

Editorial

Research directions for information and communication technology and society in Geography

By now most of us in academia consider it an axiom that information and communication technology (ICT) is an intrinsic part of all realms of contemporary society. The embedded nature of ICT in everyday life is evident in the most mundane of transactions: shopping at the local grocery store or withdrawing cash from an ATM. More complex electronic activities are also an integral part of our daily lives. We use computers to converse with our friends and relatives and to manage our time, personal finances or health care, and we first check on the Internet for informational as well as entertainment resources. Even when visiting remote corners of the globe, “Internet access” is a top item on the list of amenities that make us feel closer to home. We demand intermediaries to connect the unconnected with global e-commerce, e-information resources, and e-communications networks.

Parallel to the increasing permeation of ICT in our daily lives, researchers in different disciplines have shown a concern with ICT’s transformative effects. More recently, critical geographers have been paying attention to how GIS—a geographic incarnation of ICT—shapes and is shaped by spatial processes. As ICT becomes more prevalent at the scale of the individual, household, and community, it has become imperative to ask what role ICT plays in the polarization of social inequality and why is it that we rely on ICT to reduce social and economic marginalization, when it may be one of its causes.

The publication of *Ground Truth* (Pickles, 1995) provided a starting point for the analysis of the disjuncture between the uses of GIS and the attainment of socially relevant objectives. One explanation put forward in *Ground Truth* was that there is an inherent relationship between GIS and power because, from the get go, many geographic information technologies were developed purposefully as “instruments of policy making” (Curry, 1995). Along the same lines, other authors in *Ground Truth* illustrated the potential of GIS to transform

power relations in society. Ultimately, these authors suggested that the lack of access to participation in the development of GIS signifies social and political marginalization.

More recently, discussions on GIS and society have focused on the relevance of participatory and community approaches in developing GIS resources (Craig et al., 2002). Other discussions have concentrated on the importance of scale, the social construction of GIS, and the epistemological underpinnings of GIS as it is applied in real world projects (e.g. Harvey, 2003; Schurman, 2000). One critique, which in some ways diverges from these discussions, focuses on the exclusion of women and minorities, as well as the lack of feminist experts, in the formulation and implementation of GIS projects (Kwan, 2002). This exclusion, coupled with the lack of attention that GIS research places on developing information that pertains to and depicts the experiences of groups on the margins of society, has created a sort of a technocracy that inevitably relies on a mainstream agenda to address the needs for self-determination and empowerment of women and minorities.

Although critical GIS and society discourses pay attention to social disparities, GIS as a framework for the examination of all things technological does not provide a complete picture of how ICT reflects, reinforces, or creates new geographies of everyday life. Part of the problem is that geographers’ efforts to critically examine the effects of GIS are limited by geographers’ need to advance GIS. It is in this sense that geographers can benefit from discourses developed in the disciplines associated more directly with ICT as a subject of critical inquiry, including discourses on the ethical issues surrounding society’s growing dependence on ICT, self-efficacy and the use of ICT, and policies regulating and mitigating the effects of ICT in different institutional and social contexts. Geographers can also benefit from the theoretical frameworks developed in the fields of

e-communication, e-collaboration, and information systems.

Conversely, critical geographers have a contribution to make to the overall ICT discussion because of their efforts to study the intersection of space/place, identity, and structures and processes of power and inequality at multiple scales. Through the incorporation of these inquiry themes into the overall discussion, it could be possible to examine why it may be that the spatiality of ICT is not an element, attribute, or by-product of power and inequality, but rather a constituent part of the formation, perpetuation, and governing of ICT. And to achieve this end, we argue, it is important to call attention to the relative paucity of geographic research into the embeddedness of ICT in people's everyday lives.

Despite the history of critique in GIS outlined above, the discussion often leaves out essential questions on the meaning of technology in people's every day lives, a paucity that may or may not relate directly with how geographers order information, ask questions about people and place, and examine disparities and processes that create inequality among different groups in different places at different scales. To better conceptualize GIS, we argue, geographers need to draw from critical frameworks, including feminist analyses. Such frameworks may allow an understanding of how different groups and individuals attribute meaning to ICT in their lives, how they put ICT into use, and what explanations they have of the ways in which ICT affects their lives.

One area that illustrates how we could broaden our approach is to consider issues related to the digital divide. The digital divide is often defined to mean literally the gap between the haves and have nots in relationship to ICT and information flows. The digital divide is particularly significant because it manifests so clearly in the US, the world power that gave birth to giants such as Microsoft and IBM.

During the past five years we have engaged in a program of social action research based at the community scale with several organizations in North Philadelphia, one of the poorest urban areas of the country, inhabited mostly by minorities. The overarching themes of our research have been to examine both the possibilities and limitations of ICT as a factor in changing the circumstances of poor women—as individuals and as members of a collective aiming at economic empowerment—and to understand how barriers to technology access and related educational programs prevent poor women from participating on an equal basis with others in the economic system. We have also examined the ethical implications of social programs that seek to overcome the digital divide resulting from the inherent inequality manifested by community partners with vastly different resource capacities. And we have looked into ways in which ICT is related to the activities women engage in to mitigate the negative effects of poverty. We have situ-

ated our analysis in relation to how poor women in different community and organizational settings think about and, ultimately, employed ICT towards the larger aim of meeting basic needs and expanding opportunities for achieving economic, educational, and health management goals. Questions addressed in our research include:

- How does ICT advance, limit, or transform individual poor women's daily survival strategies?
- How does the management and use of ICT advance, limit, or transform poor women's collective efforts to organize for economic empowerment? How is this related to larger social movements?
- How do poor women's experiences of ICT represent a different technology paradigm? Are there alternative explanations that model how community technology access affects the ultimate role that ICT plays in the everyday lives of poor women, as well as other social and economically marginalized groups?
- Specifically, how can we attain the normative goal of helping to empower marginalized communities given the resource differentials inherent in different institutions and their different capacities to give shape to ICT in the daily lives of poor women?

We have examined ICT from a feminist theoretical framework—including analyses of women's everyday experiences, agency, and empowerment. This has provided a means of doing research at a scale that allows us to trace more directly how poverty and the lack of social capital are related to the lack of access to ICT. We have also been able to assess more closely how strategies used to meet basic human needs shape the management of ICT and poor women's perception of the role of ICT in their lives. Women often rely on social networks to address the inequities associated with inequality. By looking into the role of social networks, we are able to gain insight into the ways in which women use ICT for empowerment, even when they are less likely to have equal access to the actual scientific elements determining technology.

In dealing with the digital divide, it turns out that mere access to technology is not the best way to address inequality. Results from one of the projects we developed show that the ultimate benefit of improving women's ICT access in relation to job readiness was their ability to better address the educational needs of their children. In other words, the results of ICT access are not necessarily direct but may manifest one generation removed. Results from a second project show that computer training rather than home access to computers is a better predictor of ultimate uses of ICT in health self-management.

We draw from these examples to underscore the need to align the goals of ICT geographic inquiry with methods that allow for a better understanding of the daily life

experiences of socially marginalized groups. An improved conceptualization of the digital divide has strong implications for how geographers research ICT issues, especially because of the discipline's reliance on GIS. Still, the implications are far greater when the ultimate goal is to improve technological and scientific literacy as well as providing a scenario for empowered access to ICT resources. Critical geographers have much to contribute towards the overall discussion of ICT and society, but we will only be closer to the bigger picture when we take marginalized people's daily experiences into account.

References

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