Research Article

Designing Research for the Emerging Field of Open Development

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Abstract

This paper departs from the observation that empirical and conceptual frameworks describing the intersection of new technology and development studies have begun to embrace the idea of open development. Frameworks for research, however, continue to reflect older notions of technology appropriation and empowerment. In order to start a dialogue about research design appropriate to open development, I provide an overview of key ontological, epistemological, and methodological considerations of significance to this field. An open development approach, I argue, should focus on enhancing cognitive justice rather than productivity or empowerment. This can best be carried out through the application of a constructivist and critical realist epistemology, through positional methodology and through networked research processes.

Introduction

According to Gumucio-Dagron and Tufte's comprehensive 2006 anthology of theories of development communication, the emergence of the Internet gave rise to new thinking about how communication conditions progress.[2] As they explain, in a 1999 report written for the United Nations Research Institute for Social Development (UNRISD), Manuel Castells argued that new ICTs formed the basis for productivity and organization in the new global network society, polity, and economy (Castells, 2006/1999, p. 951). Following this logic, intervention was required to ensure that developing countries had access to the means to participate in a networked globe, lest they be left stranded on the other side of a digital divide that marked a structural separation between developed and developing worlds. This gave rise to a body of work focused on closing the digital divide through greater access, use, and appropriation of new communication tools and techniques made possible by the Internet (Robinson, 2006/2004; James, 2005).

1. Thank you to Rick Gruneau, Matthew L. Smith, Scott Timke, and the anonymous reviewers of this article for their valuable comments and suggestions.

2. They call this school Information Society and Communication Rights. See Gumucio-Dagron and Tufte, p. xxxv, for their explanation. They contrast it with Power, Media, and the Public Sphere; Social Movements and Community Participation; and Popular Culture, Narrative, and Identity. This proves a good reflection of the actual academic division of labor in the field of development communication: The Communication Portal (www.portalcomunicacion.com) of the Autonomous University of Barcelona provides a window on Spanish-language communication resources. The Latin American regional academic networks dedicated to communication studies divide themselves into semiotics, social communication, complexity, the information society, and the political economy of ICTs. The latter two divisions would fall under the umbrella of information society and communication rights.

Table 1. Key Questions Driving the Research Process.

Aspect of Research	Question
Ontology	What is the nature of the reality to be studied?
Epistemology	What can be known about this reality, and how can it be known?
Methodology	How can the knowledge be acquired?
Methods	What procedures can be used?

Source: Adapted from Grix, 2002, p. 180.

Other scholars, however, have questioned the wisdom of facilitating access to information and knowledge as a means to create development. Drawing on the work of Allan Kaplan, Cees Hamelink argues that development should not be conceived of as a process of engineering that depends on the delivery of information and knowledge, but rather, as a process that "enables people to participate in the governance of their own lives" (Kaplan, 1999, p. 19, as cited in Hamelink, 2002, p. 8). With this in mind, Hamelink concludes that, "the real core question is how to shape 'communication societies.' In fact for the resolution of the world's most pressing problems we do not need more information processing but the capacity to communicate" (ibid.).

In this article, I argue that Hamelink's work is compatible with open development, and that this paradigm needs to be accompanied by new frameworks for research. I frame this discussion around four key questions that drive the research process, as laid out in Table 1. This framework views research in a particular way. Specifically, it presupposes that *all* research starts from a set of assumptions about the nature of our social and political reality. These "ontological priors" drive the types of research questions we ask. How we answer those research questions then depends on our epistemological commitments—in other words, our beliefs about how knowledge can be produced. In turn, our epistemological commitments drive our methodological choices: how we design research and how we gather data. Some readers will object to this model, since it is not always clear that ontology drives epistemology, which drives methodology. However, I am using it because it offers a useful starting point for thinking about how to design research.

With this in mind, in what follows, I first identify and critique the ontological priors underlying core research questions posed by scholars working in the area of ICT4D. I then extend an alternative set of assumptions appropriate to open development. Specifically, I argue that either ICT4D starts from the assumption that development should ensure the productive insertion of the Global South into the information society, or that development should empower local actors to resist the globalizing forces of the information society. Open development, I argue, should start from the assumption that development aims to ensure cognitive justice, such that the protagonists of development can make their own determinations. After exploring the notion of cognitive justice and the implications of this alternative starting point for research questions, the balance of the article explores implications for epistemological commitments, research design, methods, and sources.

Popular Starting Points

Ontological priors are answers to the question, "What is the nature of the reality to be studied?" In this section, I consider ontological starting points underlying research on ICT4D. Social science research on ICTs goes by many different names (He, 2003; Coward, 2009), a fact that presents a challenge when trying to identify and compare ontological starting points. The difficulty lies in a lack of clarity about how this wide-ranging scholarship understands the link between ICTs and social change (Avgerou, 2010; Unwin, 2009). Focusing on informatics is a step toward resolving this problem. Both the International Development Informatics Association and the University of Manchester's Centre for Development Informatics use the term "development informatics" (DI) interchangeably with "ICT4D." But as Heeks explains, "We prefer the term 'development informatics' to 'ICT4D' because the former is less technocentric and allows

an equal focus on information, knowledge, and information systems as well as on ICTs" (2006, p. 2). In other words, informatics puts the focus on processes of social change, rather than on the technology itself (Kling, 1999, 2000; Kling, Rosenbaum, & Hert, 1998).

Of course, social change can be thought of in very different ways, and this has important implications for how development interventions or development research can be oriented. So, for example, *social* informatics (SI) is "the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts" (Kling, 1999, p. 1). Following this logic, it is specifically concerned with questions such as: *How does the technology enable a particular target group?,* or *What do user groups seek from a given technology?* SI has been influential in the field of ICT4D (Nurminen, Berleur, & Impagliazzo, 2006, pp. 2–3); however, it has tended to embody a Western and organizational bias (Raiti, 2007). Given that it is primarily oriented toward theorizing the processes involved in technology adoption, there is the suggestion that it might serve the agendas of the Western development machine or Western corporate interests (Nyamnjoh, 2006/1996). These features of SI mean that, as an inspiration for thinking about ICT4D, it has tended to embody modernist assumptions, favor top-down or corporate-led development, and focus on *productivity.*

Community informatics (CI), on the other hand, works specifically on the question of how ICTs can contribute to community development (Pigg, 2001). Gurstein defines CI as "the application of ICT to enable community processes," with the goal being, "the achievement of community objectives including overcoming 'digital divides' both within and between communities" (Gurstein, 2007, p. 11). For adherents to this approach, research needs to ensure that ICTs empower communities in such ways that they regenerate themselves, become stronger, and defend their borders against negative incursions by capital or authority. The major questions facing CI, therefore, are "how communities can become the 'subject' of technology applications and how technology in turn can enable communities to become more active, effective and secure as 'subjects'" (Gurstein, 2007, p. 36). Because of these underlying assumptions, the main agenda driving CI is *empowerment.*

These examples suggest a contrast between SI research, which seeks to understand productive adoption of ICTs in developing countries such that they can become part of the new global information economy, and CI research, which seeks to understand community appropriation of ICTs such that they can resist incursions by global, corporate, top-down forces operating within the global information economy. This characterization of ICT4D research mirrors Avgerou's distinction between transfer and diffusion models versus social embeddedness models of change (2010), as well as Unwin's distinction between development based in an empirical-analytic theory of social science and that based in a hermeneutic tradition (2009, p. 33).

The field of development has itself been evolving in response to both theoretical impasses (Brett, 2009; Schuurman, 1993) and empirical failings (Easterly, 2006). Those searching for alternatives have had to construct new foundations for thinking about development. This search has given rise to an "ontological turn" in development studies (Escobar, 2007) which responds to the need to move beyond either grand narratives or paralyzing theoretical moves (such as deconstructionism), and to establish critically realist (Unwin, 2009, p. 33) and historically contextualized footing (Avgerou, 2010, p. 11) for the theorization of effective development alternatives. This implies a wholly different vision of the networked world: neither a globocentric vision of the consolidated network society nor a nostalgic and nationalistic vision of resistance, but a focus on specific contexts for development and the real processes of dynamic change that take place within them. As Hamelink argues, drawing on Kaplan, "'It is important for us to understand that as development workers we do not 'bring' or deliver development, but intervene into development processes which already exist.' Contrary to the conventional approach, 'development is about facilitating resourcefulness'" (2002, p. 8). It is on this footing, I argue, that we must develop the idea of open development.

This shift implies the need to move beyond either productivity or empowerment as anchoring concepts for development in ICT4D research. Rather than modeling subjects as either productive contributors to an information society or empowered upholders

of defensive stances, what I want to focus on is a need for a system of protections that recognizes, celebrates, and shelters situated, emergent *intent* (see Buskens, this issue). As Kaplan defines it, development is "an innate and natural process found in all living beings" (Kaplan, 1999, p. 8), and therefore, as Unwin explains, ICT4D needs to "engage in critical science that encourages a form of self-reflection that will enable the systematically distorted patterns of communication in society to be revealed for the benefit of all" (2009, p. 33). I am going to call this system of protections "cognitive justice." In other words, I want to move from theorizing that presumes the nature of the world, its threats, and its ideal subjectivities, to theorizing that starts from a position of openness in processes of change and subjectification.

Why reject productivity and empowerment organizing principles and end-goals for thinking about open development? When productivity is linked with a particular vision of the global economy, it is not difficult to imagine why we would question its legitimacy as a starting point for thinking about open development. The critique here is that the productive subject under informational capitalism is just as disenfranchised as the productive subject under industrial capitalism, because in either case, the subject is merely a source of labor within a capitalist system. Neither the future nor the present are "open" under such conditions, since the conditions for life are foreclosed by the system of production. Empowerment is generally seen as the antidote to this problem. Theories of participation suggest that empowerment can either lead to the social contract that keeps capitalism in check, or to the revolution that transforms it. But there are problems with empowerment, as well.

Empowerment seeks to give people critical thinking skills so that they can both learn for themselves and question the system in which they learn, such that they can shape the system around their goals (see, for example, Kabeer, 1994, ch. 9). Following Freire (2007), educational processes that unveil the power relations that shape our reality are a means to create empowered individuals. By extension, Parpart, Rai, and Staudt argue that "empowerment must be understood as including both individual concientization *(power within)* as well as the ability to work collectively, which can lead to politicized *power with* others, which provides the *power to* bring about change" (2002, p. 4, emphasis in the original; see also Rowlands, 1997).

But, as Parpart mused in a recent talk at the University of Toronto, when empowerment is taken up as an agenda by development practitioners, it is frequently imbued with a dualistic ethos. People are without empowerment, and then, as a result of a technical intervention, they "get" empowered. This means that being empowered becomes something to be measured, something that can be accumulated—an achievement, a goal, a standing (Parpart, 2009). Freire assumes the educator is herself pure, moving outside of the influence of power, and yet many practitioners of empowerment are working with people as a means to achieve very specific political ends. An education process based in patriarchy empowers students in a very different way than an education process based in capitalism. The blinders do not simply come off; they are replaced with a pair of glasses that show the world in a specific way. The risk, then, is that empowerment becomes a strategy within a particular field, and thus *it becomes a tool of mobilization into a perspective.* When empowerment becomes a means to mobilize, it is actually *disempowering,* because it constructs subjects such that they can occupy a particular agenda. Empowerment is important for enabling change, but we must question its limits when it becomes part of a practice of power.

In ICT4D, both productivity and empowerment start from the assumption that the network society model of capitalism is homogeneous and, if not ubiquitous, then dominant. The productivity model responds to this assumption by preparing all people equally for the introduction of a universal program. The empowerment model responds by creating enclaves of resistance against this model. In either case, there is a bias in the way that we think about the nature and impacts of the information society. This is a bias that fixates on bounded network *spaces*—as Castells said, "Be in the network, and you can . . . increase your chances. Be out of the network . . . and your chances vanish" (2006/1999, p. 953)—rather than on the *processes* of cognition and computation through which actual development takes place.

An Alternative Starting Point

There is no clearly defined field of development informatics (DI), but if there were, I believe that it

would best follow Hamelink in taking up a model based in communication. I believe that such a model is better positioned to capture the empirical reality of development, and to facilitate locally relevant approaches to development. Rather than empowering people into space-bound or identity-bound perspectives, or equipping them for a single possible future, DI would facilitate and protect the conditions that give rise to flexible, dynamic, local processes of innovation, experimentation, and resilience. Such a perspective is arguably more appropriate for open development, and it is a position supported by the recent work of prominent development theorists. As Easterly argues, "democracy as an ideal is about expanding the share of free people in society who are allowed to solve problems using their own knowledge" (2010). Sen argues that "There is no particular 'compulsion' either to preserve departing life styles, or alternatively, to adopt the newest fashion from abroad, but there is a need for people to be able to take part in these social decisions" (2004, pp. 55–56). And, focusing more specifically on research, Bebbington explains that:

> Power, meaning, and institutions are constantly being negotiated, and these negotiations open up spaces for potentially profound social and institutional change. Understanding how these spaces open and how they are used is a critical research challenge, and will take us beyond some of the oppositions that haunt much development theory. (2000, p. 497)

What is required, then, is a concept that captures the core of open development. Rather than seeing ICTs as wrapped up in promoting productivity or enabling empowerment, open development can be understood as the recognition that our task is the promotion and protection of cognitive justice. Cognitive justice is a normative agenda that directs attention to development's spaces and practices, and away from the construction or celebration of development agendas and discourses. It is the idea that no one form of knowledge should dominate at the expense of others, but rather, that different forms of knowledge should exist in dialogue with each other (van der Velden, 2005; Visvanathan, 2002; Santos, 2007). More specifically, van der Velden defines this as "the diversity of knowledge and the equality of knowers" (2006, p. 2). She argues that it is not a relativist concept (as has been suggested by Nanda, 2003), but rather, a dialogic concept. Thus, we must:

> perceive people's actual behaviour, an expression of their culture and ethics, as a way of knowing, not as a tradition from the past, a superstition that can be "museumised," excluded from the debates on their futures. . . . The supposed validity of people's knowledge lies not . . . in the fact that there are diverse ways of knowing. . . . Their relative validity will be realized through their inclusion in the heuristic dialogue between (conflicting) knowledges. It is in this sense that these different ways of knowing are valid: they should be treated equal in terms of access to and participation in dialogues of knowledges. (van der Velden, 2006, p. 14)

By extension, the notion of cognitive justice implies that the structure of social networks and systems for knowledge production must also support diversity and dialogue. The value of this approach is that it centers research on the complex, situated processes of development that actors engage in as they try to overcome barriers to their well-being and create more innovative, experimental, resilient communities. We do not presume the nature of the information society or of its potential outcomes, thus curtailing open processes of subjectification, but rather, we observe, celebrate, and foster transformative initiatives that are engaging shifting realities at multiple scales.

Thus, what is at stake for ICT4D are the conditions under which communication can lead to exploration and innovation, and ultimately, the moments of change referred to by Bebbington. Open development should study the ways in which networks—both in their physical and parallel social/ideational sense—are negotiated, and how spaces for change are opened or closed within these processes of negotiation. It should ask: *How do processes of network and networked negotiation produce or limit cognitive justice for variously situated actors within, between, and outside of networked spaces? How do these processes affect possibilities for change or stasis wherever, on whatever scale, across whatever distances or cultures, and through whatever media they might take place?* Rather than empowering people to mobilize within groups to create changes in "the wider world," this is about studying (and facilitating) the types of networking interactions that offer small opportunities for innovation and change

throughout society. The objective should be research that seeks to enhance cognitive justice such that actors become the subjects of their own histories, and not the agents of political agendas. In a world of complex interactions, these small changes may eventually lead to cascades of change that could bring about larger shifts in our social organization.

Epistemological Commitments

In the act of carrying out investigations, researchers necessarily enter into the information systems they are trying to study. This raises an especially significant dilemma for research that poses cognitive justice as a goal: How is it possible to study processes of knowledge production such as innovation, experimentation, or development without contributing to ontological closure, and thereby undermining cognitive justice? Insofar as *information* or *network* technology becomes an entry point into questions about the production of frameworks and categories for social change, as researchers, we must necessarily consider our epistemological commitments.[3] In other words, researchers must consider their answer to the question, "What can be known about this reality, and how can it be known?"

When it comes to open development, we need an epistemological framework that moves beyond the impasse between realism and deconstruction in development studies. Both of these frameworks put important limitations on open development research insofar as it seeks to promote cognitive justice—the former because it limits cognition (positivism maps social facts onto subjects rather than studying how subjectivities emerge), and the latter because it provides no grounds for justice (deconstruction serves to unravel assumptions but leaves us without alternative starting points). Constructivists have offered a variety of avenues for moving ahead; here I argue that critical realism is the appropriate constructivist epistemology for a program of open development.

Constructivists argue that knowledge about the world is produced by people; hence, there are no universal truths, and yet we can learn much by studying the production of knowledge. There are many varieties of constructivism. Both radical, anti-foundationalist constructivists (Kratochwil, 2000) and pragmatic constructivists (Chernoff, 2009) are concerned with how confidently we can know something, and both arrive at the conclusion that it is better to avoid *claiming* to know altogether. Thus, radical constructivists argue for an intersubjective criteria of validity. The solution is to behave "as if" the values, ideas, or identities of a particular group were true—that theories of the social world are best built based on "social facts," which are the intersubjectively naturalized ideas constructed by social agents. These social facts provide a foil against which social science researchers can explain the emergence of socially held "truths." As constructivist scholar Pouliot argues, "Ultimately, to know whether a social fact is 'really real' makes no analytical difference; the whole point is to observe whether agents take it to be real and draw the social and political implications that follow" (2007, p. 364). Meanwhile, taking an instrumentalist or pragmatic approach, Chernoff argues that what is really important is the "cash value" of our beliefs—whether they make action possible and successful in the real world.

Both foundations for theorizing are troubling because they allow researchers to take categories such as "information society" for granted, and, as was explained in the previous section, this lends credence to discourses that become power resources within change processes. In more theoretical terms, Wight worries that the position taken by radical and pragmatic constructivists lets us off the hook, that "getting things right is a practical, a political, and an ethical imperative" (2007, p. 381), and even if we cannot achieve this goal, we should still try. In my view, "getting things right" is about *not* taking discourses at face value—*not* selecting categories just because they serve instrumental ends. The values, ideas, or identities that people "take to be real" are often not representative of the "social facts" that actually shape their experience, nor of their true desires. Given the role of popular intellectuals (Baud & Rutten, 2004, p. 8) in shaping public perceptions within networked spaces, there is a risk that the "social facts" encountered by researchers are actually discursive claims or rhetorical devices emerging from a particular theoretical perspective or political

3. A reviewer points out that this ontological closure only becomes a problem when researchers deny their interaction with the world in processes of knowledge production. The point is to acknowledge this truth and think through how this interaction will be understood and operationalized.

agenda. Kowtowing to the instrumentalism of others prevents us from uncovering processes of knowledge production and practices of power that may limit cognitive justice. As such, both radical and conventionalist constructivism serve as poor bases for examining the processes that result in a particular pattern of social change. These frameworks leave us unable to assess whether, how, and to what extent a particular set of circumstances constrains or encourages openings for new thinking.

The alternative compromise is a critical (or scientific) realist take on constructivism, which argues that "part of the rationale for science is the attempt to know whether or not things are really as described, and what it is that makes them appear as such" (Patomaki & Wight, 2000, p. 218). This approach is based on three key assertions: 1) that "there is a reality independent of the mind(s) that would wish to come to know it" (ontological realism); 2) that all beliefs are socially produced (epistemological relativism); and 3) that all the same, "it is still possible, in principle, to choose between competing theories" (judgmental rationalism) (ibid., p. 26; see also Danermark et al., 2002). In practice, critical realism asks that researchers seek out reality while also recognizing their role in constructing it. This answer to the question of how we can know reality provides a foundation to the ontological turn in social science.

I believe that, as a philosophical foundation, critical realism is consistent with the agenda of cognitive justice for two reasons. First, critical realism upholds epistemological relativism and is methodologically agnostic. This means it is inherently accepting of multiple, unconsensuated or contested knowledges and the various processes through which they are generated. Second, critical realism's commitment to an ontological basis for reality provides a basis for *ensuring* cognitive justice. As Adler explains, "Critical constructivists . . . share the view that striving for a better understanding of the mechanisms on which social and political orders are based is also a reflexive move aimed at the emancipation of society" (Adler, 2002, p. 98). Unless we base research in realism, it will be difficult to identify and address the mechanisms and power relations underlying information, knowledge, and cultural production. If we cannot do this, then it will be impossible to establish whether and when these systems unjustly limit particular ways of knowing or processes of knowledge production, thereby limiting processes of open development.

Methodology: Designing Research for Cognitive Justice

A third issue facing researchers is the methodological question of how knowledge can be acquired given ontological priors and epistemological commitments. Positivist research epistemologies generally employ quantitative research techniques, while interpretivist epistemologies tend to turn to qualitative techniques. But in open development (as it has been defined in this paper), the major issue shaping knowledge acquisition is not technique, but location. This is particularly true given Avgerou's argument that ICT4D researchers must find ways to connect contextualized studies of how ICTs impact local processes of social change with the macro political-economic contexts that condition development (2010, p. 12). Researchers can be agnostic about how they gather data, but they must pay attention to how they define their cases. ICT4D research often includes assumptions about primary sites for research (organizations and communities, respectively), but open development offers no clear answer about where to situate research. It considers a world in which networked information, knowledge, and cultural production are happening everywhere, all the time, in complex and interrelated ways, and thus, I will argue that it needs to be based on a process-oriented approach that can take into consideration the openness and complexity of social systems.

Ethnography has been grappling with the problem of knowing "the local" when it is no longer geographically situated. The solution put forth by ethnographers is to pursue multisite research that "moves out from the single sites and local situations of conventional ethnographic research designs to examine *the circulation of cultural meanings, objects, and identities in diffuse time-space*" (Marcus, 1995, p. 96, emphasis mine; see also Hannerz, 2003). In this type of work, "research is designed around chains, paths, thread, conjunctions, or juxtapositions of locations in which the ethnographer establishes some form of literal, physical presence, with an explicit, posited logic of association or connection among sites that in fact defines the argument of the ethnography" (Marcus, 1995,

p. 105). In research involving ICTs, the researcher might form these connections entirely in allegorical space (Lindlof & Shatzer, 1998), or she might trace the ways material constructs, computer code, networks, or epistemology impose directionality or pattern on allegorical flows (MacKenzie, 2006).

This approach provides a "work-around" to the problem of site selection in a networked world. However, it introduces the problem of positionality when it "ethnographically constructs aspects of the system itself through the associations and connections it suggests among sites" (Marcus, 1995, p. 96). As Hannerz explains:

> [N]either I nor my colleagues could claim to have an ethnographic grasp of the entire "fields" which our chosen research topics may have seemed to suggest . . . and this tends to be in the nature of multi-site ethnography. . . . multi-site ethnography almost always entails a selection of sites from among those many which could potentially be included. (2003, p. 207)

Accordingly, Molyneux worries that, "Since any ethnographic account of development and globalization is necessarily partial and selective, at best it can provide a focused illumination of a complex whole" (2001, p. 273).

One solution is to focus on process. For example, Nagar's work (2003) has focused on the production of local knowledge, in particular through studying life histories, especially those written in the words of local actors. In this way, the research gives priority to local interpretations while also considering the means through which knowledge is produced in the chosen research context. This is not unlike the collection of stories by ICT4D scholars (see, for example, DFID, 2005, p. 31). But it is important to note the difference between collecting "success stories" to *justify* ICT4D projects, and collecting locally produced accounts of locally relevant histories as a means to *understand* local knowledge production practices, however those might occur. In the latter case, the researcher is open to the possibility that ICTs might have a negligent or negative role in processes of social change.

Another approach is to focus on the production of spaces (cases, phenomena, concepts, groups, etc.), rather than to assume their parameters. Borders are the result of internal processes rather than arbitrary theoretical assertions, and systems become "verbs not nouns, as they are sites of struggle and relational effects that reproduce themselves" (Henry, Mohan, & Yanacopulos, 2004, p. 850). Following Portugali, borders represent different forms of information compression that result from the social production of space and place (2006, pp. 659–660). Both geography and history offer theoretical frameworks for thinking about such processes. For example, humanist geographers Henri Lefebvre (1991, 1996) and Edward Soja (1989, 1996) provide a useful set of spatial concepts for examining the constitution of spaces for networking. They distinguish between *spatial practice* (the perceived, empirical, visible organization of material space), *representation of space* (how space is conceptualized, abstracted, socially constructed, and politically contested), and *spaces of representation* (how space is subjectively experienced by its "users"). By extension, using the work of historian Michel-Rolph Trouillot, history could be thought of as a "space" that is "written" by the confluence of *structurally situated agents* who experience events given both the historically and geographically situated set of capacities afforded them as *actors,* and the voice afforded them as *subjects* with a particular purpose (Trouillot, 1995, p. 23).

Studies of the production of networked space constitute a finding in themselves, but we need to go further if we are to understand the mechanisms that give rise to these findings. Multi-site ethnography, spatial, and life-history techniques can provide a snapshot of *how* networks and flows are organized, but they will not provide a full answer as to *why* they are organized in that way. Further research is required to uncover the factors that both condition and cause networks to be accessible or beneficial to some people, but not to others. Here, we encounter a second challenge, which is that of untangling causal mechanisms in complex causal processes. As Wight explains: "Causality in [complex] systems is both networked and summative, making it very difficult, if not impossible, to untangle the contribution of individual causal mechanisms, or combinations of them, in explaining specific outcomes" (Wight, 2008, p. 21). Human actors participate in many systems simultaneously, making it difficult to identify the sources of influence on any given system. Furthermore, a typical social system will exhibit various "emergent lev-

els," as well as a variety of interacting feedback loops.

One solution to this problem is the use of process tracing to establish an account of the conditions and mechanisms that give rise to particular outcomes. Process tracing is the practice of "generating and analyzing data on the causal mechanisms, or processes, events, actions, expectations, and other intervening variables, that link putative causes to observed effects" (George & Bennett, 2005, p. 214, fn. 25). For example, if the observation is that men are much more likely than women to access the computers in a telecenter, then the underlying condition might be a particular practice of patriarchy. Patriarchy is not an explanation, however; nor can patriarchy be assumed equal in all societies or cultures. The research must explain how a specific practice of patriarchy is put into action through specific mechanisms that make it more likely for men than for women to access the computers at the telecenter. This work will produce an account of the conditions and social practices that give rise to higher male use of a telecenter. The account can then be refined through interactive abstraction until "the alleged generative mechanisms are robust and powerful enough to explain the concrete phenomenon," given specific circumstances (Yeung, 1997, p. 59).

Methods and Sources

A final consideration is of the specific methods used to produce data. These methods should reflect the ontological priors and epistemological commitments of open development. Here, I offer examples of methods built around networked processes (rather than bounded spaces) that uphold critical realism and cognitive justice, support a reflective approach to intellectual accountability, and are able to produce data that give insights into open development.

Exercises in communication and debate can be a means to uncover patterns of social change. In this type of "constitutive research," all parties involved are asked to engage in reflection and production in the course of the study, and in turn, this impacts their own thinking and engagement, both with each other and beyond. Constitutive research follows a logic similar to open source software production. The effort revolves around a central question, and the source code (or data in this case) is made available to everyone, but each person produces reflections and research results that mirror their personal interests and situated interpretations. This activity is enhanced by discussion, and differences in interpretation create opportunities for debate and can give rise to new central questions. This is different from typical notions of participatory action research in that there does not need to be a particular goal or set process of monitoring and evaluation, and participants need not arrive at consensual results (compare, for example, to Stillman, 2005; or Foth, 2006). Furthermore, action research typically assumes that the work of the researcher will contribute to the goals of the research subjects (Motta, 2009). But in this case, given the emphasis on nonconsensual results, the researcher is released from the obligation to agree with others, and the group can, instead, reflect on the way knowledge is produced within a given context, the implications of this for cognitive justice, and whether and how this helps or hinders the ability of the group to achieve development objectives.

This approach to research is focused on processes of knowledge production, and as such, it might make use of digital platforms such as blogging to collect the interventions of participants. But the work might also take place in the absence of digital platforms. The emphasis here is on cognition, communication, computation, and patterns of openness, not the locations of these. Indeed, as was suggested above, the most revealing activity would actually be to have participants produce knowledge in the ways that most make sense to them, as this would reveal the most about social patterns of relevance to development within a given community.

An example of this approach is "network*ed* evaluation." Recently, Canadian donors and social justice organizations have been calling for new evaluation methodologies for use in social networking projects.[4] Much work is being done to promote networks and networking (Kasper & Scearce, 2008), and this work is thought to have beneficial impacts, but there are no clear methods for evaluating the

4. In particular, in 2007–2008, Toronto's Centre for Social Innovation (CSI) and the Millennium Scholarship Foundation hosted a series of discussions with practitioners about network evaluation. The notions of networked evaluation presented here are mine, but they were nurtured by conversations that took place as a result of this initiative.

creation of networks, the facilitation of network*ing,* or the impacts of either activity. The tendency so far has been to map existing summative evaluation techniques onto networked organizations as a means to satisfy the accountability requirements of government and private donors (see, for example, O'Neil, 2002).[5] But summative evaluation adopts a "cause and effect" logic, and it is often realized from an outsider perspective. Even when participatory, it is done with the goal of producing a consensual discourse, one on which important decisions often depend, such as financing or program objectives. I would argue that these approaches are unlikely to serve their purpose, given that the inherent tendencies of social networks are absorption (e.g., of external shocks or new ideas), dynamism, emergence, and meta-production (of, for example, culture and identity). Any or all of these potentially beneficial outcomes may result from a networking project, even if the project itself is a spectacular failure according to standard measures of summative evaluation. Networked evaluation, which combines empowerment evaluation (Fetterman, 1994; Fetterman, Kaftarian, & Wandersman, 1995) and community technology research (Day, 2005), would form part of the quotidian generative practices of a network. It would be oriented toward uncovering patterns or dynamics, and making sense of them both in and of themselves, and from the differing perspectives of individual participants. Not only is this an approach oriented toward opening up communication rather than pinning down knowledge, but it also recognizes that what may be of little benefit to one person might be massively beneficial to others. All together, then, the approach would contribute to cognitive justice, even as it would work to understand the nature of social and political relations shaping cognitive processes within a given space.

Conclusions

In this article, I have highlighted the difference between ICT4D research that is founded on key assumptions about the information society, and open development research oriented toward ensuring cognitive justice in development processes. I have argued for an approach that focuses on processes of networking and their implications for cognitive justice, regardless of whether technologies are involved or not, over an approach that assumes the parameters and benefits of networks and seeks to promote them through generating greater access to information and knowledge.

I have argued for an alternative approach to research in the field of ICTs and social change, and I have opened grounds for greater debate about the foundations of this field. In particular, research at the intersection of ICTs and development would benefit greatly from additional reflection on the philosophical commitments and assumptions underlying the work. This is a field that often shrugs off serious engagement with larger theoretical or methodological debates, arguing that it is interdisciplinary in nature or oriented toward practice, rendering further reflection unnecessary. But if anything, the pressing and interdisciplinary nature of the work should make us even more determined to reflect on these deeper questions. It should be clear from this article that the ontological foundations of research are intimately linked to policy decisions in the field of international development—decisions that, in turn, have implications for how the world is understood and acted on. In a field so intimately engaged with questions of knowledge and communication, it is imperative for researchers to critically reflect on their own ontological priors and epistemological commitments. These need to be updated to reflect a world opened up by global processes, and in this sense, greater attention needs to be placed on justifying site selection, particularly where research focuses on networks and constitutive processes. Finally, both the study of ICTs and their use in research open up a variety of methodological and ethical questions that should be explored, because they are central to the work of studying and enhancing cognitive justice.

Engaging in research that reflects the elements of research design discussed in this paper is one way of enacting communication societies. In particular, producing better understanding of cognitive justice in developing countries will help both researchers and knowledge producers to better understand the

5. See, for example, the "Philanthropy and Networks Exploration (PNE) Logic Model" by the Packard Foundation (http://www.packard.org/assets/files/capacity%20building%20and%20phil/ organizational%20effectiveness/phil%20networks%20exploration/PNE_logic_model.pdf).

problem of generating spaces in which there is respect for communications rights, democratized knowledge production, and open communication. ■

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