Theories, Practices and Examples for Community and Social Informatics

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CONTENTS

Chapter 7

UNDERSTANDING THE USE OF MOBILE PHONES IN DIFFICULT CIRCUMSTANCES

Larry Stillman

This chapter examines the concept of disruption through a speculative case study of the ICT interactions (particularly mobile phones) of low-income Africans on the urban fringe of Johannesburg. The chapter is intended to contribute to the development of a more politically conscious understanding of social-technological relations. The privileging of a "Northern" view of technology, viewed as positive disruption, operates at a remove from what can occur in the global South. Understanding technology in society is more than being sensitive to questions of design, use, adoption or adaptation in particular cultural, economic, political or social conditions. The analysis of such relations also needs to be judged politically. This then allows for a strong check on unreal aspirations for ICT-related change that does not take into account determining social forces.

Introduction

The mobile phone is now used by billions of users around the world. Consequently, it might appear self-evident that mobile phones do in fact "constitute the basis for one of the greatest expansions of human capabilities in known history" (Smith et al 2011). But the circumstances that result in the attraction and capability offered by mobile phones are very different for the very poor. The utility of the mobile as a communications device is the result of particular life conditions, and in this case, the attraction needs to be explained in the context of the overall state of pervasive disruption in the lives of low-income people. Thus while the mobile phone may be perceived by the slum dweller to provide a degree of comparative advantage, status and personal agency (all the subject of marketing campaigns by the telcos

in South Africa), in the grand scheme of things, without more profound changes in society, the device of itself can do little to break the cycle of poverty and physical disability that the users find themselves in due to overarching historical circumstances. Hence, while the mobile phone and social media applications are increasingly important as a means of connecting people to social protest, whether in L'Aquila (as in this volume), or street protests in Cairo, the social forces against its users are still massive and their power should not be discounted – including the power to turn off connectivity (Spinks 2013).

Indeed, for some critics, the idea that the poor will be able to find their way out of poverty is contradicted by cold facts about the South African economy: "the structural trend runs in the opposite direction: toward reducing the size of [the] core of workers. Economic informality is growing in South Africa and it is irreversible: the traditional narrative of economic modernisation is running in reverse" (Marais 2011, p. 183). Consequently, one commentator has gone so far as to suggest that despite the widespread uptake of mobile phones by the poor "there is no hard evidence that there are fewer poorer people on the [African] continent as a result of access to ICTs" (Gillwald 2010, p. 80). The realities for what a mobile phone can provide are very different between the affluent global North and the poorer global South.

Drawing on critical theory and the desire for knowledge that leads to enlightenment and human emancipation (Bohman 2013, Habermas 1971), this chapter is consequently critical of the "myth of infinite benefit", familiar from the discourse of technological enthusiasts (Han 2012, citing Sarewitz, p. 2062). It uses research conducted with poor South Africans as a springboard for theorisation.

Topologically, we can see the mobile phone as a portable artefact embedded in socio-technical communicative arrangements that are "stretched" across time and space. Drawing on geographic (Dist 2009, Gren 2009) and structuration theory (Giddens 1984, Chapter 3), these communicative arrangements should be understood as taking place on a topologically "uneven" surface, reflecting people's different circumstances. From a critical theory perspective, poor people's lives are in the final analysis overwhelmingly conditioned by circumstances not always of their choosing, elements over which "that actor has neither helped to bring into being nor has any significant control over" (ibid, p. 346). Despite the tendency of capitalism to create a "smooth space defined by uncoded flows, flexibility, continual modulation, and tendential equalization" (Hardt & Negri 2000, p. 327), the

result is often increased segmentation in the periphery, including the global South. Bourdieu has written that there are "objective structures which are independent of the consciousness and desires of agents and are capable of guiding or constraining their practices or their representations" (Bourdieu 1990, p. 123). These determining structures and conditions include such factors as poverty, disability, wealth, gender, or geographic location (Blackburn 1972), and they also set in place the "habitus", the sense of place a person has, as Bourdieu would put it (Bourdieu 1990, p. 131). The research background and following description of South Africa provides depth to such a viewpoint.

Background

Background to the chapter lies in research activity that has taken place since 2008 with the Digital Doorway Initiative (DDI), a project to provide public Internet terminals for the poorest people in South Africa. The DDI was initiated by the Meraka Institute of the South African Council for Scientific and Industrial Research as part of the Government of South Africa's strategic mandate for ICT development. The Digital Doorway kiosk is itself a multi-user terminal designed for unsupervised public use and is virtually indestructible. Several hundred kiosks have been installed in South Africa with others installed elsewhere in Africa. A related pilot project to use the Digital Doorway is now underway in remote indigenous communities in Australia. A key proposition of the DDI is that technology design, use, adoption and adaptation need to be understood as both products of, and embedded in, particular cultural and social conditions (Stillman et al. 2012). However, this chapter takes this proposition further, and embeds it in a more politicised understanding of the world.

There is also an ethical context to research by the DDI. Within the DDI there is concern about the role played by a researcher or technology specialist and effects of "interventions" intended to engender good or wellbeing, particularly when decisions are made without any effective community engagement. It is argued that ethical and effective interventions can be developed only through genuine partnerships with communities. Indeed, it always needs to be kept in mind that communities may in fact not want what is assumed to be good for them at all. Such a problematisation of assumptions about technology and international development is an unintended but important outcome in the thinking of the DDI over the past decade as well as other work in developing countries (Avgerou 2010).

Inequality and poverty in South Africa

How should poverty be defined? Poverty is not just a lack of physical resources, a job or cash, because a person can be financially very poor, but be very happy and socially connected. Poverty is a combination of physical conditions and the state of a person's being. Amartya Sen argues that "relationship between resources and poverty is both variable and deeply contingent on the characteristics of the respective people and the environment in which they live – both natural and social" (Sen 2009, p. 254). These factors include: gender, physical differences and disabilities; differences in the physical environment; variations in social climate (thus, the state of personal and public health); and relational perspectives, that is, the normative dimension associated with perceptions of dignity, poverty or disability, that is, the sense of honour or shame at one's state of affairs in the world.

In 2010, South Africa ranked 113th on the world's Human Development Index, just below Kyrgyzstan and above Syria.[1] Other than a small percentage of the population, the majority of South Africans are black, drawn from about 11 tribal groups, and poor and a third are very poor, assuming a poverty line of ZAR3,000, or about $AUD325 a year as of May 2013 (Chitiga-Mabugu 2013, p. 172). There are also the additional minorities of "coloured" mixed-race people (many of whom are poor), and the white Africans: mostly Afrikaners or English-speakers. Because of the vast inequalities in the distribution of wealth and infrastructure, policy-makers have labelled the country as a "developmental state" (Terreblanche 2009). Due to the historic compromises made in order to end apartheid, the African National Congress (ANC)-dominated government rejects nationalisation or even welfare state solutions to social problems. Individual initiative and subsequent wealth creation, rather than direct state intervention are seen as a solution to the problem of poverty (Marais 2011, Chapter 13).

The poorest households in South Africa are typically those headed by black women in rural areas, and AIDs or related conditions are widespread. South Africa is also increasingly urbanised, whether because of the deliberate policies of deracination under the apartheid regime, or the continuing massive wealth inequalities which exist in its neo-liberal economy today. Historically, residential divisions were used to reinforce racial divisions. The (black) poor were pushed to the city limits and segregated by the notorious pass laws which did not permit legal residence in white-only areas. Poor transport infrastructure kept physical movement slow, difficult and restricted for the

1 http://hdr.undp.org/en/reports/global/hdr2010 (accessed 1 September 2011).

majority of the population. This policy became known as the paradigmatic "Apartheid City", whose effects continue today (Schensul & Heller 2011). This results in what is known as "inside-out city form, with most of the poor located beyond the urban belt, at extreme distances and high densities in terms of international norms" (Cross 2013).

Millions of people now live in officially recognised settlements (such as Soweto), or more recent shanty towns (called informal settlements) such as Zandspruit, discussed in more detail below. The number of informal settlements has gone up from 300 in 1994 to over 2700 in 2011. People on the margins have a sense of being thrown away (Afrikaans *weggooimense*), according to one study of Cape Town slum dwellers, and this self-perception of urban refugees may well extend to other informal communities (Ross 2013, p. 454). Social and infrastructural problems (Hemson et al. 2008) continue with water, sanitation and garbage collection, power, and even traversable roads lacking in settlements. Protest riots are not at all infrequent due to the lack of government action and endemic corruption (Harber 2011, Huchzermeyer 2009).

It must be remembered that these constrictions are typical of the life of many urban poor throughout the world. Thus, the poor have fallen by the wayside as physical and social infrastructure privileges those who have resources. In fact, as Harvey argues, "while the technological, social, political and institutional context has changed quite radically since Engels's time, the aggregate effective (sic) condition has in many respects worsened" (Harvey 2000, p. 15), and hence the shanty town is not surprising but to be expected. Mike Davis puts his own interpretation on the problem: "The global growth of a vast informal proletariat, moreover, is a wholly original structural development unforeseen by either classical Marxism or modernisation pundits... a true global residuum lacking the strategic economic power of socialised labour, but massively concentrated in a shanty-town world encircling the fortified enclaves of the urban rich" (Davis 2004, p. 27).

Except for mobile phones, in townships and settlements or rural villages, privately owned ICTs such as computers or laptops are not a financial or practical proposition for the vast majority of people (cost, access to power/Internet, and theft). Because not all people are on the electricity grid, many people rely upon car batteries or recharging at local shops or garages for a few precious Rand. For those who need them and have the money to pay, Internet computers are available through Internet cafes (sometimes housed in recycled shipping containers) but, for the poor, this activity is a luxury, rather

than a commonplace activity. As another indicator of ICT disadvantage, there are approximately 30,000 schools in the country, perhaps only 20% having more than one computer (Gush et al. 2004).

Anecdotally, it also appears that mobile phones are not objects to be displayed as status symbols or a symbolic safety beacon, in contrast to the practice in other affluent countries (for example, girls walking with their mobile prominently displayed). Mobile phones are also not devices to be displayed in the lanes or streets because of the ease of theft (Han 2012, p. 2067), the fact of which was experienced by the author in a robbery in broad daylight.

Methodological considerations

The writer proposed a small-scale and short-term case study,[2] to provide more background to the kind of work being conducted by the DDI in deprived communities. The data collected was almost entirely concerned with their experience with mobile phones, their life histories and their personal mobility.

In an ideal world, one would hope to be able to locate a representative sample of different types of residents over the long-term, with the hope of reflecting different viewpoints and experiences that could then come together to present a defensible argument, meeting Walsham's categories of authenticity, creditability and criticality – that is, "the way in which the text probes readers to consider their taken-for-granted ideas and beliefs" (Walsham 2006, pp. 325–6). But the circumstances of the pilot limited these three categories being fully developed in a number of ways. First, the funding only allowed for a very short working time with interviewees. Consequently, an ultimately opportunistic convenience sample with English-speaking students was organised by intermediaries familiar with the community. In fact, because of safety concerns, interviews were conducted on campus, rather than in the settlement itself. A case study approach (Mjøset 2001) was also chosen because there was no other means of easily obtaining the story of slum-dwellers for the writer: in such trying conditions, it is well-nigh impossible to adopt a positivist approach and construct a fool-proof methodology (if such exists) such as a scientific sample of slum-dwellers' experiences of technology, nor was it feasible for a white outsider to settle into the community for either the short or long-term without considerable

2 Monash Human Ethics Approval CF10/2759 - 2010001563.

acculturation and the building of trust, notwithstanding the issues of racial difference or personal safety.

There was another significant issue. There are profound differences between the researcher and the researched: a white middle-class Australian and black Africans living in trying circumstances. Inevitably, the details of life in poverty will come up with at times highly emotional stories involving family tragedy, structural poverty and the inevitable story of physical and psychological disruption and physical displacement that is the story of South Africa. I am sure that at times, details were just not forthcoming from people about their life history or material circumstances, because of a justifiable sense of pride and potential loss of face in front of an older white person. Thus interviewees may have played out particular roles to what they thought was expected or hidden particular things, and much as I wanted to probe some details, I restrained myself. Moreover, the question has to be asked: what right do I have in the first place to assume that I have any right to conduct such research? Major ethical questions arise and consequently, the limitations discussed here have to be kept in mind with respect to the adequacy of the speculations developed in the chapter given the use of a convenience sample.

Additionally, no assumptions can be made about there being the possibility of a way of capturing, as in experimental science, "perfect knowledge" of the life conditions of the people I spoke with. Thus, what I learned should be regarded as inspiring conceptual insight, rather than actually depicting a firm reality. Because of these qualifications, the chapter's observations can only be regarded as exploratory though intentionally problematising.

The majority of interviewees came from Zandspruit, an informal settlement at the intersection of main highways on the north-west fringes of Johannesburg. My own experience of being in an informal settlement has also been confined to short-term visits to Zandspruit and other similar places. Other interviewees came from nearby settlements. The population of Zandspruit is about 60,000 (the precise number is unknown), with a very high number of unemployed and very low-income unskilled people, single parent householders (predominantly women), living in shacks, representative of the internal migration of people from all parts of South Africa and other countries to find work in the city. "Foreigners" are sometimes seen as not belonging to "the community", resulting in dreadful violent incidents that are referred to as xenophobic riots. Zandspruit has also been of particular interest to Monash University South Africa because it is relatively close to its campus and, under the University's social justice

strategy, Monash conducts educational and other outreach activities to its residents.

Seven of the interviewees were men, four women, living in Zandspruit and other informal settlements. Three other interviews were conducted with African staff employed by Meraka, in a related project in regional towns. A colleague also offered valued insider commentary, providing insight into African cultural values, beliefs, and patterns of behaviour (Mbiti 1969) that are recognisably different from the minority culture of whites (the culture most familiar to outsiders, particularly foreign white researchers).

With the consent of participants, semi-structured interviews of up to an hour long were recorded. Questions concerned family background and relationships, exposure to and use of technology in daily life. Notes were taken with a Livescribe pen, allowing for unobtrusive recording and note-taking. The strength of Livescribe is that the pen and special paper map to an audio file which allows easy cross-referencing back to aural data. Through recursive listening, transcription and précis–making, I was able to high-light key points, reduce the data, alert myself to emerging themes, and develop memos from the data. This technique was derived from Grounded Theory methods, though I did not engage in the full data management and theory development process suggested. However, with the insight of Grounded Theory, I also hoped that the stories provided an inspiration to theory building and critique (Charmaz 2005, Glaser & Strauss 1967). I also shared my notes with the interviewees for comment, though very few changes were subsequently made.

I came to the case study with no set assumptions in mind about what the data might theoretically demonstrate, and I believe that this allowed me to be open to being challenged by the implications of what they said then locating relevant theories that I was comfortable with and provided insight to me (Walsham 2006, p. 325). I also worked with the assumption, based on Giddens' theories, that they were "experts" in describing their everyday life (Giddens 1984, p. 133). Furthermore, since the time of the original research I have become increasingly interested in the double hermeneutic – the form of discourse used by the research subject and the way in which it is re-expressed by researchers which can result in self-reflection that in turn effects future research, research discourse, and research relationships that follow. As Giddens has suggested, "all sociological research has a necessarily cultural, ethnographic or anthropological aspect to it" (Giddens, 1984, p. 284). Neither the complexity of intra-cultural "performances", "presentations of self" (Goffman 1971), nor the other's point of view should be underestimated

(Geertz 1973, Chapter 3). Thus, despite Walsham's suggestion that it is generally possible to break the ice in the interview (Walsham 2006, p. 323), for my own part, I was well aware of the inequality in the relationship and how this might constrain and distort interaction.

Other experiences since the time of the original research have also contributed to refining the theory development. First, an earlier form of the chapter was presented at a workshop at the Prato CIRN Community Informatics Conference in 2011, and the discussion it engendered was taken into account. Furthermore, the chapter's reviewers offered considerable additional insight. Third, several more visits to South Africa have added depth to an understanding of the place of ICTs in that society, as has further reading of research literature about South Africa and development. As Stake has suggested, "we see data sometimes pre-coded but continuously reinterpreted, on first encounter and again and again... An observation is interpreted against one issue, perspective or utility, then interpreted against others" (Stake 2005, p. 450).

The concept of disruption

There are a number of ways in which disruption can be understood in the context of a "thick" topology of the uneven distribution of communications opportunities in the lives of individuals and communities. Topologies can be regarded as theoretical though not necessarily fully representational models (Mäki 2001), of movement and structure that can be mapped or analysed for new relationships, connections, opportunities, limitations, constraints, or boundaries. However, such mapping or modelling is not upon a flat surface, but drawing upon critical theory and information continuum theory (Stillman & Upward 2007), social-technical relationships are strongly constructed through and embedded in the uneven topology created by particular social formations (Stillman & Linger 2009). Sociologically, Giddens argues that a feature of modernity is the disembedding and disruption of traditional ways of thinking and doing, and "the modes of life brought into being by modernity have swept us away from all traditional types of social order, in quite unprecedented fashion" (Giddens 1990, p. 4). Giddens also views this process of change in an essentially positive way, aware of the capacity for personal reinvention and personal innovation.

Furthermore, in the modern era people's "locales" are no longer just physical, but also virtual constructions. "Locale" can no longer be simply associated with physical places where routine and recursive actions take place, but locales also exist through virtual exchange. While physical co-

presence has been associated with this activity in the past, it is now clear that meaningful, contextualised exchange also takes place electronically (Giddens 1984, p. 118, Thrift 1996). Furthermore, these locales appear natural and domesticated to users: people are at home in virtual spaces and places.

However, from a Marxist perspective, the unfair distribution of resources in particular time-space constructions is the basis of power in which time- and space are manipulated to produce particular outcomes. Harvey writes: "concepts of space and time and the practices associated with them are far from socially neutral in human affairs" (Harvey 1990, p. 424), and this adds a politically relevant critique to the otherwise important insights of geographers such as Hagerstrand about how daily life is constructed in different ways around the navigation of time and space zones (Hagerstrand 1970, 1975). Movement across time and space is unequal, privileging some groups over others. We can call this *communicative disruption* which acts as a corrective to *communicative optimism*. Thus a person with a car – as a means of communication – can travel a long way to work in a short amount of time, and still have time to visit the gym and go shopping. Yet this should not be theoretically extrapolated as a normative condition, where it is assumed that all have equal access. The reality is that for those left on the margin who do not have private transport, and need to walk or take slow forms of public or semi-public transport, the "compression" of time for communication purposes can be missing and disruption and disjuncture continue. Likewise, the physical and communicative distanciation that is created by new communications systems (such as the mobile phone) creates a new and increasingly complex social and geographic topologies (Upward & Stillman 2007).

The concept of disruptive technologies can also be re-examined. In mainstream thinking, *disruptive technologies* are those which displace current or incumbent technologies or practices to the structuring of distance (time or geographic) and communicative relationships in everyday life. This is overwhelmingly viewed as a positive form of disruption. As an example, while fixed-line telephones were originally dismissed as peripheral and marginal to established technologies and their business interests (telegrams, letters), it in fact revolutionised communications, and in turn, social and economic relations. In time, it was overtaken by the "simple" mobile phone and today mobile phones are being disrupted by other innovations and functionalities, which in turn will be replaced by others functions or devices (Bower & Christensen 1995, Danneels 2004). However, while such disruptive technologies can be

positively transformative, there is another perspective which is more critical of unquestioned change. It understands that "technological interventions, like many other forms of development can be highly political and controversial... both as a concept and as an area of policy for international and local action" (Avgerou 2010, p. 6).

Consequently, within ICT for Development thinking, there is a stream critical of a simplistic and deterministic viewpoint that what works for technology innovation in the North sets the paradigm for the development in the South (Avgerou & Walsham 2000). It should be remarked that as well, the same simplistic assumptions about the benefits of technology can ignore the gendered nature of interaction with ICTs and the continuing secondary situation of many women, despite automation and connectivity (Huws 2003), or the historical tendency of technical systems to dominate rather than empower (Feenberg & Friesen 2012). More often than not, when the same sets of economic and social relationships are reproduced in developing countries, inequalities, particularly those associated with gender, tend to prevail and disruption continues to reinforce inequity, rather than capability (Sen 2001). The beneficiaries are metropolitan elites, rather than the communities most on the ground which would benefit from a more equitable distribution of communication resources. What Heeks has called ICT4D 1.0 only served to reinforce dependency and "cookie-cutter" solutions with resultant implementation failures. Even the telecentre movement, so widely touted as a solution for developing countries, faces problems of sustainability and scalability.[3] In contrast, it is hoped that ICT4D 2.0 and "positive disruption" will enable widespread content availability and opportunities for networked forms of business and employment because wireless, rather than copper wires have provided a platform for leapfrogging the lack of conventional infrastructure (Heeks 2009). But even this apparently positive

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3 The most recent example of this is the failed roll-out of telecentres in South Africa. "The Universal Service and Access Agency of SA (USAASA) aimed to rollout more than 280 telecentres since 2006, but to date only managed to achieve just over half of this, even though millions have been spent...Of the 160 established centres so far, only 96 are operational. This is due to, among other reasons, obsolete equipment, centres burnt down during service delivery protests, vandalism, stolen equipment, disintegrated management structures, failure to pay service providers, part of the buildings being used as taverns and incomplete centres." Farzana Razool in IT Web Financial (http://www.itweb.co.za/index.php?option=com_content&view=article&id=58149, 21 August 2012). This report also led to many comments on the ciresearchers listserv (vancouvercommunity.net/lists/info/ciresearchers) reflecting on the endemic problems with such a model in developing countries.

move can be criticised for misconstrued optimism about its real effects, as noted in the introductory remarks to the chapter.

The final type of disruption to be considered is *social disruption*, and this is associated with negative social effects. Social disorganisation theory takes the view that the breakdown of family and community institutions and abiding social connections (such as religion, schools, local government, or informal organisations) rather than material poverty or local ecological conditions, is a key variable in criminalising and marginalising communities and disrupting positive social connection. There are plenty of examples of poor communities where crime rates are low, but social capital is high. This of course does not mean that social organisation does not exist in disrupted communities (for example amongst gangs), but the sense of general connectedness and distributed safety is missing from the community (Jensen 2003). Social disruption can even go a step further, and be associated with social trauma in extreme cases (such as war), or in situations of forced migration. In South Africa, the policy of forced deracination and separation from traditional land-holdings has had massive trans-generational social effects (Van Onselen 1996), that continue in the post-apartheid era. As discussed, shanty towns are a direct result of this deracination and attempt to prevent black people from having permanent homes in urban areas under apartheid under the "pass system" which controlled where people could live (Welsh 2009, p. 58). For those subject to apartheid "the predictability of everyday life is suspended; ordinary time seems to stop... and the social fabric is disrupted. Under the impact of [this] shocking event, feelings of hopelessness, apathy, fear, and disorientation spread in the community" (Giesen 2001, p. 14473).

Zanspruit as a disrupted community

Zandspruit, like many informal settlements or slums, can be considered as a disrupted community in terms of all the types of disruption discussed above. Interviewees and their extended families have all experienced communications, social and physical disruption. I asked participants in the case study about the move from village or a rural area into Zandspruit and the differences between rural and shanty-town life. Sometimes one or more parents had stayed behind. In one case, parents lived on different sides of Johannesburg; such was the difficulty of transportation and the location of work. Some interviewees recounted sitting around the fire at night hearing traditional stories from their grandmothers in the village, but this did not happen in the informal settlement.

Such is the degree of *geographic disruption* that the tracks and lanes do not even have names in the urban shanty town. Houses only have plot numbers, and are often located in warrens. This makes it very difficult for the outsider to easily locate a person without asking strangers for a person or location, and there is no guarantee of success. It was considered virtually impossible for me as a white person to make my way safely through the warren of shacks or even follow directions. A black visitor would have to be met or remember the physical markers described from a text message or phone call. With its lack of serviceable or even marked roads, even the police and ambulance vehicles cannot go into the tiny lanes in the settlement. There is no postal delivery inside the settlement because of the lack of marked roads. Thus, for the majority of people who drive past Zandspruit every day, Zandspruit remains a blur, much like any other shanty town lying on the edge of a highway. It is not a place to go into. Even the supermarket complex next to it is not seen as a safe place.

It is also too dangerous to send a child on his or her own on a short errand. This locational difficulty was made very clear in the interviews I had with the students and, as one person put it to me, "we don't even have addresses". This is a severe form of disruption: despite having a physical place to sleep – a shack – it is not considered an address either by the person who lives there or (and particularly) by the legal authorities. Thus, for all the people from Zandspruit and other poor communities

> If you are trying to get in touch with someone, and you don't know where they live, unless they have a mobile phone it is very hard to find someone.

This may explain why mobile phones are so vital for people without a conventional address – they provide location and connection, even if that location is in fact not physically permanent. You can at least be found and tracked.

The disruption caused by movement away from homelands has already been discussed, but the disruption can also continue in other ways. A person who spends time walking through a muddy settlement or broiling sun to get to the minibus station, then has to wait for a bus, then get a bus and then walk from the bus stop to the mall to work, pick up some food at the road side, and then do the same return journey, cannot be easily considered to have a better sense or condition of wellbeing from working in a low-paid job in the shopping mall next to the bus stop. It still takes hours to get to work for low pay. Additionally, if a student takes two

hours to walk 10 kilometres to get to school and back, the capacity for her to learn not just in that day, but on any day can be considerably reduced due to tiredness, lack of adequate nourishment, illness, general emotional stress and any number of other factors. Compare that to a person who has easy access to the shopping mall or private school by car and can listen to the news on the car radio in comfort, in contrast to being squashed into a shared taxi or back of a van.

Even the colour of the day can be a disruption that adds to the difficulty of secure living, taken for granted by more affluent people. Come dusk, the dark is the colour of danger. Movement and activity are restricted by darkness. All the interviewees mentioned the danger of moving around Zandspruit after dark, or of walking from Monash South Africa to Zandspruit in the dark. Even having a mobile phone does not guarantee safety and it may in fact attract a robber if you are seen talking. Interviewees also confirmed with me their fear of gangs in their informal settlements. The cost of transport means that students have to leave campus early to be home before dark and danger arrive, and the following quotation reinforces the restriction offered by not being able to have illumination, even from candles, to do homework. Being forced to live in the dark because of poverty disrupts educational opportunity.

> It would be good to have the extra time. If I leave for home at 5.20 it's 6.15 when I get to Zandspruit. It would be good for a student like me to have that extra time. It's already dark, and we use candles. We have three-room shack. My brother is using a candle for his homework, I have to wait for him, and maybe all the other candles, by the time it's already 9.30 and everyone is sleeping and I'm now the only one trying to work and I have only a very small candle. That's a lot of stress.

The disruption to traditional communication

As already observed, internal migration over many decades has meant that many South Africans, because of geographic disruption, are far from their traditional homes. In decades past, communication was oral, or in writing (if literate), or at least there was someone who could read or write for you. In the old days, phone calls were not that common. People became separated over time and space. Messages and objects were sent through chains of people. In the interviews I conducted, I asked people how they would send a parcel to another person in another town. It was still too difficult and costly to use the post office, and many people did not have fixed addresses as distinct from

numbers on shacks that gave no idea of location. The best way of getting a parcel to someone was to give it to a trusted person who could give it directly to the intended recipient or pass it onto another person.

One of the interviewees, older than the others, remembers life in the village before they had phones. These were public phones at the post office, not private phones. People also sent telegrams and they had to be short and straight to the point, lacking much of the nuance and emotion that might otherwise be carried in significant person-to-person communication, resulting in profound emotional stress because of the distancing forced by such restricted forms of communication. They were only used to send important messages, such as a notification that someone had died. It would be easy to get things wrong unless the message was short and clear. Interviewees also talked about their mothers writing letters to other relatives or to a father away in the mines. One mentioned that this would happen on a monthly basis, and another said (and this is so easy to forget today) that, "by writing letters she could talk about things that others didn't know about", even though of course, the time lapse between sending and receiving a reply might be quite long as compared to today's standards, but it is something that is in the experience of anyone who has communicated by mail before the age of the Internet. Letters are asynchronous and while there may be the opportunity to write a long letter, problems with personal literacy – or dictating to another person – probably resulted in a very different form of communication exchange with the recipient for many people in South Africa. The long-term effect might of course be that people stopped communicating and relationships broke down, a familiar migration story.

Another interviewee provided a fascinating account of how traditional family and clan networks exist. He talked about a notebook that was kept at his grandmother's home. In the book were the names and addresses and mobile phone numbers of many family and clan members, and once a month, where possible, they come together. There are perhaps up to 500 people who support other clan members with weddings and funerals. The notebook was, and continues to be, a critical piece of database technology (a list of valuable, manually interrogated information) to make connections between a distributed family networked. The interviewee was not sure if his grandmother wrote in the book, or someone else did, but it was kept up to date. The interviewee was unsure about how family contacted each other in the past, but like the other interviews, we can assume it was through the system of informal networks, passed on information, and in the case of a funeral, telegrams or phone calls. He said that today of course, many people

would be contacted by mobile phone and messages passed on. Will a paper-based record of the clan continue into the next generation, or will it be taken up electronically?

Mobile phones and the different forms of disruption

Can we continue to believe that mobile phones offer a way to represent the improvement in people's lives in such circumstances, or are they a form of covering fetish for the horrible reality that structures everyday life? The answer is not black and white. In all the interviews I conducted, the mobile phone was considered as critical to personal wellbeing and provided a sense of identity and a respite from grim reality. On the other hand, contrary to techno-optimism, the phone has to be seen as less than progressive.

Identity construction through the acquisition of things is well-observed in studies of consumerist behaviour, and is of course taken advantage of in product marketing where the newer and fancier is always better (cars, mobile phone clothes). Buying a particular brand or style is an entrée into a fantasy and removal from everyday drudge (Fortunati 2005). Marx remarked that a commodity assumed a social and market value with "metaphysical subtleties and theological niceties" (Marx 1867, Section 4). Others, including Marcuse, consider consumerist behaviour the outcome of the pervasiveness of hegemonic consumerist ideologies resulting in false consciousness that serve to benefit capital and a "false order of facts" (Marcuse 1968, p. 145). This diversion from the pain of reality via a "false order of facts" can act as a diversion from potential action which might otherwise assist people in overthrowing their chains (Kim 2004). In their psychoanalytic interpretation of the technological fetish, Arnold and colleagues also argue that ICTs become not important of themselves through perceived use or status value, but they "are also valued because of the unconscious or unspecified experience of lack, of inadequacy, of emptiness, of disempowerment, and of loss and pain manifest in the ache of unsatisfied desire, and the concomitant desire for adequacy, fulfilment, empowerment and affective satisfaction. To possess, to fondle, to fill, to touch, to use, the fetishised object is to symbolically nullify that experience of lack and its attendant emotions" (Arnold et al. 2006, p. 3). Thus, one interviewee said:

> It's exposing me, exposing me, to get in touch with people every day, because I am on the phone, in touch with people... it makes me feel closer to the people who are further from me.

Now, in situations of such material deprivation as that found amongst the interviewees, is the desire for connectivity and removal from the grim reality of loss and pain a rational desire that changes their lives? Does it truly overcome their physical ghettoisation and isolation from others? Unlike the more privileged situation of middle class people who are surrounded by all sorts of material, manufactured and desired objects (clothes, books, appliances, cars, TVs, DVDs, computers – the list is endless), people in informal settlements have little material wealth. However, possession of a mobile can do very little to change material circumstances quickly, but it certainly helps with the pretence of being someone else and something else, and can provide some emotional satisfaction. Consequently, the following statement made in the interviews needs to be contextualised:

> Most people, regardless of how poor they are, would rather have a phone than food on the table or money to pay school fees – that's one of the negative things. Technology detects me, I don't detect technology. Somehow, technology is invented, somehow we want it because it is invented, not because we want it.

For the very poor, the mobile phone is so important that people may prefer "feeding it" with airtime rather than having food. Of course, if one takes a critical theory view, spending money on the mobile phone is wasteful because it has such a limited capacity to empower and truly change circumstances. Yet from the slum dwellers' point of view, that small amount of connection can be critical, limited as that may be in the context of pervasive disruption. Thus, as we have heard, even if you don't have locatable physical address, you can at least be connected, and this has become a necessary part of the way of life for people.

> You come to Zandspruit even if you don't know how to use a cell phone. The first thing people tell you at their house, is take money, call people, tell them you have arrived in Zandspruit, someone will show you how to call if you don't know how [on a cell phone].

The mobile phone is consequently something more than a discretionary consumerist item for the young people I interviewed. The mobile phone has become "part of a system of ideas, even a way of looking at everyday life. The mobile phone has become part of an idea of the family, of intimacy, emergency and work", even for slum-dwellers (Myerson 2003, p. 244).

Consequently, interviewees felt much more in touch with the world, and able to connect with their family and friends in a way that was far

beyond the limitations that they had described as being the case with their parents, limited by lack of literacy, lack of access to phones, lack of transport, with only irregular phone calls and emergency telegrams. In one case, the interviewee had quite an intimate relationship with a white person where they discussed deep personal matters. From what I know of South Africa, this was quite an unusual relationship for the very poor and the middle class to meet in such a way. Otherwise, they were strangers, and were aware that would probably never meet face-to-face, and if they did, there would be an embarrassing silence.

The same interviewee spoke of the great difference connectivity can have in such a deprived situation:

> I was living with mum's sister, she was sick with her daughter, I was looking after her two years ago, we were using public phones – we didn't take her to hospital. My mum left to work, and didn't check if everything was fine and didn't want to disturb. We wanted to make porridge but didn't wake her up – but she had passed away. We had to find a public phone, it was terrible. It is nice now, we can check.

Hearing that story for the first time was gut-wrenching, and I still find it so. "It is nice now, we can check". One wishes that "nice" covered a more profound change in life circumstances though here, in fact, the criticism that I have offered of the diversions offered by mobile phone possession falls way because in such circumstances the mobile phone could have been a life saver. However, possession of a mobile phone should not be used as theoretical substitute to ignore grim social reality. We cannot be personally critical of poor people for wanting to connect like everyone else, though we can approach the issue critically and politically. Thus, we need to keep in mind what one of the interviewees said to me: "I am just like everyone else, Larry, but I am poor". She was conscious of the great impediments to her aspirations and was not afraid to say it.

Concluding remarks

The case study provided a means of looking at the placement of ICTs in society in a different way by examining its relationship to people's lives in particularly trying circumstances. Only through a more critical approach to social order can people's communication choices be understood as an effect of topological disorder and different forms of disruption that play out unequally. Thus, while it is clear that "electronic emotions" are as much at

play in the lives of the poor people in the slums (think of the story above about the interviewee's mother dying), they are working in conditions of huge disadvantage and stress. What appears to be positive for the "management and mediation of emotions" – as suggested by Vincent (in this book), and her colleagues (Vincent & Fortunati 2009) – requires a politically-sensitised reorientation to take account of the massive day-to-day challenges in the life of the poor. However, more detailed examination of this problem would also require much more large-scale and longitudinal research.

Does the research presented here consequently offer anything particularly useful for Community, Social or Development Informatics? The key contribution is that it acts as a dampener to determinist and idealistic aspirations that are devoid of social critique and social context but strong on technological enthusiasm. Adams' ethnographic study came up with the idea of extensibility through ICTs. He wrote:

> The dwelling is no longer a solid container: inside and outside, private and public are increasingly brought together by television and other media. Physically the home may approach the ideal of containment, but socially it is a permeable or 'leaky' capsule... constantly coming into contact with the outside world through such media as television, radio, newspapers, books, and computer networks. (Adams 1999, p. 361)

In the case of the slum-dwellers I have interviewed, their shacks are literally metal containers and often leaky and draughty, but their electronic "leaks" are very limited. Because their lives are disrupted in different ways, because they have neither the private space nor the resources to engage with extensible social opportunities, theoretically, the emotional and personal dimensions of connectivity cannot be considered in the same way as studied for the middle class. A new theoretical model for their personal capacity needs to be reconsidered, and this is something that can be addressed through critical theory supplemented by approaches such as the Capability Approach of Amartya Sen, which provides a rich social and material reconsideration of the problem of poverty (Sen 2009).

Thus, is there an easy solution to the problem of poverty that involves a form of social-technical action that results in more opportunity and social justice? Indeed, is it right or proper to engage in what can be seen as bandaid public connectivity solutions when more fundamental social justice considerations need to be taken into account in the unequal Global South? As a suggestion, perhaps a new emphasis needs to be put on a modern version of the old- fashioned robust telephone box that used to be on many corners as a

starting point for connective experimentation and community development. Using the Digital Doorway as a model, could robust computer stations or boxes specifically designed for unsupervised public access become pervasive network points for people in poor circumstances, pushing out Internet or blue tooth connectivity for very cheap hand-held devices? Despite only having candles at home, a robust community-managed mesh-network could offer powerful shack-based connectivity to people with mobile devices, and let them collectively agitate. This of course, does not take care of the grand questions of inequality (roads, sewerage, housing), but it could certainly be a focus of a new activity in Community and Development Informatics. And working with communities themselves, other solutions using such strong public hubs for local advocacy could be developed for the difficult circumstances in which such communities exist.

References

Adams, P.C. (1999). A homemaker in the information age. *Urban Geography, 20*(4), 356–376.

Arnold, M., Gibbs, M., & Shepherd, C. (2006). Domestic ICTs, desire and fetish. *The Fibreculture Journal, 9*(59). (Online).

Avgerou, C. (2010). Discourses on ICT and development. *Information Technologies & International Development, 6*(3), 1–18.

Avgerou, C., & Walsham, G. (2000). *Information Technology in Context: Studies from the Perspective of Developing Countries*. Aldershot: Ashgate.

Blackburn, R. (Ed.) (1972). *Ideology in Social Science Readings in Critical Social Theory*. London: Fontana/Collins.

Bohman, J. (2013). Critical theory. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2013 Edition). (Online).

Bourdieu, P. (1990). *In Other Words: Essays towards a Reflexive Sociology*. Cambridge: Polity Press.

Bower, J., & Christensen, C.M. (1995). Disruptive technologies: Catching the wave. *Harvard Business Review, 73*(1), 4–53.

Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (pp. 509–536). Thousand Oaks: Sage Publications.

Chitiga-Mabugu, M. (2013). The employment effect of economic growth: Introducing the South African economy. In U. Pillay, G. Hagg, F. Nyamnjoh & J.D. Jansen (Eds.), *State of the Nation: South Africa 2012–2013: Addressing Inequality and Poverty* (pp. 169–184). Cape Town: HSRC Press.

Cross, C. (2013). Delivering human settlements as an anti-poverty strategy: Spatial paradigms. In U. Pillay, G. Hagg, F. Nyamnjoh & J.D. Jansen (Eds.), *State of the Nation: South Africa 2012–2013: Addressing Inequality and Poverty* (pp. 239–272). Cape Town: HSRC Press.

Danneels, E. (2004). Disruptive technology reconsidered: A critique and research agenda. *Journal of Product Innovation Management, 21*(4), 246–258.

Davis, M. (2004). Planet of Slums. *New Left Review, 26*, 6–34.

Dijst, M. (2009). Time geographic analysis. In R. Kitchin & N. Thrift (Eds.), *The International Encyclopedia of Human Geography* (pp. 266–278). Oxford: Elsevier.
Denison, T., & Stillman, L. (2012). Academic and ethical challenges in participatory models of community research. *Information, Communication and Society*, *15*(7), 1037–1054.
Feenberg, A., & Friesen, N. (Eds.). (2012). *(Re)inventing the Internet*. Rotterdam: SensePublishers.
Fortunati, L. (2005). Mobile telephone and the presentation of self. *Computer Supported Cooperative Work*, *31*, 203–218.
Geertz, C. (1973). *The Interpretation of Cultures: Selected Essays*. New York: Basic Books.
Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley: University of California Press.
Giddens, A. (1990). *The Consequences of Modernity*. Stanford, CA: Stanford University Press.
Giesen. (2001). Social Trauma. In N.J. Smelser & P.B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 14473–14476). Oxford: Elsevier Science Ltd.
Gillwald, A. (2010). The poverty of ICT policy, research, and practice in Africa. *Information Technologies and International Development*, *6*(Special Edition), 79–88.
Glaser, B.G., & Strauss, A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine.
Goffman, E. (1971). *The Presentation of Self in Everyday Life*. Harmondsworth: Penguin.
Gren, M. (2009). Time-geography. In R. Kitchin & N. Thrift (Eds.), *The International Encyclopedia of Human Geography* (pp. 279–284). Oxford: Elsevier.
Gush, K., Cambridge, G., & Smith, R. (2004). The digital doorway: Minimally invasive education in Africa. Paper presented at the ICT in Education Conference, Cape Town.
Habermas, J. (1971). *Knowledge and Human Interests*. Boston: Beacon Press.
Hagerstrand, T. (1970). What about people in regional science? *Papers and Proceedings of the Regional Science Association*, *24*, 7–21.
Hagerstrand, T. (1975). Space, time and human conditions. In A. Karlqvist, L. Lundqvist & Snickars, F. (Eds.), *Dynamic Allocation of Urban Space* (pp. 3–14). Westmead, Hans.; Lexington, Mass.: Saxon House: Lexington Books.
Han, C. (2012). South African perspectives on mobile phones: Challenging the optimistic narrative of mobiles for development. *International Journal of Communication*, *6*, 2057–2081.
Hardt, M., & Negri, A. (2000). *Empire*. Cambridge, MA; London: Harvard University Press.
Harvey, D. (1990). Between space and time: Reflections on the geographical imagination. *Annals of the Association of American Geographers*, *80*(3), 418–434.
Harvey, D. (2000). *Possible Urban Worlds. The Fourth Megacities Lecture.* Amersfoort, The Netherlands: Twynstra Gudde Management Consultants.
Heeks, R. (2009). The ICT4D 2.0 manifesto: Where next for ICTs and international development? *Working Paper Series* (Vol. 42). Manchester: Development Informatics Group, University of Manchester.
Hemson, D., Carter, J., & Karuri-Sebina, C. (2008). Service delivery as a measure of change: State capacity and development. In P. Kagwanja & K. Kondlo (Eds.), *State of the Nation: South Africa 2008* (pp. 151–177). Cape Town: HSRC Press.
Huws, U. (2003). *The Making of a Cybertariat: Virtual Work in a Real World*. New York: Monthly Review Press.

Jensen, G.F. (2003). Social disorganization theory. In R.A. Wright & J.M. Miller (Eds.), *Encyclopedia of Criminology* (pp. 1545–1553). London: Routledge.

Kim, S. (2004). Hegemony and cultural resistance. In N.J. Smelser & P. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 6645–6650). Oxford: Elsevier Science Ltd.

Mäki, M. (2001). Models, metaphor, narrative, and rhetoric: Philosophical aspects. In N.J. Smelser & P.B. Baltes (Eds.), International *Encyclopedia of the Social & Behavioral Sciences* (pp. 9931–9937). Oxford: Elsevier Science Ltd.

Marais, H. (2011). *South Africa Pushed to the Limit: The Political Economy Of Change*. London: Zed Books.

Marcuse, H. (1968). *One Dimensional Man*. London: Sphere.

Marx, C. (1867). *Capital* Vol. I. (Online).

Mbiti, J.S. (1969). *African Religions & Philosophy*. New York: Praeger.

Mjøset, L. (2001). Theory: Conceptions in the social sciences. In N.J. Smelser & P.B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 15641–15647). Oxford: Elsevier Science Ltd.

Myerson, G. (2003). Heidegger, Habermas and the mobile phone. In R. Appignanesi (Ed.), *The End of Everything: Postmodernism and the Vanishing of the Human* (pp. 139–188). Cambridge: Icon.

Ross, F. (2013). Ethnographies of poverty. In U. Pillay, G. Hagg, F. Nyamnjoh & J.D. Jansen (Eds.), *State of the Nation: South Africa 2012–2013: Addressing Inequality and Poverty* (pp. 446–465). Cape Town: HSRC Press.

Schensul, D., & Heller, P. (2011). Legacies, change and transformation in the post-apartheid city: Towards an urban sociological cartography. *International Journal of Urban and Regional Research, 35*(1), 78–100.

Sen, A.K. (2001). *Development as Freedom*. Oxford: Oxford University Press.

Sen, A.K. (2009). *The Idea of Justice*. London: Allen Lane.

Smith, M.L., Spence, R., & Rashid, A.T. (2011). Mobile phones and expanding human capabilities. *Information Technologies & International Development, 7*(3), 77–88.

Spinks, P. (2013, July 31). Protest in the connected society, *The Age*. (Online).

Stake, R. (2005). Qualitative case studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (pp. 433–466). Thousand Oaks: Sage.

Stillman, L., Herselman, M., Marais, M., Pitse Boshomane, M., Plantinga, P., & Walton, S. (2012). Digital doorway: Social-technical innovation for high-needs communities. *Electronic Journal of Information Systems in Developing Countries, 50*(2), 1–19.

Stillman, L., & Linger, H. (2009). Community informatics and information systems: How can they be better connected? *The Information Society, 25*(4), 1–10.

Upward, F., & Stillman, L. (2007). Community informatics and the information processing continuum. In L. Stillman & G. Johanson (Eds.), *Constructing and Sharing Memory: Community Informatics, Identity and Empowerment* (pp. 300–314). Newcastle, UK: Cambridge Scholars Publishing.

Terreblanche, S. (2009). The developmental state in South Africa: The difficult road ahead. In P. Kagwanja & K. Kondlo (Eds.), *State of the Nation: South Africa 2008* (pp. 107–130). Cape Town: HSRC Press.

Thrift, N. (1996). *Spatial Formations*. London: Sage.

Upward, F., & Stillman, L. (2007). Community informatics and the information processing continuum. In L. Stillman & G. Johanson (Eds.), *Constructing and Sharing Memory: Community Informatics, Identity and Empowerment* (pp. 300–314). Newcastle, UK: Cambridge Scholars Publishing.

Van Onselen, C. (1996). *The Seed is Mine: The Life of Kas Maine, a South African Sharecropper, 1894–1985* (1st ed.). New York: Hill and Wang.
Vincent. J. & Fortunati, L. (2009). (Eds.) *Electronic Emotion: The Mediation of Emotion via Information and Communication Technologies*. Oxford: Peter Lang.
Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, *15*, 320–330.
Welsh, D. (2009). *The Rise and Fall of Apartheid*. Charlottesville: University of Virginia Press.