontos de Cultura, this idea of a culturally appropriate learning environment reinforces why action occurs in many cultural domains. The participants, even in one location, are likely to have diverse cultural understandings. 'The educator as an anthropologist' is building culturally appropriate learning environments for a specific setting and groups (Meireles 2008).

We have thus positioned ICT-based cultural production in Pontos de Cultura as *a locally appropriate learning environment where learners construct and learn through bricolage*. This leads us to ask, what exactly the learner is learning? If ICT's are providing a learning

environment to explore abstract domains of knowledge, then what are these domains of knowledge? We offer a number of potential answers to this question as illustrated in Figure 5.3.

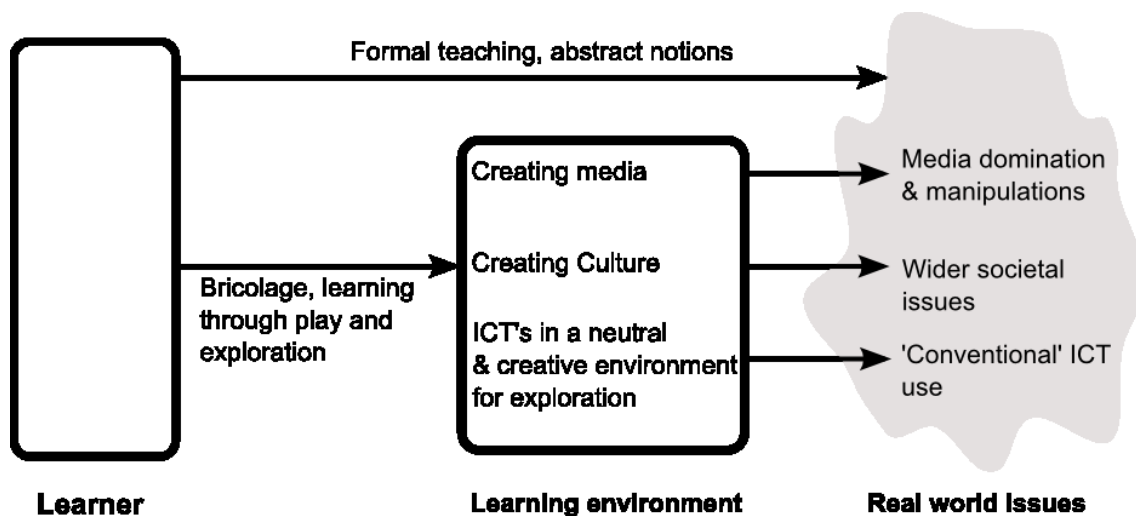


Figure 5.3: ICT's provide a learning environment which allow learners to explore abstract notions through creative construction and exploration. Adapted from (Papert 1993)

On one level there is the notion of creative media literacy. In a media rich society and particularly one such as Brazil with dominant media players, being able to interpret media is crucial to building a critical view of society. By using ICT's to produce, edit and disseminate media, learners begin to understand the techniques and manipulations that come through the media and look at it more critically (Goldman et al. 2007, Lessig 2004). In a wider view, cultural production (with the aid of ICT's) could be considered a learning environment to explore wider issues (imperialism, neoliberalism, environment) in a more practical way. For example, musical lyrics play with ideas about society and oral stories might encapsulate wider debates regarding indigenous traditions. A third view is of ICT's providing a learning environment for computer use and repair far removed from formal behaviours normally connected to ICT's. ICT's are used in a neutral space, and learners become comfortable through informal methodologies, play, without the fear of failure or breaking the computer. Often in workshops, computers are first taken apart with the internal parts shown, spaces used are not formal computer labs, but more neutral community centres and spaces (Fossa 2007, Fonseca 2008a)

## **Mathetic Approach**

The Mathetic approach describes how constructionist learning results in knowledge in a learner. In mathetic learning “everyone must acquire skill at getting to know and a personal style to do it” (Papert 1993:137) and this is not something that can be taught. Papert expands this to define two principals of a mathetic approach to learning:

- 1) Relate the new to what is known
- 2) “Make something new with it, play with it, build with it” (Papert 1993:120)

The second stage, leads to the new knowledge becoming embedded within the learners. This process also ensures that the new knowledge is assimilated in a way that sits inside the existing worldview of a learner. Papert (2000) refers to this as *syntonic learning* and considers it vital, so that learning is from within, fitting in with ones long-learned models rather than being imposed from the outside.

In Pontos de Cultura, one common learning approach has been to relate computers to other arts forms. For example, Fonseca (2008b) describes how in one centre, youth were allowed to decorate recycled computers with arts and graffiti. Within the community centre, this resulted in these computers being used actively in creative and playful ways by the youth, whilst a set of identical undecorated computers were often left unused. There is also descriptions of using computer components to produce sculptures and robots (Hemment 2008, Fossa 2007). In essence, mathetic learning is being invoked with the demystification of the artefact by relating it to playful realms that learners already knows. The ICT's that provide a conducive environment are digital production technologies; open source creative applications, digital production software and digital recoding equipment. Using ICT's for production of culture, allows users to explore, and create works quickly and cheaply. Such ICT's are also highly flexible in providing space for the creative vision and varying technical competency of the learner.

There are also problems related to the mathetic model. In particular, Pontos refers to the notions of the 'kit', a standardised set of ICT tools which are distributed to local centres by the Ministry of Culture (Fossa 2007, Barretto et al. 2007, MinC 2005:11). This allows local centres to get going, with integrated software, and Portuguese translations, a process that could not be done within the local centres themselves. However, we need to consider that in mathetic learning “knowledge is associated with a sense of personal power, absent from the use of knowledge that is experienced as coming from the outside, having qualities...!

call dissociated and alienated.” (Papert 2000:727). Documentation suggest that the software is supplied in such a way that the centres often find themselves in a dependent relationship with the technical teams. The open documentation of Pontos work also indicates that regional technical staff, already poorly resourced, spent much of their time making repairs or configuring systems for local centres (mapsys n.d.). There is little time to ensure more equitable spreads of knowledge, or to develop better methodologies for sharing information.

This was reinforced by the technical team in a critical open letter to the Ministry of Culture, in response to the intended huge growth in the number of Pontos

*“MinC should....promote discussion between users, Pontos de Cultura and the community of developers. Continuous communication between users and developers must take place through meetings (seminars, conferences) and over the internet” [translated] (estudiolivre 2007)*

This suggests the need to place more resources in technical exchanges to aid the local centres. Expansion to a more regional management structure, rather than central Ministry teams has also been proposed. This might be a good way to ensure that such technical skills can be absorbed more widely in line with ideas of the *mathetic approach* (TEIA 2007, MinC 2006a).

### **Culturally Directed Constructionism**

The analysis of Pontos de Cultura suggests that the methodologies adopted within the local centres, with respect to software use, demystification and production can bring a new view of computers and computer use to learners. ICT's can additionally provide a flexible and cheap environment in which cultural concepts can be explored. In its 2006 evaluation, whilst highlighting the problems we have discussed, the predominant opinion was broadly in favour of the approach (MinC 2006a)

This shows the power of constructionist learning, even though ICT's and approaches have been imposed from outside, through methodologies that encourage constructionist learning they have been accepted and become embedded in local cultural production in many cases.

### 5.3.3 Connectivist Models of Learning

Pontos de Cultura revolves around network sharing, and notions of shared practice and knowledge through networks (MinC 2007). However relying on the 'network society' paradigms without analysing practice can be problematic. At present, there is a lack of analysis, with room for more qualitative research on networks behaviours at the local level (see Appendix 2b). We orientate towards a critical view which questions the rhetoric of the network behaviours in Pontos de Cultura at present. We also need to consider the work on connectivist learning critically. Unlike the previous two directions, we are unable to draw upon a well established field of pedagogic research to understand this direction.

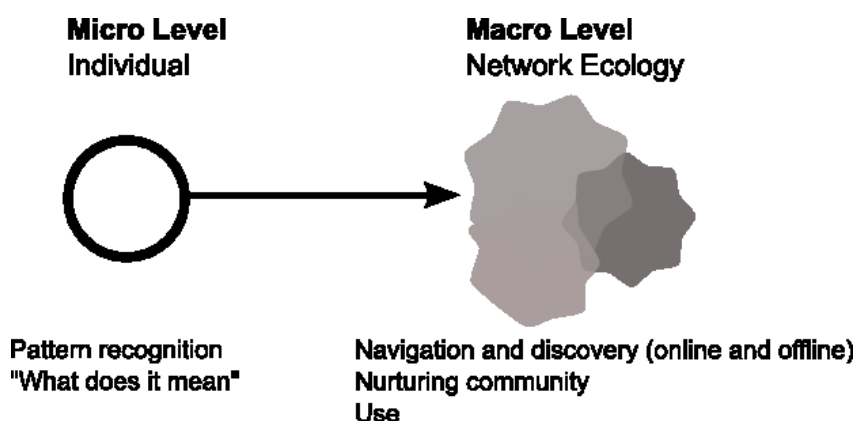


Figure 5.4: Siemens model of connectivist learning. Adapted from (Siemens 2006:125)

Siemens' (2005, 2006) view of connectivist learning is on two scales as shown in Figure 5.4. At the micro level, individuals need to be able to deal with the contrasting sources, and mass of incoming information, and at the macro level there is need to create and negotiate networks in an ever changing ecology. We note several potential problems with this pedagogy in such a Southern settings. Often this understanding falls into a dichotomy of only individual and networks, equally taken up by Downes (2007a) in his favourable analysis of the networks vs groups. This neglects the effect (both positive and negative) that groups have upon an individuals behaviour. Secondly, the literature often leans towards technocentric approaches based around neutral online networks and tools, neglecting the importance of offline network ecologies.

We expand on Bourdieu's (1990, 1984) view that all aspects of culture and practices can be seen as enforcing power and influencing societal divisions and norms. Applying this view of connectivist practice, the constraints on individual and groups can limit the

potential of the network to be used to its maximum. There are 'invisible' cultural constraints on the learner based upon cultural and societal norms and practices. Bourdieu (1990) refers to this as *habitus* and discussed more practically by Freire (1972) as a *limit-situation*.

### **Constraints at the Micro-level**

Colugnati (2007) provides a network analysis of one year of behaviour on the forums of the *converse* website, the social network for Pontos de Cultura. His analysis suggests that network behaviour is closely related to regional workshops. Following these workshops there is a strong increase in the number of online forums with threads centralised around a few active individuals, most likely workshop facilitators. Over several months, the networks becomes less centralised with more equitable information exchange without centrality. Several months further on and the networks start to reduce in size (*ibid*). In the case of Pontos de Cultura, the social connections formed through workshops and the network are, as yet, not enough to sustain a wider community.

Description of local workshops connected to Pontos de Cultura, illustrate the work in trying to reveal imposed limits of learners through discussions of perceptions and challenging long-held ideas. One trainer describes how

“People know the technology, know the basics. Without this sort of workshop, the telecentre will not work, people will only access Orkut and MSN.....Our biggest problem in digital inclusion, is to disrupt a mentality that has continued for decades. It's the mentality of "just use". Anyone, who wants to work within digital inclusion, will struggle with this mentality.” [translated] (*Couto 2006*)

In the 'free knowledge workshops' similar processes are taken, initially through shock, by breaking the expectation that delegates will receive a certificate and then during the workshops, by removing leaders from the discussion, in attempt to foster more autonomy (Meireles 2008, Fonseca 2008a)

These analyses relate closely to *habitus* and *limit-situation* that we outlined. The workshop leader describes getting beyond self-imposed limits as the central point of the local workshop rather than teaching anything specific, and this cannot be achieved in one workshop. It confirms the importance on the methodologies of the workshops and interactions as the key challenge for Pontos de Cultura to foster network use, an approach which has been taken up by activist groups like *metarecyclagem*, (Fonseca 2008a, Villela



et al. 2008). A lack of resources indicates that it has been somewhat undersupported by the Ministry of Culture itself. In the 2006 evaluation, it was reported that 68% of Pontos had contact with less than 5 other Ponto. When asked the reason, 42% of Pontos' put it down to 'just not knowing other Pontos' (MinC 2006a).

We note other related research to ICT mediated networks in South, Donner's (2004) study of informal entrepreneurs and mobile use in Rwanda suggests that mobile benefits accrue mainly in existing networks of social capital. Horst and Miller's (2006) research on ICT mediated networks within urban Jamaica coins the term *link up*, unique networks of loose ties used by the poor in Jamaica that are explicitly maintained for moments of need. Thus, as alluded to in the network of Pontos de Cultura, even when network behaviour begins to become embedded, they do not necessarily follow expected paradigms of the a network society that will simply "give priority to information flows" (Webster 2002:100) but instead become closely entwined with offline practices and cultures.

We contrast this description with the documented behaviours of the Brazilian activist networks, as illustrated in the network history in Appendix 3 (Caetano 2006, descentro 2007). With its seemingly spontaneous constructions, destructions and reconfigurations it follows more closely the documented 'network society' models espoused by the likes of Castells (2000) and Benkler (2006). There is a potential disjunction here, between the behaviours of the more skilled activist groups and those within Pontos de Cultura, who are just beginning to use such networks. It is important that this disjunction is considered by activists and policy makers working in 'the centre', and indicates the need for care when making assumptions or transferring models.

In sum, we have incomplete picture of Pontos de Cultura, but suggest that network behaviour is closely linked to *habitus*, group process, and that the subsequent network actions do not necessarily follow behaviour previously documented. It is through building a wider visions through actions in workshops and the direction of local facilitators that such barriers can be broken

## **Enabling the Macro-level**

Siemens (2006) outlines elements of the network that can be designed to encourage connectivist network behaviour,

*“[this] involves the design and fostering of ecologies and networks. The creation of an ecology permits a broad-scale implementation of differing knowledge and learning experiences, [so one can].....achieve knowledge-based needs in a multi-faceted manner” (Siemens 2006:132).*

In Pontos de Cultura, *EstudioLivre* (Free Estudio) (estudiolivre n.d.) is an online community created by Pontos for uploading productions to share, using open licensing. This is well maintained, and at the time of writing there is an estimated 3800 pieces of content uploaded (ibid). Members can create wiki pages, tag and message each other, allowing spontaneous communities to form somewhat around content. One might also see the process of remixing content as a implicit conversion between users, but there is no way to tell how common this is.

According to the literature *Estudiolivre* is intended to be accompanied by *Converse* (Talk), a social space that allows community discussion, but this has been offline for a long period (Balvedi 2005). The lack of a social community means that the online ecology is rather disjointed. There are a number of active sites connected to Pontos (activist networks sites, individuals, the government, NGO's, Pontos) and a number of emergent communities (*Estudiolivre*, Pontos related communities on Overmundo and Orkut)(Couto 2007). This is a networked ecology very close to that described by Siemens, however, without *converse* there is no way to tie these disparate resources together, and this often leaves Pontos seeming rather disjointed. A centralised social site is crucial to allow discovery, encourage community and use of the vibrant network components.

## **Connectivist or 'well connected'**

As the 2006 evaluation outline describes “The installation of Pontos de Cultura and dissemination of its activities are helping to strengthen existing partnerships, to create new relationships and give projects wider visibility” [translated] (MinC 2006a:113), with 36% of Pontos carrying out joint activities with other Pontos, 15% carrying out joint training (ibid).

There is no doubt that Pontos de Cultura has encouraged joint actions, and close collaboration in patches, particularly when connected to the work of activist groups, but Pontos is still far away from the rhetoric of internet age and evolving networks of mass collaboration through ICT's and networks (MinC 2007). Anecdotal evidence suggests that at present, this true connectivist behaviour, only occurs for a small number of participants, for example the leaders who are able to go to workshops. The question for the future is what one does to move from 'well connected' along the path to 'connectivist'.

## 5.4. Outcomes

### 5.4.1 Competing Conceptualisations

We have discussed the lack of detailed research as related to the outcomes of the local cultural production (see Appendix 2b). Hence, it is not possible to make any solid claims as regards the direction of Pontos de Cultura. However, it is useful to highlight the varying conceptualisations of what the outcomes will be.

The Ministry of Culture<sup>16</sup> articulates Pontos de Cultura as harnessing peoples creative skills and of preservation of Brazilian cultures (MinC 2006a). Such creative cultural movements can bring wider development that moves beyond narrow economic measures.

*"We must see the culture, therefore, as something essential, not as a vase of flowers..It is a propellant of the country's development, a factor of differentiation and competition. An instrument for understanding of world which deserves to be seen as governmental priority. Individually, and as a vital channel of dialogue between people and institutions. "[translated] (Gil 2007:105)*

Gil statement encompasses a number of outcomes; economic benefit through creative industries, individual empowerment, alternative ideas of modernity based on *cannibalismo*, and models of dialogue and citizenship. Gil's statements can be seen to correspond closely to the multi-level idea of development which we have used based on Sen's (1999) capabilities.

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16 We differentiate between the Ministry of Culture view and a wider government view. Given there are a number of other completing ministries there are likely to be different views of ICT. For example, the Ministry of Communication is commonly regarded as being controlled by the dominant Globo media corporation and consequently, its view is often opposed to the Ministry of Culture (Prado 2008)

Given the central involvement activist groups and networks, we explore their wider conceptions of the project based on tactical approaches. Tactical media, highlights the failures of 'antagonist models' of opposition. They view hegemonic neoliberalist models and their media as dominant, who can easily portray any opposition as irrational terrorists, or morph the issues to avoid debate (Caetano 2006, Downing 2001). Equally in such 'antagonist models', oppositional power only comes through a solidarity which implies increasing compromise and heterogeneity of individuals.

Tactical media looks to build upon ideas of more loosely defined social movements and the work de Certeau(1998). We need to move away from understanding media as the representations, and instead recast it as the practices and tactical use of the artifacts that are diffused (Garcia & Lovink 1997). Thus, tactical media rejects the simple idea of an alternative media moving towards an ever morphing array of practices and 'tactical practitioners' who work in a range of media, often gaining fleeting visibility.

Caetano's(2006) illustrates how such tactical media even with short lives, can begin to result in changes in society, having been instrumental in the instigation and the ongoing support of Pontos de Cultura (Caetano 2006). Thus, Pontos de Cultura, is a conducive space for continuing to build tactical media practitioners and the movements of counter-hegemony (Downing 2001).

These two visions are equally complimentary and contradictory. Both support locally autonomous cultural production, but one model is embedded within the development goals of a dominant institution, the other sees development within a more critical agenda. For tactical media practitioners and activist networks, the question is whether they will be able to continue their tactical practices within Pontos de Cultura without being co-opted. For the Ministry of Culture, the aim will be to maintain the fragile alliance of groups whilst supporting their goals of wide development.

## 5.5. Summary

Our analysis has separated two components of Pontos de Cultura somewhat. We have examined cultural production and ICT use within a *constructionist* pedagogy and we have made a critical analysis of the network components as related to *connectivist* learning

Within the constructionist direction, we highlight the processes that demythologises ICT's and reposition them as objects of creative construction, play and explorations. Using ICT's for cultural production, aligns with the notions of the educator as an anthropologist, taking the everyday environment, mediating it with ICT's to produce an effective learning environment.

From connectivist analysis, we call for further research to understand the network processes and how individuals (particularly non-leaders) relate to the network. We highlight how real life constraints at a local level will influence the effectiveness of the network. There is need for ongoing and regular forms of connection (workshops, joint activities) to encourage more dynamic network behaviour. Additionally online spaces, whilst rich in community are somewhat fragmented without a central place that allows community building, connections and discovery.

Our focus has been on invoking network use, and local software use in culture. This means we have not related local cultural production to the emerging network. As networks becomes more established, further research needs to examine the significance of sharing cultural artifacts, networked production, and decentralised authorship on the project.

In conclusion, we wish to reinforce that we consider Pontos de Cultura to be one of the most important ICT4D projects at present, in the number of paradigms that it examines (learning, participation, culture, production, modernity), the range of partners involved (government, activists, NGO's, civil society) and the alternative model of 'scale-up' of this project. It should be seen as rich source for further research into the emerging area of mass use of participatory ICT's in the South, and our analysis has offered a theoretic base and some key questions from where one can begin to explore.

# 6. Conclusions

## 6.1. Introduction

In this concluding chapter, we summarise details of the two case studies to help answer the research question. We also look at how these cases critique the 'three directions' model, and offer some future research directions.

## 6.2. Understanding ICT Learning in the South

**Research Question:** *How do we understand ICT learning communities and projects in the South?*

The first part of the research question, was answered in our study of ICT learning approaches and theory. The body of examples suggested the 'three directions' model, shown again in Figure 6.1

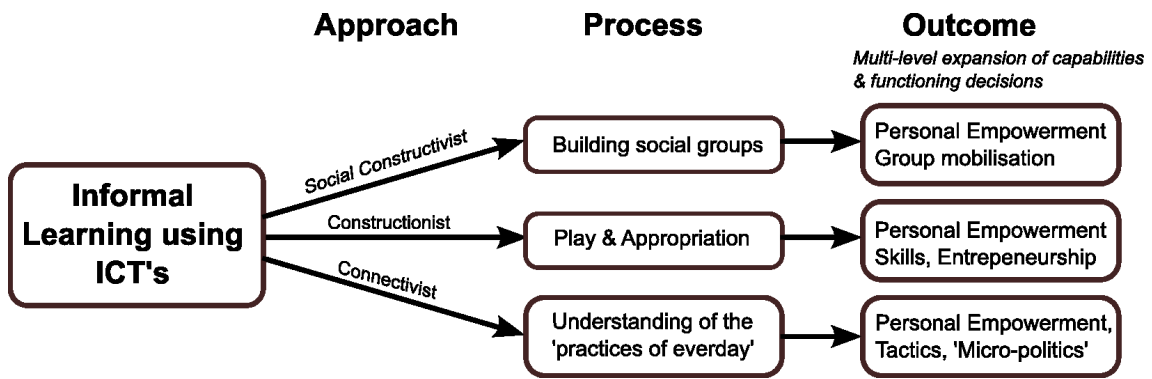


Figure 6.1: Three directions model of ICT learning approaches

For outcomes of the ICT learning to be a truly transformative, they need to work at multiple-levels. Personal empowerment is the underlying core of any such approach, but the wider level social outcome will depend on the pedagogic approach taken. We place all these outcomes within the expansion of capabilities and improved functioning decisions of Sen's capability model.

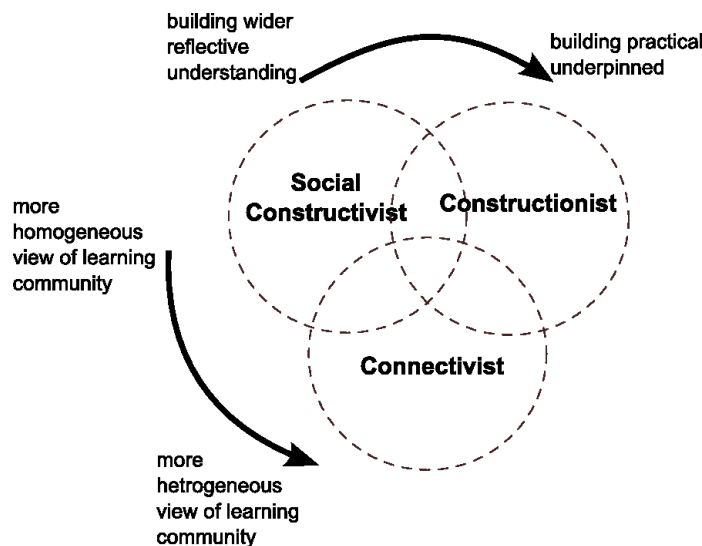


Figure 6.2: Understanding the differences and overlaps between the three directions

As shown in Figure 6.2, it is possible that these approaches do not occur in isolation, but that they overlap, as illustrated in our study of Pontos De Cultura.

## 6.3. The Three Directions

**Research Question:** *How can this help us in designing such approaches?*

In Chapter 3, we pinpointed three essential questions to pose of each case to help us understand the practical aspects of the ICT learning approach related to; the development outcomes, ICT use and leadership, which we can now answer.

### 6.3.1 Development Outcomes

<b>Social Constructivist</b>	Coherent outcome, group empowerment and increased mobilisations through 'power with' and 'power to' challenging wider societal issues
<b>Constructionist</b>	Creative appropriation of ICT's is related to increased local ownership of technology with some sporadic indications of the beginnings of technology entrepreneurship  Further research needed on the outcomes that come from wider constructionist learning using cultural forms (as outlined in Pontos de Cultura)
<b>Connectivist</b>	Needs more research. Wider connections outside locality, gives local actions impetus.  Suggestions of tactical use of technology but only over time with mature and skilled users.

Table 6.1: Summary of outcomes from the three directions

In this work, we offer no preference to the relative importance the three directions, rather we argue they will have value dependent on the situation. For example, social constructivist approaches might be designed into a project to allow a previous fragmentary community to come together. There may be communities where ICT's have been disowned as worthless or 'for the elite', and in these cases constructionist learning approaches might be more useful.



### 6.3.2 ICT's

Our case studies illustrate that within the three directions, the use of ICT varies, as summarised in Table 6.2

<b>Social Constructivist</b>	<p><b>ICT's focus shared practice between users in the real world. ICT design is related to enabling these shared practices and collaboration.</b></p> <p>Coherent, collaborative technologies or technology chains, that allow multiple users to engage together in real life practices through ICT's</p>
<b>Constructionist</b>	<p><b>ICT's as a learning environment for individual exploration. Making abstract concepts accessible to learning through exploration and production</b></p> <p>Individual technologies that have been selected to have affordances and to allow appropriation relevant to the local context</p>
<b>Connectivist</b>	<p><b>ICT's as a platform for online collaboration and shared practices between a wider spread and diversity of people</b></p> <p>Technologies and online software which encourages community building through online discovery, production and sharing.</p>

Table 6.2: Summary of ICT use within the three directions model

### 6.3.3 Leaders

Our in depth studies have also represented leaders in noticeably different ways as shown in Table 6.3

<b>Social Constructivist</b>	<p><b>Participative Leadership</b></p> <p>Balance between a directive approach for coherency and participative approach to consider groups desires. Literature suggests that this is a difficult balance to maintain</p>
<b>Constructionist</b>	<p><b>Educator as anthropologist</b></p> <p>Use ICT's to build culturally appropriate learning environments to allow exploration, play and demystification of more abstract or formal concepts</p>
<b>Connectivist</b>	<p><b>Facilitator as barrier breaker/connector</b></p> <p>To break learners barriers of ICT's and what ICT's can be used for. Building real-life networks and relations, to support online ones</p>

Table 6.3: Articulations of leadership within each of the three directions

### 6.3.4 Issues

Our analysis has thrown up a number of issues related to each of the directions. Whilst not exhaustive (see case studies for more details), Table 6.4 represents some important aspects that need to be considered within ICT learning:

<b>Social Constructivist</b>	<ul style="list-style-type: none"> <li>● Whose agenda mobilisations are serving,</li> <li>● Group 'power with', is not a one-shot process but an ongoing process of competing rational actors. Hence sustainability in such projects needs to consider how to maintain this process</li> <li>● Integrating with existing communities of practice allow for improved outcomes, but these are often the less-marginal, already organised groups</li> <li>● Closed communities of practice are a key problem</li> <li>● Approach may be less useful where one is dealing with diverse localities</li> </ul>
<b>Constructionist</b>	<ul style="list-style-type: none"> <li>● Individualised models of constructionist learning need time and resources so that all learners get time to explore individually through bricolage</li> <li>● Few examples of how a leader can take the role of 'educator as anthropologist'</li> </ul>
<b>Connectivist</b>	<ul style="list-style-type: none"> <li>● Tactical use may be a long process, learners will often need to have a vision to go beyond their self- or community- imposed limits</li> <li>● Need to understand more widely how simple network use evolves into connectivist behaviours</li> <li>● Heterogeneous view means that actions can be unorganised and chaotic, autonomy can soon become incoherent with lack of leadership</li> <li>● Connectivist learning models need to consider offline ecologies better</li> <li>● Learning approach is not mature enough to provide a complete model of connectivist learning in the South as yet</li> </ul>

Table 6.4: Some key issues related to the three directions

### **6.3.5 The Seams Between the 'three directions'**

We suggest that projects that look to build hybrids of the three directions might achieve benefits over those that remain in one direction. For example, the Kothmale CMC project follows the *social constructivist* learning model similar to Namma Dhvani, being a participatory community radio station. However, an associated project, the e-tuktuk a portable 'studio' of digital technologies embraces *connectivist* models in a non-technocratic way (Tacchi & Grubb 2007). This allows Kothmale to transcend the problems related to highly homogeneous and directed groups of social constructivism by supplementing it with the more open and heterogeneous models of connectivism.

Thus, within projects that involve ICT learning, practitioners might look to solve issues in their projects by designing in aspects from another learning direction.

## **6.4. Critique of the Model**

Following on from our research analysis, we reinforce that it is difficult to come to strong conclusions based on the two cases. There is insufficient evidence to confirm the three directions model and there is certainly more room for research, particularly with respect to the less common *constructionist* and *connectivist* directions and most notably in their development outcomes.

We also highlight an emerging critique of online mass consumer-production and sharing (a.k.a Web2.0) in Northern settings which we see present in our cases. This is set out most vividly in Fuchs' (2008) review of 'Wikinomics', one of a recent tranche of books celebrating the new forms of economy, that emerge from such participative production (Tapscott & Williams 2006). In Fuchs' neo-marxist perspective, one needs to be wary of such consumer production as necessarily being to the benefit of all. Consumer production may simply expand the power and exploitation of capitalist society "prosumers don't realise that they are being exploited because exploitation now seems fun to them..[and consequently] those actors become more subsumed under the control of capitalism to a greater extent and in even more spheres of human existence" (Fuchs 2008:4-5).

This critique is highly relevant to our study of learning using ICT's in the South. Our models are largely connected to users taking part in some form of production and gaining in terms of learning that result in development. However, this critique illustrates the importance of understanding the outcomes of such 'consumer production', to ensure it is truly transformative rather than exploitative. For instance, a critical view of the recent years of Namma Dhwani that follows Fuchs view, might see the volunteer radio producers as being exploited. Their valuable free time is spent providing marginal labour, which simply provides income for the local NGO to continue running, without giving them say in processes or invoking wider changes in society.

In the light of this critique, we reiterate the importance of the focus of the learning approach as being more than the individual, whether that be group actions, tactical approaches or entrepreneurship, we need to maintain a disruptive view of the power of ICT's to move beyond models of efficiency and effectiveness. Without this, an ICT learning approach simply becomes another tool that "becomes subsumed through integration" (Heeks 2008:17). If the learning approach is simply building better consumers for tomorrow then it provides no gain over other approaches.

We also note a more practical critique from our studies, that the three directions can be difficult to differentiate in practice. For example, in Namma Dhwani, we have focussed on the *social constructivist* group actions through ICT's. However, it might have been possible to consider it as *constructionist* in some elements (the appropriation of radio technology through playful use) or *connectivist* (the real life tribal, regional, family and ethnic networks). Further primary research needs to be done to examine the 'three directions' to further to clarify their characteristics.

## 6.5. General Discussion

We discuss some wider issues of relevance. A number of recent works have conceptualised a new generation of approaches in ICT4D. We will see an increasing move away from *pro-poor* projects (for poor) toward *para-poor* (alongside poor) and *per-poor* (by poor), where locals are more active in the production and dissemination of content using ICT's (Heeks 2008). In response to the emergence of 'ICT4D2.0' projects, we suggest that

our work shows that there will also need to be a new generation of theoretical approaches that move beyond development studies, computer science and information systems. We argue that taking a learning approach is crucial to understanding these emergent projects, opening up new theoretical work from pedagogy, social sciences, activism and media studies.

In urban areas, and even in rural areas, our case studies have shown that modernisation does not bypass those in the South, it is present, albeit in fragmentary unfamiliar ways to Northern practitioners. We observe that this is often not well dealt with within ICT4D projects, and that the models of informal learning which take a socially constructed, historical view of a locality allow this to be considered within projects. This is supported by the cases we have focussed on, and the way they have allowed space for highly localised contextual interventions, which have become highly sustainable and locally accepted. We also suggest research needs to be done as regards the issue of 'scale-up' in ICT4D and how more contextual models of scale-up adopting models from Pontos de Cultura might be an alternative to technology transfer notions.

## **6.6. Further Directions**

Beyond further directions related to the specific cases, we point out a number of directions for further research:

- Research based upon primary data would provide a greater understanding and allow a better response to the critiques we have made regarding validity
- More work from pedagogic experts to clarify and understand informal learning, and how this differs in Southern settings
- Our discussion of the 'seams' between the directions deserves extra study, balancing the benefits and problems required in working in such spaces.
- Studies examining how one can balance informational and learning approaches

## 6.7. Summary

We have understood a range of ICT learning communities and projects in the South by building a model based upon informal learning and related this to multi-level developmental outcome within the capabilities model of development.

Subsequently we have used this model to look in detail at two case studies, through reference to the 'three directions model'. These case studies have orientated us to understand more fully the three directions, their outcomes and how leaders and ICT's exist within the directions. In this final chapter we have illustrated how one could begin to design such learning approaches through ICT selection, learning approach and leadership style.

We conclude that an ICT learning approach, is a highly useful tool. It has enabled us theoretically to link together a number of disparate cases and provide understanding. The models built and the discussion of practice can benefit practitioners. We expect that the future directions of ICT4D will result in informal learning become a crucial way of looking at ICT4D.

# Appendix 1 – Examples of the ICT Learning Approach

## (a)'Older' Technologies

Within older technologies, we highlight a number of examples where incremental learning processes with ICT's have spawned significant industries. Manuel introduces his study of 'cassette culture' in Northern India as “a case study of the advent of a grassroots-based decentralized, pluralistic, 'democratic participant' micro-medium” (Manuel 1993:1). The introduction of cheap recording equipment in Northern India led to cassettes becoming a participatory media, that allowed greater voice for local communities. Cassette recordings were first used in small villages to record folk music performances, weddings and religious speeches. However, as these cassettes were shared, local entrepreneurs and producers started to emerge from the 'hobbyist' recorders, who learned their trade through small scale production. Manuel argues that the produced artefacts can be seen to have a socio-political resonance. Even though the bulk were not explicitly political, a media studies perspective argues that beyond the message, one also needs to examine the significance of the media object itself, and the significance of its creation in a historical space (Larkin 2002). In the case of Northern Indian cassettes, folk music and religious messages can be connected to the new-found ability of locals to produce politically independent culture, using local language without the hand of the state (Manuel 1993). Another example of cassette tape culture, in Iran, also illustrates that such small production can lead to wider socio-political mobilisations. The dissemination of religious cassette tapes related to the teachings of the Ayatollah Khomeini was crucial in mobilising the population during the Iranian revolution (Sreberny-Mohammadi 1990). With video technologies, the literature suggests the learning processes through initial small scale production was also crucial in the Indian and Nigerian film production and distribution industries (Larkin 2004, Sundaram 2005). For instance, Larkin argues that the Nigerian industry was built upon piracy of

commercial Northern and Hindi cinema, but slowly the pirates, having learned and locally adapted the processes of reproduction and built informal distribution channels, began to diversify into religious and local film production to satisfy their emerging audience.

These histories offer significant interest to our research. Given the space for experimentation and room for learning, small participatory ICT's can have a significant 'development' effect, as illustrated through organisations like the T-Series record company in India, and film distributors in Kano, Nigeria; once small-holder entrepreneurs, but now influential companies in large production industries and supply-chains (Manuel 1993, Larkin 1997). Starting from small-scale ICT production, learning in practice, has been an empowering apprenticeship, to 'learn the ropes' which can eventually spawn wider political and economic transformations. In some senses, this argument for the learning approach resembles Northern understandings of economies built on 'creative industries' which can emerge from small scale entrepreneurs but end up being highly influential in the wider economy (Caves 2000, Castells 2000, Florida 2002).

Community radio has been seen as a potential participatory medium for community empowerment. In Bolivia, there is a history of mine workers building community and mobilising through using community run radio stations (O'Connor 2004) and in South Africa during the struggles against apartheid, locally run township radio stations were a key resource. Vibrant community stations are still popular, such as Bush Radio in Cape Town (Buckley 2005, Asthana 2006). Community radio which combines local management and programme design and production by local people has become a model of community development (e.g Gumucio Dagron 2001 details a number of examples). Evidence suggests that such projects often result in the greatest transformation to those chosen as programme makers and management, through the immersive group production activities that take place (as illustrated in Slater & J. A. Tacchi 2004). However, this can inevitably be only a small proportion of the community. A further serious issue which limits the learning potential is the regulatory environment. In countries, such as India, Nigeria and Thailand there is an inhibiting regulatory environment for community radio, the government or private stations often see community radio as a threat (Venniyoor 2006). Hence community radio stations have either been unable to meet requirements, incur significant bureaucratic and organisational cost, transmit as pirates or had to adopt less efficient techniques such as 'narrowcasting' through speakers (Nair et al. 2006). Each of these



approaches has its own problems but in all, sustainability is questionable. Where there is regulation in place, community radio often has to conform to certain rules and norms which suggest certain quality of production, and levels of self-control on content (for example in India, stations are prevented from presenting news) (VOICES 2004). Consequently, focus within community radio is likely to be in keeping the station on air; ensuring the stations meet their service requirements and this reduces the space for genuine open participation and learning.

## **(b) Recent Approaches**

Learning approaches in Community Media Centres (CMC) that have been supported by methodologies and funding from UNESCO, deserve special focus (Tacchi 2005, Nair et al. 2006, Tshering & Martin 2007). A recent evaluation of the CMC's suggest that they have been able to be able to integrate well into the communities and achieve some levels of sustainability (Creech 2005). These project are noticeable in that they have often put the learning approach at the centre of their projects. In the Nammi Dhwani community radio station, India, experimentation was encouraged which led to members of the community producing radio shows using innovative mixes of technology. Producers were able to begin to move into socio-political spaces by using the station as a forum to discuss local issues of contention with local government members (Tacchi 2005) Similarly innovations have been employed in the Kothmale community radio station in Sri Lanka, working with participants in scattered villages to produce radio shows (Pringle & David 2002). In Kothmale, further experiments here have begun to question the 'telecentre model'. The e-tuktuk, adapts the popular mode of transport, the tuktuk to take digital technologies and radio to the scattered villages.

*“They [the village] used the e-tuktuk's facilities to make these media texts, and to play them to the community and get their feedback. They then visited other communities, screening the short film using the e-tuktuk's projector and generated interest among villagers to make their own short films about issues that were specific to each community” (Tacchi & Grubb 2007).*

Similarly, in the Caribbean, 'the container project', is a CMC built in a converted industrial container and centred around creative participatory media. The project has also created a 'mobile container project' that is taken into the urban communities. This is a trashbin filled with digital technologies and equipment which is used within these communities for digital production (Container Project n.d.).

Other learning projects have focussed on community video production, with local communities producing small video extracts or documentaries about aspects of their lives. IT for Change's 'Mahiti Manthana' project is one such example, the focus in this context is on empowering rural women<sup>17</sup>

*“as a medium of self-expression, as a mechanism for identity building, as a peer-to-peer communication platform, and as an archive of organisational processes.....serving as a resource around which independent, self-driven learning can occur” (Swamy 2007).*

Similar ventures have been documented with youth production in Nigeria, Mexico and Kyrgyzstan (Asthana 2006), and in 'Digital Green', the sharing of agricultural knowledge in Karnataka, India (Gandhi et al. 2007)<sup>18</sup>. Given the skill taken to produce video, these projects are likely to be connected to more formal training, and the need for skilled producers may limit the participation of communities, such as documented in Digital Green (ibid).

Pontos de Cultura (cultural hotspots) is grounded in ideas of local appropriate production, and the use of recycled computers, FOSS and open licensing. An emerging network of like-minded activist practitioners was noticed by the government, and Pontos de Cultura, a government funded project emerged as a model of cultural sharing through ICT's (Freire et al. 2005). The learning approach is key to this project, both locally within the adaptations of open-source software for local use, and in the idea of the 'network' of like minded practitioners and cultural producers who share content. It is likely that the Brazilian government saw this scheme as being within the 'creative industries' model mentioned previously. In implementation, the project has been subject to a number of bureaucratic

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17 Evidence of project taken from ICT4D masters visit to IT for Change, Karnataka, Jan 2008

18 Evidence of project taken from ICT4D masters visit to Microsoft Research, Karnataka, Jan 2008

and financial problems. Due to their form, many of the multimedia centres remain highly sustainable, but the network of sharing and expansion has been more problematic (Prado 2005, Fossa 2007, Balvedi 2005, Fonseca 2008a).

Some learning approaches have specifically focussed on using PC's as the learning object. Both the one laptop per child (OLPC)<sup>19</sup> and the hole-in-the-wall projects open up space to allow children to use and adapt technology through experiments and group play. Within an unsupervised environment, the OLPC's Sugar OS is designed to open up space for learning, through local peer connections between computers and the inclusion of 'edutainment' software for exploratory learning (OLPC n.d). The hole-in-the-wall project refer to their installations as "playground computers" (Mitra 2005:72) internet connected computers kiosks, installed in shared outdoor spaces in villages which allow children to explore without instruction. Mitra's (2003, 2005) evaluation have shown that through peer learning and play, children have been able to improve and enhance their education levels.

Other projects involving ICT's and learning, follow alternative paradigms. The Cybermuhollah project works within the slum areas of Delhi, and is built upon the philosophy of a space "where research and media practice could flow into each other" (Sengupta 2004). Members of the collective document aspects of their daily lives, and through group connections and sharing of experience, common themes emerge, and ideas are disseminated through ICT's, whether that be as an installation, website, paper-based document or performance. (Srivastava 2007). An activist art project, based at zexe.net, is a collaboration fronted by the Catalan artist Antoni Abad. The project gives high-end mobile phones to low paid workers, taxi drivers in Mexico City, motorboys in Brazil and immigrants in Costa Rica. They then recorded their daily activities, interacting with researchers through posting their accounts online. In Brazil, the motorboys recorded their lives documenting the humour, harassment, and danger that goes with their jobs. This project led to increase of publicity for the motorboys, often looked down upon, and resulted in the formation of a union to protect their rights (Bar 2007a, 2007b, Zexe n.d.) Kelly's (2008) analysis of the online behaviour of the Persian language bloggers, the so-called 'Iranian blogosphere', provides another direction in learning approaches. Whilst firmly

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19 As paper is being written. OLPC and the sugar OS are in the process of separating or at least reclarifying their relationship. This is likely to have bearing on OLPC as the type of resource that we describe in the text

entrenched within the middle-classes, through blogging and the connections triggered, individuals grow to become part of networked ecologies of opinion and provides them a platform to negotiate complexity and the multiple sources of information present today.

## **(c) Locating Examples in the 'three directions'**

In Figure 2.5 we place the examples of the ICT learning approach in the South within the 'three directions' model. This section details why we have positioned examples as such. It should be noted that the positioning is tentative and based upon the literature available.

Within the *social constructivist* segment we place two sets of examples. Both community radio and participatory video are group processes which tend to produce an output through the work of multiple contributors. This leads to groups building wider reflective understanding of their situations, through learning within communities of practice (Asthana 2006, O'Connor 2004). Within the *constructionist* segment we position both the OLPC and Hole-in-the-wall projects as well as documented examples of mobile phone appropriation (Bar et al. 2007, Mitra 2003, 2005, Horst & Miller 2006). All these examples relate to individuals building experience and understanding through play and creation using technologies. Within the *connectivist* segment we place the Zexe ethnography project and the examples of cassette culture and blogging (Zexe n.d., Manuel 1993, Kelly & Etling 2008). The similarity here is that all these project, are orientated towards individual processes of ethnography or documenting within a connected space. In terms of blogging and Zexe.net this connected space is the internet, but in Indian cassette culture, it is the network of distribution of the cassettes. This illustrates our belief that connectivist learning need not necessarily be centred around online networks.

We suggest that other examples lie in seams between multiple learning approaches. The UNESCO community media centres predominantly fall within the social constructivist models of group creation. However, the use of more participative methodologies leads to more playful interaction and exploration of the technology with some evidence of constructionist learning (Slater & Tacchi 2004, Tacchi 2005). We consider the e-tuktuk project, to be an innovative hybrid of social constructivist and connectivism (Tacchi & Grubb 2007). Its association with community radio results in an underlying social constructivist approaches, but the tuktuk itself is a way to allow 'network' sharing between

local ICT producers within the region. This leads to a more heterogeneous interactions between scattered communities. Cybermuhollah project is highly innovative and difficult to position (Asthana 2006). We consider the practices are connectivist and constructionist, there is no attempt to integrate practitioners work and recounted experiences into a single coherent narrative, rather strands of commonality lead to of joint production in experimental spheres. Finally, as we will analyse more closely in Chapter 5, Pontos de Cultura also tends to lie within a similar hybrid of constructionism and connectivism.

# Appendix 2: Analysis of Literature

## Validity

### (a) Namma Dhwani

The majority of literature on Namma Dhwani was produced during UNESCO's period when an action researcher was embedded within the village. On the positive side, production of literature from such a well known organisation means that the literature is often reflective and critical. Slater's (2004) work in particular provides a nuanced, critical view of the wider UNESCO ICT poverty reduction (ICTPr). Key triangulation of the general success of the project comes from the independent evaluation of UNESCO's CMC programme (Creech 2005). A book on community radio in India uses independent focus groups in Namma Dhwani, which also triangulate the successes of the media centre (Pavarala & Malik 2007), although we question the reliability of this work (see below).

On the negative side, the literature available comes from an implementing NGO's with a strong vested interest in presenting the project as successful, to support its community radio advocacy (see section 4.3). Further, the repetition of anecdotes by different authors, suggests that the majority of authors are building their analysis based upon brief visits and generally relying on the same field notes of the locally based ethnographic researchers (Tacchi et al. 2003).

We argue that this may skew some accounts by enhancing certain points of view. We illustrate this with reference to anecdotes used in the main text. Below, we compare different accounts of the same situation, written by different authors

**Example 1:** One issue of contention at Namma Dhwani, was the recording and broadcasting of the local panchayat meeting, which was forbidden. So during the next panchayat elections, this issue was raised:

**Version 1:** *“Each candidate was also asked 'If you win, will you allow Namma Dhwani to cover and record all the local panchayat meetings...?' Although most of the candidates agreed, newly elected members all recanted saying they 'needed to consult with other members.' “ Nair in (IFAP 2005:71)*

**Version 2:** *“One of the important questions included 'If you win, will you allow Namma Dhwani to cover or record all Panchayat meetings?' Interestingly enough all candidates agreed to let Namma Dhwani be present during Panchayat meetings.” (Tacchi 2005:11)*

Version 1 is by a field researcher, version 2 is by a remote researcher. Version 2, does not mention that the initiative was actually unsuccessful once the new candidates were elected. This changes completely the context of this anecdote, from one that can be analysed critically to one that was simply a success.

**Example 2:** The regularity of the Namma Dhwani management committee is discussed in a range of the literature

**Version 1:** *“since June 2004 women from the management committee have not convened a meeting owing to pressure such as lack of time, constraints on their mobility, and pressures from some members usually male of their households” (Nair et al. 2006:26)*

**Version 2:** *“They meet 'without fail' on the fifth and 25<sup>th</sup> of each month” (Pavarala & Malik 2007:170)*

In version 2, Pavarala and Malik have conducted focus groups in Namma Dhwani, but they seem to have presented the responses uncritically without verification. In reality, the field researcher in version 1 suggests that these groups have actually been somewhat more problematic, and again this has a significant influence on analysis.

Thus, we have illustrated that there is a disconnection between accounts of field staff compared to those who have relied on brief visits or secondary research. Whether intentional or not, it points to this literature being less reliable, particularly in its use of anecdotes. Nair's (2006) work provides the most grounded and detailed account of the UNESCO period, as would be expected from a local researcher. We will hence lean towards using this work within our analysis.

The other substantive piece of research that has been done in Namma Dhwani is by Bailur (2008, 2007). Her research, which is outside that of UNESCO and the local NGO's, takes a more pessimistic view of the project, particularly noting problems in community participation not dealt with directly in any other of the literature. However, considering the previous assertion of skew in the reliability of UNESCO work, and taking a critical reading of the UNESCO work, we do see suggestions that such issues are present. For example Nair mentions problems related to the theft of a digital camera and describes issues of local modification of radios to use them outside the project (Nair et al. 2006).

Given Bailur's period of study is a few years after the UNESCO funded project (see Figure 4.1 for timeline), the increase in problems in the project is plausible. During the UNESCO funded period, the presence of the trained researcher and more resources would likely ensure that such issues were monitored and solved quickly as detailed by Slater (2004). Preceding this period, with no researcher/mediator and with the added need to achieve sustainability, it is likely that these problems could begin to heighten.

In summary, we take the underlying concepts of UNESCO work as valid, due to the triangulation through the independent evaluation and other sources. However, we suggest that it is likely that negative issues within the project may have been downplayed. Bailur's work is triangulated of sorts through a critical reading of the UNESCO documents. When combined together we consider that this literature provides us with a rich set of secondary literature from which we can see the evolution of the project over time.

## **(b) Pontos de Cultura**

Pontos de Cultura offers up a number of different research problems. Principally, we acknowledge that this case is very difficult to interpret given the overlapping schemes and chaotic networks that form the basis of Pontos de Cultura. Additionally the lack of academic literature and the Portuguese language of the majority of work and productions makes it more difficult to gain insight.



In particular, there is a lack of literature from outside 'the centre', the activist networks or the government. Whilst this literature is important, it skews somewhat our study. Without detailed evidence of the actual local programs in action, it is difficult to critically analyse the often rhetorical and uncritical statements that comes from the centre. Ideally, we would like to take a specific local case study of one of the participant centres and analyse how the networks and methodology of Pontos de Cultura has influenced the project. Sadly, this type of data is unavailable, neither in English nor Portuguese.

Consequently, our goal is less ambitious. We rely on evaluation documents (MinC 2006a, TEIA 2007) and fragments of recounted work (Fonseca 2008a, 2008b, Villela et al. 2008, Garcia 2004, Colugnati & Barretto 2007, Rosas 2004) attempting to triangulate these to build a view of practice. However given our previous statement of a lack of local data there is still some risk that our study will be embedded within the rhetoric of the project rather than the actual practice.

In summary, we argue that this work on Pontos de Cultura can still be valuable. Pontos de Cultura has the potential to become one of the largest and most innovative ICT projects within the South and there are few ICT4D analyses. This contribution enhances the small number of works available and offers a new interpretation on this project using informal learning. While we acknowledge that it is incomplete in terms of evidence, we argue that it provides a basis (and a challenge) for further work on this project.

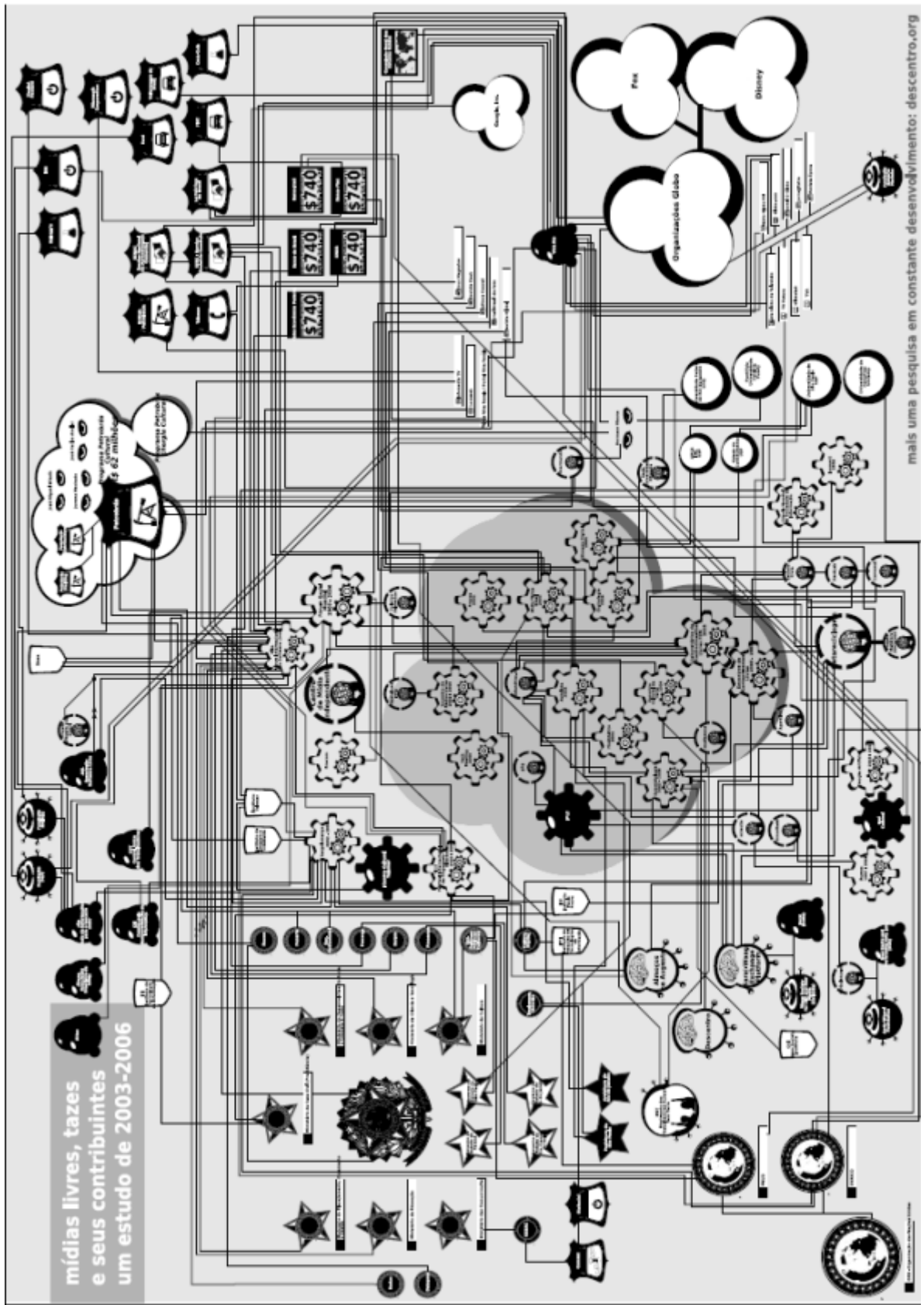
# **Appendix 3: Map of Activist Projects, Brazil**

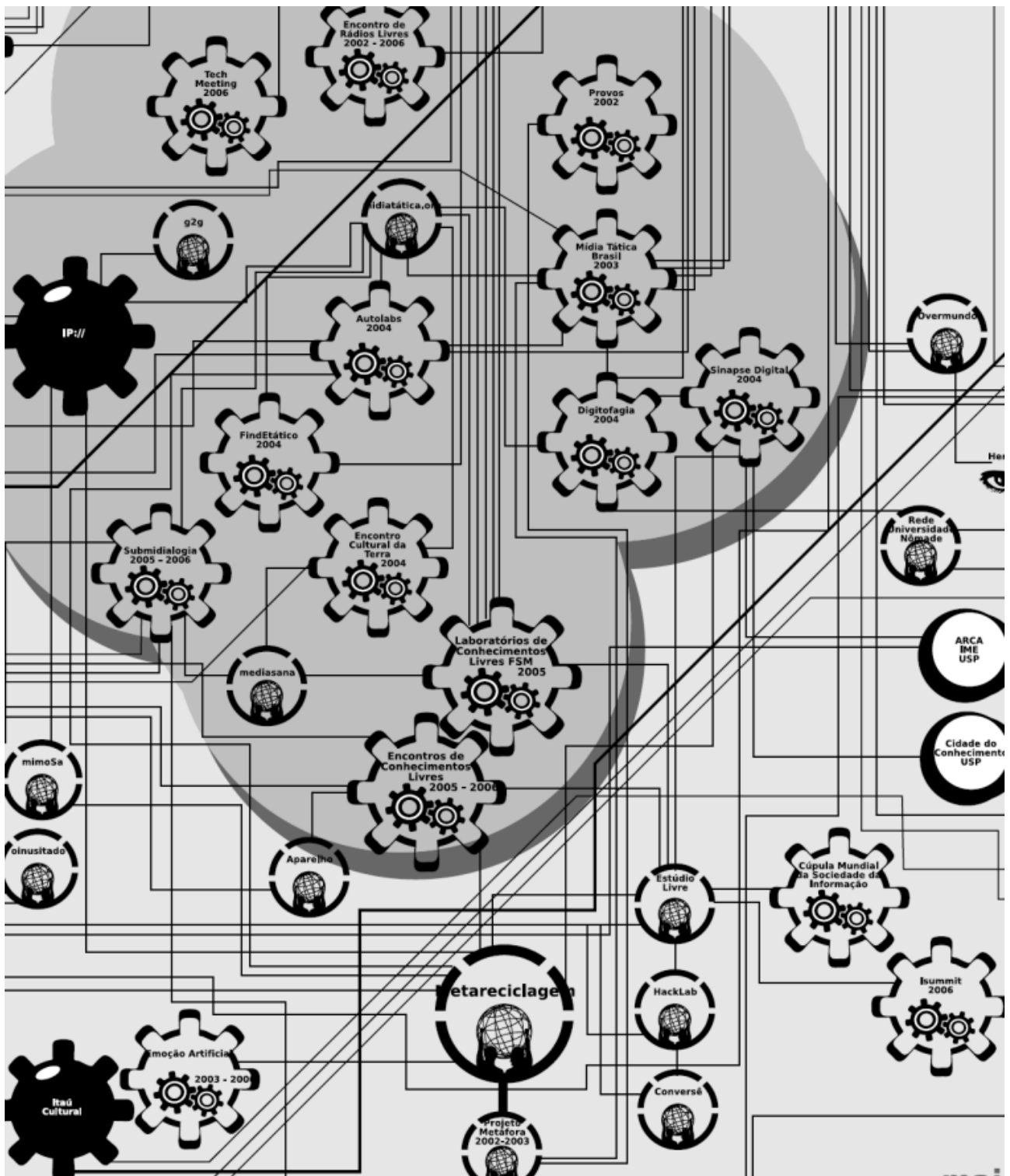
A scaled down version of the full map can be seen overleaf.

A more detailed selection of this map can be viewed on the preceding page,

Each of the circles represents an activist group, meeting or intervention. Lines show connections between them.

Full source available: (descentro 2007)





# Appendix 4: Original Portuguese

## Quotes

A number of quotes have been used in Chapter 5 which have been translated from Portuguese. Whilst every effort has been made to ensure correct translation, we include the original Portuguese quotes in this section for reference:

(Cauto 2006)

“As pessoas desconhecem as tecnologias, desconhecem o básico. Sem esse espaço de oficina, o telecentro não vai funcionar. Ou então, as pessoas só vão acessar Orkut e MSN...O nosso maior problema, na inclusão digital, é desconstruir um discurso que se prolonga há décadas. É o discurso do “somente use”. Quem quer, realmente, interferir socialmente, no processo de inclusão digital, vai bater com isso, que é desconstruir esse discurso. Vai ter de discutir – o que é esse fácil? Esse fácil vai deixar você dependente.”

(eStudioLivre 2007)

“o MinC deve incentivar a criação e o aprimoramento de centros de pesquisa e desenvolvimento, e de promover o debate entre dos usuários dos pontos de cultura e a comunidade de desenvolvedores. Essa comunicação contínua entre usuários e desenvolvedores deverá ser viabilizada através de encontros presenciais (seminários, desconferências) e pela internet em fóruns virtuais, wikis e outras ferramentas que sejam necessárias para dinamizar e documentar esta troca de saberes.”

(MinC 2005:5)

“O desenvolvimento do trabalho colaborativo exige, de ambas as partes, humildade no reconhecimento das limitações do educador e do educando enquanto seres inacabados e imperfeitos”

(MinC 2006a:113)

“a instalação do Ponto de Cultura e a difusão das suas atividades estão contribuindo para fortalecer as parcerias já existentes, para criar novos relacionamentos e dar visibilidade à entidade dentro de uma rede mais ampla”

(MinC 2006b)

“O próximo passo desse processo é a viabilização de uma metodologia de replicação do projeto-piloto, para que seja formulada nos próximos quatro anos uma política pública ampla....em 200 a 300 mil organizações”

(Gil 2005:105)

“É preciso ver a cultura, portanto, como algo essencial, e não apenas como o vaso de flores..... Trata-se de um propulsor do desenvolvimento do país; de um fator de diferenciação e competição. Um instrumento de transformação e compreensão do mundo o qual merece ser encarado como prioridade governamental e individual, e como canal de diálogo vital entre pessoas e instituições.”

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