

Running Head: Changing Patterns of ICT Use

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Abstract

This essay highlights some key issues involving Information and Communication Technologies (ICTs) in the context of third world development by analyzing the growth and development of ICTs in a Non-Government Organization (NGO) in India, over a four-year period. Specifically, it aims to understand the nature of connection and communication enabled by ICTs over this period, as well as ways in which employees of the NGO understood, framed and discussed their use of ICTs. The study establishes that employees' interpretations of ICT shifted from singularity to plurality, and from simplicity to complexity, and that in the long run, ICTs served to increase the upward and horizontal connections of the NGO. Implications for understanding digital divide issues are discussed.

Changing Patterns of ICT Use in an Indian NGO: Some implications for understanding the digital divide

Introduction and overview

In the 1990s, discourses on technology and international development proliferated and converged, and Information and Communication Technologies (ICTs) were touted as the solution to an array of social and economic problems in the third world, ranging from poverty and illiteracy to gender, health and the environment (Welling-Hall 1994). Moreover, the amount of funds available globally to develop the use of the Internet in the third world increased quite dramatically in the 1990s (Heeks 1996). As these discourses and resources proliferated, academic research on the subject likewise burgeoned, notably on the subject of the digital divide, a construct which was used to describe economic, political and cultural differences between those groups who had access to ICT and those who did not.

As ICT use was being constructed as a problem worthy of study and intervention, scholars also began to argue that civil society groups such as Non-Government Organizations (NGOs) were key agents in realizing the potential of ICT for development (Selian 2004), given that they were smaller and thus ostensibly more flexible and efficient than government organizations. Indeed, scholars have noted that NGOs were seen, by both the popular press and development practitioners, as the solution to the structural problem of development itself (Escobar 1995). The popularity of NGOs as key vehicles of social and economic transformation dates back to the 1960s and as several scholars have demonstrated, initial optimism about the transformative potential of NGOs waned quickly as they became more institutionalized and aligned with extant state structures and apparatuses of international development (Bebbington 1997; Gill 1999).

All these trends taken together imply that an examination of ICT usage amongst NGOs is certainly warranted. This study, therefore, seeks to study the development of a system of ICT in one particular NGO in India, and unpack some lessons it can teach us about the digital divide. I first unpack some key aspects of scholarship on the digital divide. I then move on to a discussion of methods, after which I provide an overview of the development of ICT, and focus upon some trends in its usage over time. I conclude with some implications of the study for theory and practice.

ICTs, NGOs and Development

While early scholarship on ICTs and development tended to exalt its transformative and emancipatory potential, such optimism has been tempered, with increasingly critical observations being made of the role that NGOs play in international development in general (Bebbington 1997) as well as their strategic appropriation of ICT in particular (Kenniston and Kumar 1999). Given such increased debate and questions about the valorization of NGOs as agents of transformation, there are at least two key factors that contemporary research on the relationships among ICT, NGOs and development need to take into account.

The first involves the fact that the use of ICT in the development sector can often take the form of an imperative, sometimes leaving individual organizations feeling that they have no choice but to make their presence felt online (Ganesh 2003). Studies of ICTs and NGOs

therefore should be situated with reference to the fact that pressures for NGOs to adopt and adapt ICTs often occurs in a normative environment that encourages rather than discourages ICT use.

Second, and relatedly, understanding the relationship between ICTs, NGOs and development requires paying close attention to issues of context. In fact, several researchers have emphasized that understanding how ICTs are used in third world development requires treating social, political and cultural contexts of use as central (Tedre et al. 2006; Heeks 2005). However, investigations often, perhaps paradoxically, treat context in static terms. That is, they often consider and assess contexts at particular moments, without accounting for how contexts themselves could shift and change over time.

These two issues are especially important in discussions about the digital divide, where scholars have begun to question the utility of approaches that assess digital divide issues purely in terms of Internet penetration rates (Barzilai-Nahon in press). Early studies of digital divide tended to measure whether or not individuals or households had computers, or whether local infrastructure could support Internet connectivity, thus treating the digital divide as a “supply” issue. However, scholars have argued that the digital divide needs to be treated more holistically and contextually, involving not only “supply” but also “demand,” i.e., patterns of ICT use in communities (Holloway 2005). Accordingly, researchers have begun to ask questions about how communities interpret ICTs, focusing on what functions ICTs may or may not play, what contradictions they may experience in such use, and how their use of ICTs may serve as forms of empowerment or further marginalization (Mehra, Merkel, and Bishop 2004). However, even contextual studies of the digital divide tend to endorse the notion that ICTs are uncomplicatedly good things, and this is most evident in the semiotics of the term “digital divide,” which implies that the gap *ought* to be bridged. Thus, scholars and activists in digital divide issues sometimes implicitly treat the adoption of ICTs as normative.

Additionally, scholars have called for longitudinal examinations of digital divide issues, and the need to study how contexts of use and the nature of social divisions shifts over a period of time (Beltran, Das, and Fairlie 2005; Anderson 2005). Longitudinal examinations of digital divide issues are especially salient given recent studies that demonstrate how the shape of digital divides shift over time, as national regulatory and political regimes are transformed and ICT adoption in rural areas in the west increases exponentially (Guillén and Sandra L. Suárez 2005).

In this study, I attempt to understand ICT adoption and use in NGO contexts by unpacking some issues evident in the development of a system of ICT in one NGO. I focus particularly upon how members of that NGO used ICT, how such usage shifted over time, and what implications this has for our understanding of the nature of connection and communication enabled by ICTs. In order to do so, I first provide some historical background for the study. Then, I discuss how members interpreted the desirability and importance of ICTs, and how these interpretations shifted and changed over time. In particular, I highlight how members’ interpretations of ICT shifted from singularity to plurality, and from simplicity to complexity. Before I discuss specific details of the study however, some notes on methods are in order.

Methods

In 1999, I spent a month in India at Accessible Futures (AF), the NGO under study. As per my agreement with the agency, “Accessible Futures” is a pseudonym. At that time, I interviewed 26 employees in semi-structured format, and went through and analyzed a voluminous range of organizational documents, including reports, memos, notes, project proposals, research papers, and reviews. The interviews sometimes diverged widely depending on the sort of work the respondent was doing, but in general I asked all of them questions about how they perceived ICTs, how they used it, what impact they thought it would have, what sorts of problems they faced using it, what its benefits were, how it affected them personally, and so forth. All the employees I interviewed were “technical” personnel—some of them were scientists, a few of them had social work degrees, and some were engineers. As is conventional for many westernized and educated Indians, all of them were equally fluent in English and Hindi. After I finished my interviews, I presented some informal findings to the organization’s executive directors in the form of a brief report.

In 2003, I returned to conduct a series of 16 interviews spread over a two week period. Of these respondents, 12 had been interviewed earlier. The remaining four had all been at the NGO for over three years. During this round of interviewing, I asked respondents similar questions about use, impact, problems and benefits, focusing additionally upon issues of change. In analyzing the data, instead of examining changes in individual points of view over the four-year period, I analyzed data as a mass, examining key themes and issues that emerged in 1999, and comparing them with key themes and issues that emerged in 2003. Doing so allowed me to study collective changes rather than shifts in individual strategies. Several key changes in how respondents collectively framed their use of ICT were evident. Before I discuss them, I present some key aspects of AF’s background and history, drawn from data gathered both in 1999 and 2003.

Background and History

Accessible Futures was founded in the early 1980s and based in large city in India, with branches in four others. It employs about two hundred people, which is a large number by Indian standards. It works in the area of environmental management, focusing on sustainable rural development. Accordingly, its stated aim is to develop and promote sustainable agricultural practices and eco-friendly technologies. AF takes an explicitly technological approach toward its work, and employs scientists, engineers, trained social workers, focusing upon such issues as appropriate technology and its role in development.

Most of AF’s funding comes from international funding agencies, although it also obtains a measure of funding from the Indian Government and private donors. The agency has been interested in developing information and communication technology since its inception, and in the late 1990s, attempted to initiate an electronic communication network amongst NGOs. The system originally had twin objectives. The first, devised in the early 1990s, was to create a dial-up system which would enable NGOs working in the area of environmental management to access information about sustainable agriculture and eco-friendly technology. Additionally, the system would ultimately serve as a gateway for rural agricultural communities themselves, who would be able to access sources of information about agriculture, bypassing the NGOs, and eventually becoming self-reliant.

However, the purposes of the system began to be modified even as plans to develop it were initiated. Specifically, as planners began to encounter issues of literacy, language and the (lack of availability of) technology, electricity, computers and other infrastructure in rural communities, they began to question whether the system would really be of direct use or value for these communities themselves. Instead, they began to focus much more on its potential to improve organizational capacity, i.e., its potential use for NGOs that were involved in promoting sustainable agriculture. So, the first early version of the system involved a local phone number that various other organizations could dial up in order to link into a database. AF provided a few organizations with computers and those that did have phone lines (by no means a forgone conclusion for many NGOs working in rural India at the time), began to use the system. Immediately, however, they encountered several problems. Chiefly, the phone lines were poor and were often filled with static; this often resulted in extremely low speed and unreliable connections. As engineers at AF began to re-examine the modalities of such a system and even the feasibility of connecting with rural NGOs, they also began to focus on its potential for improving communication processes in AF itself. Accordingly, an ancillary goal emerged at around this time: to enable all five branches of AF to link up to the database, permitting employees to communicate directly with each other, instead of using the postal service, or fax technologies. Thus, the system acquired an internal organizational communication function in addition to the main external communication function.

In the mid 1990s, the Internet began to diffuse in India, and in the late 1990s, the fledgling version of the system had about ten clients (mostly NGOs) who could access the system from their headquarters in small urban areas. In 1998, the system was redesigned to incorporate an Internet portal. By then, the project was framed as having twin internal and external communication objectives, and in 1999, when I first collected data at AF, their employees had been using the system (and the Internet) regularly for a little more than a year.

In 2003, when I interviewed employees for a second time, they had been using the system (by then entirely web-based) for more than five years. By this time, the development of an ICT system was no longer treated as a separate stand-alone project: rather, its maintenance, development and regular operation was viewed as an integral part of the responsibilities of information systems personnel. Moreover, several sub-projects that involved ICTs had developed. Some projects were content-driven. For example, one employee had taken on the responsibility of ensuring that the NGO had current access to several databases sponsored by western foundations and the U.N. Other projects were audience-driven. Chief among them was an attempt to launch websites that were primarily based on audio-visual cues, rather than being text-driven. The idea, it was explained to me, was to try and facilitate the ability of rural populations and non-English speaking groups to access the website. Client organizations now did not dial up into the system; rather, they accessed it through a web portal. During the entire period of transition, the way in which employees understood, framed and discussed their use of ICT shifted substantially.

From Singular to Plural

In 1999, respondents talked about the potential of ICT and the way in which it might impact them, in broad terms. Such breadth, interestingly, is evident in the fact that respondents singularized ICT by using the pronoun “It” in their descriptions:

It's going to be everywhere, so perhaps we need to be ahead of masses. I think we have no choice but to accept that it's here to stay...[I think that] it'll be a good thing. Hopefully we'll make more connections if we have a presence on it."

The response above clearly treats ICT in singular terms. Scholars have argued that the use of pronouns such as "I," "we," and "it," serves to consolidate how we approach, understand and narrate issues, and this significantly influences our interpretations of collectives, the world around us, and ourselves (Yates 2001). Here, the pronoun "It" served as an undifferentiated lens through which organizational members viewed a potentially wide variety of "new" communication technologies, including e-mail, chats, bulletin boards, Internet telephony, videos, and the like. Further, the quote demonstrates that treating ICT in the singular resulted in its effects also being seen as singular ("it'll be a good thing"). Consequently, organizational responses to it ("having a presence") were similarly undifferentiated.

In 2003, while respondents did talk about ICT in the singular, occasionally either using the noun "ICT" or the pronoun "It," they were much more likely to talk about specific issues created by ICTs than they were to talk about ICT in undifferentiated terms. For example, several members talked about how people used e-mail differently. One of them said:

Sometimes I feel haunted by meetings! It's like—they can pop up from nowhere! In the good old days, it took a while to get people together, but now, *to, ek minute mein* (in one minute) you can get everyone together to discuss something!"

Here, the member was able to articulate the cumulative effect of e-mail on her everyday work, analyzing the specific impact this technology had on the structure of her work day.

Other members discussed differences in how people used e-mail. One said, laughing, "We also get spam from Nandu...one bad joke after another. It's like- give it a break! Someone steal his keyboard!" A few implications can be drawn from this joke. First, this observation acknowledges different patterns of e-mail use within AF, as it identifies Nandu as someone who overuses email. Such ideas about use and misuse imply that tacit norms for appropriate email use had developed at AF. Second, humor can be used as a form of control and conformity (Collinson 1988), and the joking nature of the statement and the laughing admonition "give it a break!" also points toward the development of an informal, casual system of controlling the appropriate volume of daily e-mail from a colleague.

The 2003 interviews show that as employees at AF became more familiar with ICTs over time, they began to treat the presence of ICTs and their effects in more differentiated terms. Such differentiation was evident in how they were able to assess issues they faced with particular ICTs. In general, I got the sense that employees were able to engage in substantive and focused evaluation of specific technologies and functions more easily because they had more experience with ICTs and attendant issues. For example, one employee talked about attempting to develop the website, and using it to try and reach out to one particular community they were working with:

It's become so much easier to eliminate text... graphics, sounds, pictures... these are [much easier] to insert. The biggest challenge is not technological, it is user-oriented. We need to understand how the end user can access the site and use it to his (sic) advantage. That's been the biggest challenge because you're dealing with someone who is [illiterate]

or can barely recognize the English alphabet. Our experience has been that it was really novel at first. We had a field guy out there, and in two weeks a few kids were really into it, but that was it. The challenge is to make it relevant for others as well.

This sentiment was reflected by several other employees. They were able to articulate problems with this particular project in much more focused ways. A major issue they dealt with had to do with reaching and educating an audience. “We still wrestle with the issue,” explained one. “On one hand, it is almost easier to reach the kids, but on the other, if you want to put material about housing or farming or family planning, then you have to reach the adults.... that is the problem...you keep trying... but like they say- is anyone listening?” At this, she laughed.

In sum, in 2003, employees were able to identify and assess multiple issues with different sorts of ICTs, and discuss and approach them in multiple ways. With such differentiation, came complexity.

From Simplicity to Complexity

In 1999, employees tended to talk about the potential of ICT to simplify their work life. There were two main aspects of such simplification: efficiency and support. Nearly all respondents talked about how ICT would make their work lives more efficient. One respondent discussed his relationship with several members of his field unit, who were located in a different city, speculating about their increasing use of e-mail. He said: “[I suppose that] the point is to make things easier, [communication]... takes time now, even faxing, which is pretty quick...[The online system] will help communications, no doubt about it.” Another, referring to a newsletter about environmental education that AF sent out to local schools, said: “I won’t have to distribute [the newsletter] at all- just put it online. That... is a good thing.”

These quotes demonstrate that employees hoped that using ICT would make performing their work more efficient. They were able to envisage such efficiency both with reference to internal communication processes, such as using e-mail to facilitate team communication, as well as external communication projects, such as local newsletters and bulletins. It is important to note that not all employees talked about efficiency in prospective terms; a few of them pointed out (in singular terms) how ICT was, in fact, already helping them perform their jobs better.

Further, it is interesting that even as employees talked about efficiency in 1999, they were highlighting the implicitly supportive function of ICT in enabling key activities. That is, ICT was not seen as a key organizational activity in and of itself. About half the respondents spoke of ICT as a way in which they could communicate their knowledge base, but did not conceive of it as a form of knowledge per se. For example, in trying to explain how using ICT would not inherently add to their intellectual capacity, one member said: “...we already bring... resources to the table at AF. So the role of the system is supportive, not generative. I won’t necessarily know more about my job because of it.” He went on to add that he was already using it, and that it had “speeded things up.”

In 2003, when respondents talked about their use of ICT, they tended to talk about its impact in more complex ways. It should be evident from the previous section that such complexity was often related to the fact that they were more willing to talk about ICTs in the

plural, and were more specific in their descriptions of various technologies and their successes and problems in using these technologies. In general terms, then, it can be said that for the participants in this study, increasing complexity came with more reflexivity on their part about their use of ICT, and they were more careful in their assessments about its potential and/or problems. One respondent even admitted to me that he couldn't remember what it was like to *not* use e-mail

Actually, *yaar*, I'm having a hard time thinking about what it was like before. It seems that in hindsight, it just happened bit by bit until it just became an accept[ed] part of the day- log on, check your e-mail, do some work, check it again, have some *chai*, check it some more, you know...

Other respondents were also able to reflect, with more detail, upon how they had used various technologies. One said:

I feel that it's using the computer day in and day out that makes the most difference... I remember how long it took me to learn [SPSS]... now learning new applications is just part and parcel of everyday...you know, I feel *ki* I don't even want to admit that I took an entire class on how to use Microsoft Word in 1994!

Such retrospective accounts index the extent to which existing familiarity with computers affected how respondents embarked on incorporating these technologies into their work life, and how these technologies in turn built their familiarity with it. As importantly, this respondent's comment indexes an informal organizational norm that emerged during this period, where employees began to feel that they were expected to be constantly learning and adapting to new technologies.

Finally, whereas in 1999, individuals tended to frame the effects of ICTs either in positive or negative terms, in 2003, they articulated much more nuanced patterns of use and effect, acknowledging the extent to which they had connected with larger, remote systems of knowledge and technology. Said one person:

I admittedly was a sceptic, and I still think that there's a lot of [hype] about it in the [NGO] sector, but now I think the best way to describe it is transformative, at least for me. In a sense, for better or worse, the field [of Geographic Information Systems] has itself been created by technologies in the west, but the range of what you do has multiplied. And so you can go back and forth from being a field worker here to someone who learned MicroImages and then hunt for open-source [software] and see those applications on a Simputer...you do all those things here [in India]. And it's really rewarding, but at the same time, there's that much more work and learning [because of] it.

Here, the respondent simultaneously articulates constraints and possibilities of specific technologies, framing their overall effects as "transformative" rather than simply "good" or "bad." This indexes a degree of cognitive complexity and familiarity with various information technologies that clearly developed during the period under study. Such complexity tended to be the norm for employees at AF.

Discussion

The case of AF bears some definite implications in understanding how we examine the relationship between ICTs and development, and its use in NGO contexts in particular. First, this study demonstrates that employees at AF changed their patterns of usage over time, and their interpretations of their usage and the effects of ICT became more refined, differentiated and complex. In short, employees became more cognitively complex in their usage of ICTs. Cognitive complexity refers to the ability of individuals to apprehend, engage and think through the multi-dimensionality of social and organizational realities (El-Sawad, Arnold, and Cohen 2004). The finding that employees were able to simultaneously deal with the rewards and costs of their ICT usage and their ability to deal with equivocal adds toward the growing body of work in organizational studies that challenges the assumption that people experience discomfort with contradictions and aim to reduce them (El-Sawad, Arnold, and Cohen 2004). In this sense, this study demonstrates that over time, people can become more comfortable with ambiguity, complexity and potential contradictions.

Second, this study adds to our understanding of contexts of ICT use in development. Over time, the context in which employees used ICT changed in at least three ways. First, the technological context itself changed, as the Internet became more readily available, and thus more familiar. Second, the immediate organizational context changed, as ICTs became more familiar—instead of being a separate portion of work, they became a more organic part of it, with different employees taking on responsibilities for different aspects of ICT-related work, including database management, reaching out to communities, and so forth. And third, over time, the relevance structure of ICT itself changed: as more members in the organization and outside it began to use e-mail, and as more people began to access remote content (and as that content became more available), ICTs became folded into the day to day structure of work in the organization.

Third, this study builds our understanding of the overall nature of communication and connection enabled by ICTs, thereby improving our understanding of digital divide issues. It is important to remember that the overall trajectory of growth of the system shifted in the 1990s. It went from a point where it was primarily designed as a means of external communication, i.e., a means of bridging a digital divide between rural Indian communities and resources available in cities, to one where it was used by people who were already familiar with and had ready access to the technology. Of course, AF had clearly not given up on attempting to encourage the use of ICTs amongst rural communities in 2003, evidenced by their modified approach that relied more on visuals than on text. However, it is also clear that employees wrestled with the issue of the website, grappling with their sense that it was ineffective and irrelevant to their audience.

Therefore, it can be surmised that on the whole the system worked much better for the organization than it did for the rural communities they worked for, because it created and enhanced connectivity amongst organizational members, and between them and western colleagues, systems and technologies. This, in turn, can be read to imply that ICTs tend to benefit educated and monied elite in the third world, rather than serving as a direct vehicle for large-scale social change. In short, the introduction of ICTs in this NGO, over a period of several years, served to create *upward* connectivity in the form of enhancing connections with professionals and resources in other countries, especially the west. It also served to create *horizontal* connectivity in terms of speeding up communication amongst peers and making such communication more complex. Finally, it did not improve connectivity

downwards, in that the organization was still struggling with trying to conceptualize the role and function of ICTs for rural communities.

Conclusion

This study demonstrates the importance of examining NGOs as mediating factors in discussions about the digital divide by providing data about the changing nature of ICT use in NGO contexts. Notably, it demonstrates that the NGO being studied was able to develop and use a system of ICT over a period of four years as it improved upward and horizontal connectivity, but was not able to use ICT to significantly increase downward connectivity. Additionally, it demonstrates the importance of longitudinal, qualitative and organizational approaches in developing our understanding of the digital divide.

Finally, some concluding limitations are in order. First, I did not examine the direct impact of AF's work upon various communities; rather, I chose to focus upon internal organizational struggles with perceptions about the lack of efficacy of their approach. Future work could examine the relationship between NGO activity and community impact. Second, this study is based upon a single case, and for more definitive statements about wider implications about the digital divide, many more case studies are required. It is my hope that this essay will add to scholarly conversations that enable such studies.

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