Information and Communication Technology Geographies

Strategies for Bridging the Digital Divide

Melissa R. Gilbert
Michele Masucci

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MELISSA R. GILBERT AND MICHELE MASUCCI

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ABOUT THE AUTHORS

Melissa R. Gilbert is an Associate Professor of Geography and Urban Studies at Temple University in Philadelphia, Pennsylvania. Her research interests are in areas of urban geography, feminist and critical race studies, and social action research. She is particularly interested in the barriers that poor women experience, and the individual and collective survival strategies that they employ, in attempting to support themselves and their families. Dr. Gilbert has focused on the relationships among access to information and communication technology (ICT), poor women's economic opportunities, and poor people's community-based organizing from a feminist geographical perspective for the past 14 years. Her current research seeks to understand the relationships among technological and social capital embedded in particular neighborhoods, occupational sex and race segregation, and access to and use of ICTs in areas important to people such as jobs, education, and political participation. The Fulbright Commission, the National Science Foundation, and the Social Science Research Council have supported her research. Her research has been published in journals such as the *Annals of the Association of American Geographers*, *the Professional Geographer*, *Urban Geography*, *Geoforum*, *Transactions in GIS* and *Information, Communication & Society*.

Michele Masucci is an Associate Professor of Geography and Urban Studies and the Director of the Information Technology and Society Research Group at Temple University. Her current research

focuses on digital inclusion and the use of information and communication technologies in health, education, and environmental management contexts. Her prior research examined the use of geographic information technologies among environmental non-governmental organizations in the U.S. and in Brazil for environmental quality monitoring. The Fulbright Commission, the U.S. Department of Agriculture, the National Science Foundation, the Philadelphia Foundation, Philadelphia Youth Network, the Pennsylvania Department of Health and Human Services, and the School District of Philadelphia have supported her research. She has published chapters and maps in various edited volumes, numerous social media works, and journal articles in *Community Literacy Journal, Telemedicine and e-Health, Geoforum, the Journal of Geography in Higher Education, International Journal of E-collaboration Research and Transactions in GIS*. Her first book was: *Human Environmental Interchange: Managing the Effects of Recent Droughts in the Southeastern U.S (Harcourt,* with Richard Perritt).

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We would like to thank the women and their families with whom we have worked since we began examining the issues associated with the digital divide in Philadelphia in the 1990s. We have observed countless inspirational examples of women persevering through difficult circumstances to pursue rare opportunities for themselves, their families and friends, and their communities to improve their lives. We would also like to thank the students who have been a part of the community collaborative research we have engaged in North Philadelphia throughout this time. Finally, we would like to thank our families for their support and encouragement to carry out this work.

INTRODUCTION

Reframing the Digital Divide from the Perspectives of the "Have Nots"

Our purpose in this book is to reconceptualize the digital divide from the perspective of poor women's daily lives in inner-city neighborhoods in Philadelphia in order to suggest an alternative policy framework for addressing digital inequalities. Our focus on poor women and their daily lives stems from a deep commitment to examining the underlying power relations that shape women's experiences in household, family, work and community contexts as a basis for understanding what matters to them as they work to improve the quality of their lives and the lives of those for whom they care. We use the term "poor women" to signify that we work with those who are living at the margins of political, economic, and social empowerment by virtue of a constellation race, class, and gender inequalities that are manifested in such areas as income, education, employment, and

health care.[1] We work with poor women in Philadelphia because their challenges are representative of the experiences of many women in the U.S. who are struggling for survival.

Drawing upon 14 years of social action research in North Philadelphia, we argue that an understanding of poor women's frameworks for the use of information and communication technologies (ICTs) necessitates rethinking the policies that seek to address the digital divide. Specifically, we contend that in order to better bridge this divide, policy concerns need to transcend a limited conceptualization based on access to computers and the Internet towards an examination of how ICTs may exacerbate and/or mitigate social, economic, and political disparities in the United States. We further believe that this shift in policy concerns necessitates new institutional arrangements that empower poor people within relevant institutions and decision-making bodies.

The digital divide is commonly understood as the gap between those with the most and least access to ICTs, which is usually described in terms of computer access and Internet use. This divide is most often associated with indicators of inequality such as gender, race, ethnicity, income, and geographic location (i.e., urban and rural populations vs. suburban populations). The greater societal concern is tied to the notion that lack of access to computers and the Internet

[1] We conceptualize race, class and gender not as biological categories but as socially constructed, geographically and historically situated processes that are mutually constituted with other forms of power and inequality such as age, sexuality, ability, and citizenship status.

exacerbates other forms of social, economic, and political marginalization. Current social transformations such as: (a) the intertwining of access to social services through acquiring e-literacies, (b) the emergence and growing adoption of telemedicine approaches for patient-health care provider communication, and (c) new avenues of civic participation through e-government structures lend credence to this concern. The increasing use of ICTs in these domains threatens to further disadvantage poor people, for example, by increasing the minority health care gap, continuing to decrease their participation in the decisions that affect their lives, and limiting the effectiveness and efficiency of social service programs.

What makes our work unique is that our point of departure for looking at the relationship of the digital divide to other social, economic, and political inequalities is that we consider this issue from the vantage point of some of the most marginalized people in the U.S. Most of the discussions of the potential for ICTs to catalyze societal benefits is situated within groups of technologically privileged and literate people and focused on the potential for ICTs as a pathway for achieving greater social and economic participation among the poor. These discussions assume that the framework for ICT and empowerment is the same for mainstream and marginalized groups and therefore the problem of and solution to the digital divide is one of merely increasing access to ICTs and related information flows (Gilbert and Masucci et al. 2008). Our work with poor people during the past 14 years has established an empirical basis for challenging these assumptions through learning about the differing frameworks for ICTs

of poor women in different social and economic contexts. This book will focus on the policy implications of our prior empirical efforts, since surprisingly little headway has been made in leveraging ICTs as a tool for improving the daily lives of poor women.

The lack of consideration of the perspectives of poor people in general, and women specifically, has resulted in an ICT policy arena that overemphasizes the need to develop strategies for overcoming barriers to the delivery and access of ICTs among economically disadvantaged groups. In practice, this has generated: (a) investments in community technology centers, (b) donations of computers to community organizations, (c) training programs for supporting workforce development, and (d) making information resources publicly accessible.

Our research suggests that while such strategies are necessary, they are not sufficient to reconstitute the power dynamics impacting poor women. We argue that policies designed to bridge the digital divide must answer the following question from the vantage point of poor people's everyday experiences and frameworks for ICT: *Once computers and Internet access and training programs are provided, what further strategies exacerbate or mitigate the digital divide?*

We propose that a beginning place for considering this question necessitates examining the ICT frameworks of those stranded on the other side of the digital divide by incorporating factors beyond individual decision-making behaviors. Specifically, we argue that understanding these frameworks requires examining: (a) how ICTs are

embedded in the daily lives of people in particular places/contexts and (b) how access to ICTs is constituted through constellations of relations of power and inequality such as institutionalized racism, sexism, and class oppression. In order to understand how ICTs shape and are shaped by relations of power and inequality, we need to gain insights about iterative relationships among the contexts where women live and work and their everyday uses of ICTs in particular places.

We analyze three case studies from marginalized communities in Philadelphia to address these questions. These case studies, drawn from our social action research, include: (a) the development of an economic human rights database by the Kensington Welfare Rights Union, (b) the development of a community technology center at Harrison Plaza Public Housing Development, and (c) the evaluation of health outcomes associated with the use of telemedicine communication protocols implemented through the Women's Heart Health and Telemedicine program (WHH program). Our collaboration unfolded just as sectors providing government information, job resources, and health care began shifting to the delivery of services via the Internet and telecommunication tools.

Our research involved developing collaborative relationships among Temple University, community organizations and residents in the surrounding neighborhoods in North Philadelphia, partnering organizations, and students. We have continually confronted complex power dynamics due to the sharp differences in the empowerment of these different groups and associated politics among partners in

various projects. Often these dynamics resulted in shifting our roles within these partnerships, and on occasion, bringing about changes in our choices of partners altogether. The constants through our efforts to learn about the ICT use frameworks of women in North Philadelphia and to address their digital divide concerns were the individual women and families with whom we worked, Temple University graduate and undergraduate students, and ourselves as researchers.

We have also worked to prioritize meeting larger community needs whenever possible, which has meant placing an emphasis on providing access to technology and related educational programs because of the strong desire on the parts of our community collaborators to pursue these interests. While our initial partnerships were formed through our work with specific community organizations, our relationships in communities evolved to respond primarily to the interests of local community groups and specific women and their families. At the same time, our initial, very specific grassroots activities eventually developed into more formalized arrangements. Through these arrangements, we drew on the larger resources and institutional capacity available through the university when its needs along with those of students became part of the equation.

Our empirical research suggests that disparities in terms of access to ICTs persist, particularly as we reframe what the digital divide means. Yet, we also observe that marginalized groups exhibit agency in relation to ICTs that is not well understood. We share examples of how iterative relationships between the use and development of ICTs and empowerment are constructed among groups

of women at the neighborhood scale in North Philadelphia. In so doing, we suggest that a wider range of "publics," including those of mainstream and marginalized groups, needs to be formed – along with associated policy approaches – in order to improve successes in bridging the digital divide. Therefore, we are drawing lessons learned from the partnership programs we have developed that connect community and university entities in supporting poor women's digital inclusion, empowerment, and civic engagement as a means of moving beyond the notion that providing computers and Internet access will address the needs of every group of ICT users completely.

Overview of Chapters

Chapter 1: A Framework for a Digital Divide Study

In this chapter, we argue that the traditional conceptualization of the digital divide is inadequate to depict the complex processes that create, maintain and ultimately challenge, digital divides. We argue that from our experience of working in a paradigm of social action research, we need to shift the focus from merely addressing disparities in accessing computers and the Internet towards one that incorporates an examination of how Internet information resources are differentially accessed and used. In 2008, we proposed an alternative model that depicts ICT access as the interconnections among four elements: (a) information delivery approaches (how information is shared, disseminated and accessed through the use of e-communication technologies), (b) technology use contexts (identifying the specific settings in which technology is accessed), (c) social networks

(examining the role of social networks in shaping access to and use of ICTs), and (d) the social policies and institutional mechanisms regulating technology access (examining examples that are specifically targeted to ICT use as well as more generally) (Gilbert and Masucci et al. 2008).

This model is useful because it suggests that it is important to recognize that mainstream frameworks for ICTs are not necessarily the same for all groups who are economically marginalized. Moreover, it reveals that the "have nots" use multiple frameworks for ICT that are poorly understood in the academic literature. We argue that to develop better policy requires examining the manner in which women's daily lives are embedded in particular places and are shaped by wider processes of power and inequality such as institutionalized racism and sexism. We conclude the chapter by discussing the social action research methodology we employed and the research objectives that guided our work with all three groups of women.

Chapter 2: Discourses on the Digital Society

The aim of Chapter 2 is to situate our work in three major literatures familiar to academic audiences[2]: (a) the literature on the digital divide, particularly the aspects that focus on the limitations of the concept of accessibility to infrastructure for dealing with the larger societal aims of digital inclusion; (b) the critical geography discourses that connect the problems with accessibility, the spatiality of daily life

[2] This work is intended to explore digital divide policy solutions of interest to both academic and non-academic audiences. Chapter 2 pertains specifically to the academic discourse on the digital divide.

(i.e., how daily life is embedded in particular places), the lack of perspective on ICTs offered by the critical geographic information systems (GIS) and GIS and Society literature, and the embeddedness of ICTs in everyday life; and (c) the feminist geography literature that focuses on the need to learn more about the multiplicity of women's experiences and perspectives as a basis for praxis based policy solutions.

Chapter 3: Framing Digital Divide Research in the Philadelphia Context

This chapter provides the local demographic, economic, social policy and ICT policy context for our empirical work conducted at the community scale in North Philadelphia. We begin by discussing the promises and limitations of Philadelphia as a leader in implementing digital inclusion before introducing the local context and demographic characteristics. We then describe the policy context of welfare reform, which has played a powerful role in shaping the lives of the women with whom we work. This provides the necessary background to introduce three cases studies drawn from our social action research program of the past fourteen years, and the context of the university-partnerships within which our research is situated.

Chapter 4: ICTs and Organizing

Our first case study of the Kensington Welfare Rights Union (KWRU), a grassroots organization of poor and homeless people, explores the possibilities and limitations for the use of ICTs in how poor people organize for economic human rights. We find that the ICT/organizing nexus demonstrates that marginalized groups can

develop and use ICTs in unique ways towards their empowerment goals. We address the question: *How does ICT transform organizing and how does organizing transform the use of ICT beyond mainstream goals?*

We found that the use of ICTs became central to organizing and educational activities, organizational strategies, and the allocation of organizational resources. In the end, the organizing was transformed iteratively with ICT use and development. But, as the organization was continuously evolving, the involvement of collaborative partners was constantly renegotiated with respect to changing power dynamics associated with the technology. At the same time, KWRU was able to develop a highly sophisticated information resource for challenging mainstream power arrangements (Gilbert and Masucci 2005 b and 2006). The policy implications of this research point to the need to rethink how information and power are interconnected, and how that in turn relates to the ways in which communities engage formal and informal channels for achieving their goals. It suggests the need to rethink concerns about the democratization of ICTs and planning processes from the perspectives of the "have nots." A related policy concern is the need to pay careful attention to the intersection of basic and technological literacies.

Chapter 5: ICTs and Economic Empowerment

This chapter examines the second case study of a demonstration community technology center at Harrison Plaza Public Housing Development in North Philadelphia to consider both the possibilities

and limitations of ICTs as a factor in changing the economic conditions that shape poor women's daily lives. It illustrates the ways that barriers in accessing technology and related educational programs can prevent women from being able to participate on an equal basis with others in the economic system. In addition to raising the policy concerns around basic and technological literacies, the democratization of ICTs and the planning process, the case study provides a particularly good example of the inadequacies of policy solutions that merely provide access to computers and the Internet.

We found that the most significant barriers to poor women's participation were the time and space constraints that they experienced due to their multiple roles as family providers, mothers, employees and students within the context of changing welfare policy and more broadly the changing political economy, institutionalized racism and gender relations (Gilbert and Masucci 2005 b). This case study bolsters the policy concerns about the democratization of ICTs and the planning process, and the related concern about basic literacies. Additionally, this case study demonstrates that technology access must be more broadly understood in relation to other social policies.

Chapter 6: ICTs and Health Care

The implementation of a program to provide women with heart health knowledge and the associated use of a telemedicine system to manage risk factors for heart disease is the topic of our final case study. Telemedicine communication approaches are rapidly and

pervasively affecting the standard of care, geographic mobility, and health outcomes among patients. Rather than simply providing computer or Internet access, our work with poor women who participated in the Women's Heart Health and Telemedicine program (WHH program) from 2004 – 2008 demonstrates the need to link technology training to topics of interest to women living in poverty. We find that despite persistent digital divide barriers for elderly women, women with children, and women of color, that by coupling the use of ICTs with health care management, women overwhelmingly gain the necessary technology literacies to advocate their own health needs (Gilbert and Masucci et al. 2008). Our work with this group clearly shows that technology literacy training related to an area of interest to the people being trained is what produces efficacy in the use of ICTs. Given the possibility of telemedicine for addressing the minority health gap, this conclusion has profound policy implications.

Chapter 7: Bridging the Digital Divide?

In our conclusion, we argue for the need to reconceptualize the digital divide policy thrust from simply overcoming delivery barriers for marginalized people to proposing what strategies may work to help empower poor people's use of ICTs. Our social action research debunks two common myths about the digital divide. First, we challenge the notion that the digital divide has been overcome or at least greatly reduced. The second fallacy we note is that the people stranded on the "have nots" side of the digital divide are undifferentiated, lacking in agency, and employ similar frameworks for ICT use as the "haves." These myths obscure the ways in which urban

and digital inequalities are mutually constituted and embedded within relations of power and inequality (Gilbert 2010). Therefore, we argue that the digital divide cannot be overcome solely by improving ICT access among individuals living in poverty. The chapter concludes by proposing strategies and a reconstituted policy framework for ICT approaches that reflects the perspectives of marginalized populations.

This policy framework requires new institutional arrangements that take seriously the agency and experiences of marginalized populations, as we have experienced in our own university and community partnership contexts. The result of our work is the development of a model of integrated research, teaching and outreach that is evaluated based on the criteria of all participants—faculty, students, and community members (Gilbert and Masucci 2004). These competing goals can be contradictory and fraught with tension, and we do not suggest that we have mitigated the unequal relationship between the university and community. Rather, we believe that our experience makes a contribution to rethinking and re-envisioning university and community partnerships to promote social change.

1

A FRAMEWORK FOR A DIGITAL DIVIDE STUDY

A Decade of Digital Inequality

A growing number of academic experts, media outlets, and public figures currently suggest that the digital divide as it was conceptualized a decade ago – a gap in access to information and communication technologies (ICTs) between the "haves" and "have nots" – is no longer a significant social problem in the United States (for a review see Kvasny and Keil 2006). A number of data points support this view. According to CTIA (2009), there are 285 million wireless telephone subscriptions in the U.S. Given that the U.S. has a population of over 308 million people; this represents a level of use at 91 percent of the entire population. CTIA also finds that 24 percent of all households have wireless Internet access; and the Internet World Statistics (2010) shows a 30 percent increase in the number of Internet users in the U.S. from 2000 to 2009, from 44 percent to 74 percent of the total population.

The increase of Internet users is giving rise to the ubiquitous Internet, accessed by wired and wireless computers and laptops, along with a proliferation of wireless personal digital assistants (PDAs). This enables a related phenomenon of cloud computing, in which content is stored and manipulated on the Internet rather than on the machines. Cloud computing is resulting in a proliferation of content accompanying the vast increase in the numbers of Internet users and modes of accessing the Internet. Together, these trends are invigorating the quest for public policy makers to leverage the Internet, as well as other information and communication technologies, as platforms for education, civic engagement, delivering and accessing services, hosting commercial activities, providing and accessing entertainment, participating in social networks, and supporting electronic communications (e-communications) of all sorts.

Despite the explosion of ICTs in virtually every dimension of U.S. society, we suggest that it may be premature to declare the disappearance of the digital divide as it was originally conceived in policy debates that began in the 1990s. These debates centered on a series of reports initiated by the National Telecommunications and Information Administration (NTIA) and titled "Falling through the Net" (NTIA 2004, 2002, 2000, 1999 a and b, 1998, 1995). Based on surveys of household computer use, these widely cited reports established benchmarks for the burgeoning use of the Internet and provided a basis for comparing the use of computers and the Internet across dimensions of race, income, gender, age and geographic location. The early reports found sharp contrasts in computer and

Internet "haves" and "have nots."

For example, the 1999 report highlighted extreme disparities in household patterns of Internet use:

- a 20 fold lower level of Internet use between the richest households (incomes over $75,000) and the poorest (incomes less than $15,000);

- an overall increase in the number of households using computers and the Internet but a gap between white and non-white household use of the Internet that grew consistently over a 15 year period of time;

- sharp differences in the availability of Internet use at home and work based on race, with 27 percent of whites accessing the Internet at home; 19 percent of whites accessing the Internet from work; 9 percent of Hispanics and Blacks accessing the Internet from home; 10 percent of Hispanics accessing the Internet from Work; and 12 percent of Blacks accessing the Internet from work;

- marked disparities among inner-city access to the Internet, with only 21 percent of inner-city Hispanic and Black families owning a computer as compared to nearly half of all white families (47 percent); and

- an 18-fold lower level of computer and Internet access among female-headed households with dependent children as compared to households managed by married families with children.

These disparities were quickly labeled as the digital divide. The early reports found that the lowest rates of users occurred in households of women, elderly, and racialized minorities (NTIA 1998, 1999 a and b, 2000). The 2002 and 2004 reports showed that the digital divide persisted but that the gap between heavy and less frequent users had stabilized (NTIA 2002, 2004). The 2004 report began to track the extent to which households used broadband as compared with telephone modem Internet connections (NTIA 2004).

The two subsequent reports provided by NTIA, the 2007 Report entitled, "Networked Nation: Broadband in America 2007," and the 2009 Report entitled, "Current Population Survey (CPS) Internet Use 2009," follow up on the earlier reports by providing an analysis of the trends that emerged earlier related to the growing adoption and patterns of broadband services across households in the U.S. By 2007, NTIA was citing vast increases in the use of broadband services (from 6.8 in 2000 to 82.5 million users in 2006), facilitated by a public policy of neutrality – meaning that the Federal government stepped to the side to allow private sector entities to fill the technology implementation gap (NTIA 2007).

Despite the availability of services, as recently as 2007, 28.9 percent of the population reported that they do not use the Internet, and nearly 40 percent of the population reported that they do not have either dial-up or broadband Internet in the household. However, by 2007 only 10.7 percent of all households reported continuing to use dial-up Internet service. The most recent data (NTIA 2009) show that broadband access in the home is still sharply divided according to

income (23.6 percent of users with incomes under $25,000 versus 82.4 percent of users with incomes over $75,000), race (54.9 percent of whites, 36.4 percent of blacks and 35.2 percent of Hispanics) and gender (54.4 percent of men and 47 percent of women). Moreover, the gap in overall home access to the Internet by either broadband or dial-up service has actually grown from 18 percent between whites and blacks in 1999 to 22 percent in 2007 and from 18 percent between whites and Hispanics to 23 percent in 2007 despite large overall increases in Internet access across all three groups (NTIA 1999, 2009).

Parallel to the "neutrality" stance of the Federal government during the Bush administration was a movement by some municipalities, including Philadelphia, to provide low or no-cost broadband as a means of mitigating cost barriers for high speed Internet service. The NTIA reporting shifted from a focus on the demographics of Internet access towards a reporting strategy that highlighted progress in meeting infrastructure needs to support Internet access. Further, the thrust of digital divide policy, in which investments in solutions to the digital divide and tracking of changes over time, is reflected by the themes of the NTIA reports. The 2007 report in particular reflects the policy directive of dealing with the digital divide through private sector investments in technology and infrastructure, with little attention to either the associated digital skills divide or an examination of how underlying inequities shape perspectives about the costs and benefits associated with using the Internet. Neither the 2007 or 2009 report addresses the reasons

behind individuals opting and dropping out of Internet use, instead reporting differences based on demographic characteristics. Finally, the reports reflect a broad shift in attention away from the Internet as a conduit for accessing information (and therefore, neglects to address the power dimensions associated with information) towards an assumption that Internet access equates with information access.

Collectively, both old and new NTIA reports have underscored the need for policy makers and scholars alike to examine the implications of the digital divide beyond the superficial patterns of differences in computer use and Internet access associated with demographic characteristics. They have also shown the need to look at more nuanced ways in which the Internet has shaped all facets of family, community, and civic life.

Such an analysis began with an exploration of factors that mitigated accessibility to the Internet, such as infrastructure, Internet Service Provider (ISP) formats, information flows, and patterns of computer use among different groups (see DiMaggio et al. 2001; Hargittai 2003; Lenhart and Horrigan 2003; van Dijk 2005). These concerns quickly expanded to include a more nuanced focus on the relationships between infrastructure and a host of other individual and social capacities. Servon (2002) was among the first scholars to emphasize the importance of establishing policies that connect the need to overcome physical accessibility barriers – like the lack of computers in the home – with overcoming social capital barriers to the use of the Internet – like the lack of skills and self-efficacy with respect to computers. Other scholars quickly followed suit by exploring

the ways in which expansion in overall Internet access accelerated the formation of web-based social networks, communications, transactions and problem solving, all of which require an expanding set of skills, experiences, and self-efficacies among users (see Hargittai 2008; Hargittai and Shafer 2006; Wellman and Hogan 2004; Wells and Rainie 2008).

Traditional Policies to Address the Digital Divide

Early approaches to address the digital divide identified by the 1998-2004 NTIA reports focused on investments in providing access at public libraries that led to nearly 95 percent of them providing basic computing and Internet access by 2000 (Bertot and McClure 2000). Library Internet access was linked to hours of operation, a reservation system for allotted time on computers and the Internet, but little training in the use of the systems or skills for information searches, a problem that persists in library environments even among the generation of "digital natives" – children born after 1989 who are growing up in a society with omnipresent Internet (Radford et al. 2007).

The lack of focus on the importance of ICT skills was also prevalent in another strategy commonly used to address digital divide barriers – the donation of old computer equipment and provision of low cost dial-up Internet service to non-profit organizations, public schools and directly to poor families. In Philadelphia, two organizations were the primary actors in delivering this approach. Critical Path Internet Services (Critical Path) was the first organization

in the city that began to provide free modem access to the Internet for HIV/AIDS patients in 1993. Critical Path's system was so effective that by November 2008 the service was expanded throughout the city to offer low cost Internet service, website development support, and listserv maintenance for approximately 10,000 low-income users and non-profit organizations serving the poor. The other major organization that filled this need was Nonprofit Technology Resources (NTR), founded in 1974 to provide support to community organizations in the use of videotape technologies. It has been the city's primary provider of no and low cost computers since 1988, when a contract from the United Way of Southeast Pennsylvania funded a study on the need for computers in community serving organizations. NTR now runs one of the largest computer recycling projects in the city of Philadelphia, training high school students to learn how to rehabilitate equipment. It also operates technology-training programs for individuals, families, and community groups.

The NTIA reports' identification of infrastructure needs to support the least connected groups led to another major strategy: enhancing the capacity of non-profit organizations to meet community and individual technology needs through creating partnerships with larger institutions (Mark et al. 1997). In Philadelphia, organizations such as the United Way, the School District of Philadelphia, the Department of Human Services, and the Philadelphia Housing Authority have all provided funding mechanisms and services to establish community computer technology centers and computer training programs in poor neighborhoods and communities. In turn,

many of these organizations found partners to fill needs in technical support, training, and program implementation. This led to another widely adopted strategy: linking the provision of training and infrastructure directly with the delivery of services (Gilbert and Masucci 2004, 2008).

Few would argue that overcoming the digital divide could have been accomplished without addressing infrastructure and training needs. But this approach overlooks the complex ways in which individuals experience and navigate the emerging digital society. Moreover, the broader structural processes shaping the daily lives of individuals, particularly low-income women, are poorly reflected in the responses to digital inequalities. A growing number of scholars recognize that the interconnections between social and economic inequalities are the basis for persistent and even growing digital inequalities (Hargittai 2010; Kvasny and Keil 2006). However, few studies have examined how the gap in access to computers and the Internet impacts people with the least access (Gilbert and Masucci 2005 a).

Information Access and Delivery

One of the outcomes of our work in North Philadelphia has been to document that information uses among poor women are significantly different than those of other groups using ICTs (Gilbert and Masucci 2005 b, 2006; Gilbert and Masucci et al. 2008). A major implication of our work is to point to the need for understanding not only the effects of ICT infrastructure disparities on women, but also

the importance of better understanding their information uses and needs. Shifting the focus from the infrastructure underpinnings of Internet access to the Internet as a pathway for information access raises a number of important issues about the digital divide. First, we have argued in our prior work that the digital divide is too narrow a conceptual framework from which to consider more nuanced aspects of information use, such as information sharing and dissemination, collaborative and community use of information, information privacy and safety, and information ethics (Gilbert and Masucci 2004). Second, we have argued that the conceptualization of the digital divide as a geographic construct (e.g., urban versus rural) does not adequately reflect the geographies of social disparities faced by poor women at the scale of their daily lives (Gilbert and Masucci 2005 a, b, 2006).

These two dimensions of the digital divide, information access and geographic disparities, are mutually reinforcing for poor women. For example, one has to have the knowledge, experience, and self-efficacy to access and use a host of e-communication tools found on the Internet. These tools allow for the transmission of information without the need to physically access the location where the information is located. Just a few of the often cited benefits of negating the geography of distance through using ICTs to access information include saving time and cost, improving knowledge, gaining access to otherwise unavailable social networks, and improving skills. Yet, for poor women who do not have access to ICTs at home or at work, the geographic benefit of overcoming distance through e-communication may be negated by the need to travel to a point of

service or to find a social network that can facilitate the use of ICTs. The lower levels of ICT and information access can equate with a technology skills deficit in comparison to other groups of more affluent Internet users, which can reinforce the social and geographic inequalities faced by poor women in the first place. This cycle of low access, low skills, and low information use has the potential to exacerbate the geographic and social isolation faced by poor women, resulting in further entrenchment within the digital divide rather than an easing of disparities facilitated through technology.

A growing literature is focusing on how technological literacy and digital skills are gained through a combination of access to ICTs and training (Asselin and Doiron 2008; Greenhow and Robelia 2009; Hargittai and Walejko 2008; Kuhlemeier and Hemker 2007; Livingstone 2009; Wilkinson 2010). Despite the notion that getting connected is as simple as acquiring a computer or Internet browsing device, our prior work adds to this literature by demonstrating the importance of social networks, tailored and contextual training, and geographic proximity for leveraging ICT infrastructure and digital communication tools to meet the needs of poor women (Gilbert and Masucci 2005 b, 2006; Gilbert and Masucci et al. 2008). Our purpose is this book is to build on our prior research to connect the relevance of place and social contexts and ICT and information self-efficacies with policy directions that move beyond the limited focus of current approaches for addressing digital divide disparities.

A Social Action Research Methodology for Reconceptualizing the Digital Divide

We have employed a social action research agenda during the past 14 years to examine the digital divide in the Philadelphia context, working closely with three cohorts of poor women. Our primary social action strategies included: (a) partnering on ICT project implementations with community collaborators and (b) developing associated educational programs to support those partnerships in order to form a context for learning about poor women's ICT use.

Our approach closely resembles Ward's schema for action research (2007), which is based on the past three decades of efforts by geography scholars. The schema includes a characterization of action research reflecting three distinct roles that geographers have played through this time period, including geographers as activists, participatory agents and policy advocates. He argues that geographers need to draw across all three aspects of social action work through creating venues, audiences, and multiple publics for policy efforts. For Ward, this includes both challenging current policies as well as constructing publics with concerns that policy can ameliorate (Ward 2006, 2007). As faculty engage in public problem solving and decision-making, drawing on social action research and collaboration efforts, Ward (2007) emphasizes that working to advance the concerns of people, groups, and communities on the margins often results in the blurring of boundaries for scholars between career-driven professional concerns and personal lives, leading to a well defined reflexive component of research as well.

Our prior efforts align with this model in important ways. We have engaged all of the categories of social action outlined by Ward, often changing strategies due to changes in our circumstances as researchers and scholars, the needs and collaborative possibilities of partners, and the evolution of social, economic and technology contexts on a broader basis.

For example our shift from working on project-by-project concerns with the Kensington Welfare Rights Union, an organization of poor and homeless people located in North Philadelphia, resulted from three factors. First, there were changes in the organizational structure of KWRU, specifically with shifting levels of empowerment of the specific individuals with whom we worked. As those individuals acquired new responsibilities for the organization, their ability to emphasize collaborative efforts with us and Temple University students had to be renegotiated.

Second, there were changes in the collaborative landscape. We found that our efforts with KWRU began to yield notoriety and outcomes that other organizations as well as our institution valued. Simultaneously, as capacity improved within KWRU, the initial reasons why we engaged those projects became less urgent. We were presented with new opportunities as community organizations requested assistance and new collaborators and students offered support for these efforts. These larger scaled challenges provided opportunities to leverage the knowledge, burgeoning infrastructure to conduct our work, and institutional resources from which to engage in technology partnerships.

Finally, our focus is on ICTs, which evolve and change constantly and drive extensive societal transformations. We have found that social, economic and health technology use contexts are constantly presenting new, urgent problems to address from the platform of our social action practice. Because of this constantly flux in the set of concerns posed by ICTs, we have found that new directions in our research and collaborations with community partners and individuals are often required. An integral part of our social action approach has been to have an embedded evaluative structure that allows for feedback from across our collaborators and stakeholders to guide our decisions about scale, level of involvement, benchmarks, and dissemination efforts.

Kinpaisby's (2008) dialogue and commentary on the challenges academic geographers face in engaging community research emphasizes the complexity of advocating a community relevant and connected university, or *communiversity,* model of engagement. The dialogue echoes a long-standing concern of scholars involved in community engagement, praxis oriented work – the need to recognize how different stakeholders engaged in university collaborations determine and reflect goals, outcomes, values, and organizational changes (Kinpaisby 2008). The dialogue also emphasizes that communiversity concerns often center on the power dynamics between universities and community partners but fail to reflect the university as a community with its own particular set of constituents, resource inequalities, and service demands (Kinpaisby 2008). We have written extensively about how our collaborations, through which our research

has been implemented, have challenged the hegemony of academic careerist driven research that places academic faculty members into competitive relationships with each other and hinders collaborative participation and public scholarship (Gilbert and Masucci 2004, 2008; Masucci and Schroeder 2007).

Kinpaisby (2008) also points out that evaluating the impacts of communiversity programs and projects is challenging because the usual metrics for measuring successes, whether in terms of academic programs or scholarly productivity, often do not apply due to the multiplicity of objectives, value systems, timelines, resource differences, and decision-making frameworks at play among respective partners. These factors add up to blurred boundaries for identifying start and end dates, goals and goal attainment measures, resource needs and expenditures, and ultimately the sustainability of the collaborations.

Our program of research in North Philadelphia closely reflects the dynamics reviewed by Kinpaisby (2008). We have described how a few criteria – program sustainability, support for student learning, and advancement of technology self-efficacy among community collaborators and program participants – have been prioritized and used to develop metrics for identifying successful outcomes and achievements, developing new directions and pursing opportunities, and representation of community perspectives (Gilbert and Masucci 2004, 2005 b, 2006; Gilbert and Masucci et al. 2008). Ultimately, we have found successes were best measured by completion of projects; meeting capacity benchmarks and training goals; achieving program

and project sustainability; and affecting decision-making changes that reflected the empowerment aims established at the onset of programs.

For example, we have specifically chosen not to author works that divulge many of the details of such goals and outcomes among women per se because of the multiple vulnerabilities faced by the women with whom we collaborate. Instead, we have chosen to represent our perspectives from our own institutional and professional frameworks, the transformations that have taken place at the institutional and organizational scale of analysis, and the community and program effects on a macro level.

We have advocated the position that public and policy discourses should rely on the representation of multiple constituencies with an explicit understanding of the power imbalances represented by the need for the collaboration in the first place. Our goal to catalyze institutional change within the university necessarily means that we follow the university protocols that oversee such collaborations and work within those parameters. These often place us in awkward juxtaposition to learning about, representing, collaborating to change, and advocating the needs of poor women with whom we work because of their constraints.

We have adopted the conventions of university protocols to guide some of these choices. For instance, all of our student workers engaged in community praxis obtain criminal background checks and child abuse clearances, along with training that is aimed to prepare students to deal with a number of social needs that they may

encounter. We do this because as technology trainers, we have found that community members ascribe to students the status of teachers, health care workers and social workers – all of whom community members regularly come in contact with as part of their daily lives. Since our students often become proxies for these roles (particularly as investments in social services have shrunk and requirements for adhering to welfare policy transitions have come into play), students simply will be placed in those roles whether or not intended. Without training – and the documentation to prove that they do not have prior records that would indicate a concern for community welfare in the traditional sense – we place the students and ourselves in a vulnerable position both in terms of our ability to maintain connections with our institution and in terms of being able to deal with potential problems that could arise. But in taking this step, we already situate ourselves in a particular position of empowerment within the community and individual partnerships we hold, which has repercussions for a host of outcomes within the programs as well as the data that we obtain.

Finally, many scholars are placing renewed emphasis on the value of social action research strategies for both advancing knowledge as well as public needs (Chatterton et al. 2007; Clifford et al. 2010; Dick 2010; Hofman and Rosing 2007; Kindon et al. 2007; Kock 2007; Reason and Bradbury 2001, 2008). Dick (2010) provides a useful set of contexts where social action work is particularly relevant, including: action learning, community based research, youth work, education action research, appreciative inquiry, and action science. Collectively these scholars highlight that social action methods form a

constellation of work that incorporates collaborative, reflexive, participatory, and "soft" systems forms of analysis with an emphasis on long-term commitments for connecting scholarship, research and practice in one paradigm.

Chatterton et al. (2007) emphasize that underlying the collaborations that form the crux of social action strategies is a form of solidarity that has the potential to reorganize the power dynamics among the collaborators. Kinpaisby (2008) emphasizes the importance for academic geographers to engage public geographies "in collaboration *with* wider publics to co-produce geographical knowledge (p. 292)."

Our goal has been to seek ways to draw on the solidarities that have emerged from our collaborations to be a part of knowledge co-production. In so doing, we have pursued a path of advocacy for ourselves and others that is grounded in the pursuit and co-production of knowledge about ICT experiences that allow us to advocate for others as well as ourselves. In recognizing that social action research pursues solutions to what are nearly always viewed as urgent problems, our work in North Philadelphia has aimed to lengthen the time line and broaden the view of these issues as a pathway for building collaborative programs that elevate the value placed on community concerns from the university perspective and allow the university community to be transformed by changing the metrics for evaluating academic success and student achievement.

Research Objectives

We have drawn on digital inequality and society, feminist theory, and critical GIS and GIS and society inquiries, as well as critical pedagogy, to frame our studies and community engagement. Our use of these theoretical frameworks draws on the notion that research should have practical applications for society at multiple scales – and that knowledge is situated within the experiences of each of the collaborators. Feminist theory in particular emphasizes the need to examine the lives of women, their agency, and experience as a context for social action to improve the quality of their lives. In our case, this has meant that we have engaged in the use of mixed methods to learn about women's frameworks for ICTs, including focus groups, participant observation, implemented and evaluated educational programs, surveys, and sponsored service learning practices involving students.

Our use of critical GIS and GIS and society frameworks has been to support working collaboratively with community partners to develop shared data resources that have met information needs identified by community members. Our methods have included conducting workshops, advocating and training community members to use and evaluate technologies, conducting needs assessments, and participating in community organizational meetings. We draw on these experiences to provide insights about the intersection between different organizational and situational technology and information needs, and have contributed to an advancement of a theory of feminist GIS (Gilbert and Masucci 2006).

Our ultimate aim has been to build an understanding of context within which ICTs are used and framed, to document technology use patterns, perspectives and efficacies, to shape student knowledge about these patterns, to draw on empirical observations to depict the geographic dimensions of technology use from these perspectives and to provide theoretical and practical insights about how technology is transforming women's experiences and how they are responding. Through this understanding, we have gained insights about the agency of women as expressed through their daily lives, empowerment, and knowledge acquisition (self-efficacy). This work reviews those smaller studies towards fully articulating the practical implications of our longitudinal work.

Our work is grounded in a broader focus on women's daily lives in urban communities using a feminist analysis of ICTs and poor women's economic empowerment. This work has examined poverty, welfare policy, digital divide challenges, and access to information for empowerment.

Our basic research objective was to gain knowledge that would help to empower the women with whom we worked. Our aim was to better understand:

- the relationship between poverty and social capital to barriers to information and ICTs;
- the relationship between the use of ICTs and the organizational strategies, decision-making processes and goals of community organizations;

- the innovations that community organizations employ related to ICT use and associated decision-making processes and how these relate to organizational and broader social movement goals and strategies;
- how organizing and technology needs and use relate to issues of scale, place, and context; and
- the benefits and limitations of providing alternative means of access and training.

We have shifted the usual focus of digital divide research from an emphasis on differential access to a consideration of how Internet information resources are available or not, given relatively low levels of both work and home based computer and Internet access among low-income, racialized minorities and women. This has shaped our specific research agenda to include an examination of other dimensions of the problem of the digital divide, including: (a) the relationship between information, empowerment and information access through ICTs, (b) the role of both access to technology and digital skills in shaping ICT use frameworks, (c) the experiences and knowledge that are needed for women and racialized minorities to gain self-efficacy in the use of ICTs, (d) the ways in which their ICT self-efficacies are connected with empowerment and agency in the use of ICTs, and (e) the power dynamics they face when using ICTs in different contexts.

Our social action strategy permitted us to deepen our understanding of women's perspectives, the digital divide and digital

inclusion in relation to economic, educational and health issues. Digital inequality and society inquiries, feminist theory, critical GIS and GIS and Society, and critical pedagogical theory all emphasize the need to challenge social inequality and power relations across multiple spheres.

We contend that it is crucial to grasp the limitations and advantages inherent in collaborative partnerships among groups with vastly unequal resources. This requires a critical examination of the roles of all partners. Not only is incorporating poor women's perspectives crucial, but the dynamics of all partners determines the information technology use context of poor women. In evaluating technology use partnerships beyond merely looking at of the outcomes of the "transference of technology," the concept of a *non*-top down information technology partnership has remained elusive. Directing attention to the actual setting and partners gives us a better lens to address the inevitable issues of accessibility, technology impacts on organizations, and empowerment (or lack thereof).

2

DISCOURSES ON THE DIGITAL SOCIETY

Research on the Digital Divide

In this chapter, we situate our research examining the digital divide from within the perspectives and experiences of poor women in Philadelphia in the context of three related themes, including: (a) digital inequality and society, (b) feminist geography, and (c) critical geographic information systems (GIS) and GIS and society. One body of work has emerged from a group of interdisciplinary social scientists that have examined how social and digital inequalities are intertwined (Hargattai 2003). This work points to the persistent influence of interrelated measures of social and income inequality on the use of digital technology (Fuchs 2009). We have integrated the perspectives of critical geographers and GIS scholars within this broader discussion of inequality because of their increasing engagement of a related set of concerns. These include recent attention to the connections between social disparities and the

geographies of everyday life, their implications for digital inclusion, and the lack of a discourse on ICTs and society within the participatory GIS literature (Elwood 2010, Kwan 2009). We have also examined feminist scholarship to inform our approach for focusing on the daily lives of poor women as a basis for grounding discussions in our empirical research, including introducing feminist approaches to GIS. Finally, we draw on critical pedagogical theory as a context for advancing and evaluating the institutional transformations that have been an integral part of the overarching social action research model through which our university-community collaborative ICT projects have been developed.

The Digital Divide and Social Inequality

An initial focus of academic scholarship on the digital divide sought to understand how different patterns of computer and Internet use and skills were related to computer and Internet accessibility (DiMaggio et. al 2001; Keil 2005; Kvasny and Keil 2006; Lenhart and Horrigan 2003). These scholars considered the social implications of the Internet as well as how social, economic and political inequalities were connected to accessing computers and the Internet. DiMaggio et al. (2001) provided one of the first reviews of the societal dimensions of the Internet. Their work sought to better understand the Internet in terms of its impact on inequality as opposed to more a simplistic assessment of the technology "haves" and "have nots." These scholars argued for the need to examine how behavioral, social, and institutional contexts were interconnected facets of digital inequality (Gilbert and Masucci 2005 a).

Other scholars contributed to the call for linking the digital divide with other forms of social inequality by examining participation in civic and political processes and the pursuit of services such as education and health care (Axelson and Hardy 1999; Bimber 2000; Cavanaugh 2000; Fox 2001; Gilbert and Masucci 2005 a; Gilbert and Masucci et al. 2008; Guillén and Súarez 2001; Keil 2005; Schmid 1996; Schneider 1996; Shiver 1995; Skinner 1997; Tambini 1999; Tate et al. 2001; van Dijk 2005; Warschauer 2003). Robinson et al. (2003) and Warschauer and Matuchniak (2010) have highlighted the connections between levels of educational attainment and the ways individuals use ICTs at home and work. Together, these studies pointed to the need to move beyond the characterizations of technology infrastructure access provided by the NTIA reports.

Another group of scholars introduced the importance of having digital skills as a pathway to ICT use (Attewell 2001; Lindsay et al. 2008; Mark et al. 1997; Merrifield et al. 1997; Warshauer 2003). This research emphasized that in order for digital "have nots" to gain technology literacy, a combination of technology training and experiences is required. Merrifield et al.'s (1997) case studies of the strategies used by individuals from different cultural backgrounds to gain English language literacy showed that education, relying on social networks, and accessing institutional supports were the most effective ways to increase social and economic participation in mainstream settings and institutions. Rovito and Masucci (2009) drew on this argument to investigate the extent to which literacy and geographies of daily life were connected among recent Chinese immigrants in

Philadelphia, finding that the individuals with the strongest self-identified English language skills also had the largest and most intricate spatial activity patterns. Both studies underscore the importance of accessibility, mobility, exposure, and context in individuals becoming self-efficacious with respect to ICTs.

Others have emphasized the role of environment, context, and social networks in sustaining Internet engagement (Conte 1999; Katz and Aspden 1997; Mark et al. 1997). These studies show that social networks provide a context for introducing individuals to the Internet. Therefore, non-Internet users are less likely to have strong social networks in general; and low-income individuals from racialized minority groups are the least likely to have social networks that could provide pathways to Internet use. While earlier research has demonstrated the importance of social networks in the survival strategies of poor and racialized minority women, others have highlighted the need for a better understanding of how poor individuals construct the use of ICTs in their daily lives through demonstrating that the pathways usually leveraged as key survival strategies to combat poverty were not effective for overcoming digital inequality (Benin and Keith 1995; Gilbert and Masucci 2005 b; Hogan et al. 1990; Jayakody et al. 1993; Jewel 1988; Johnson and Roseman 1990; Oliver 1988 a, b; Wiles 2003, 2005).

This growing scholarship demonstrates why free access to computers and the Internet and basic technology training are not enough to create digital equality. Kvasny and Keil (2006, p. 49) respond to this concern, calling for academicians and community

partners involved in designing technology opportunity programs to provide greater variety in learning experiences based on a more iterative relationship that emphasizes the aims and directions of the technology "have nots" on their own terms. We have also stressed the importance of employing multiple strategies for organizing across different ages, locations, interests and problem contexts as a means of strengthening technology use capacity within marginalized communities (Gilbert and Masucci 2005 b).

The Digital Divide and the Geographies of Inequality

Despite these advances in research on localized dimensions of Internet access within poor communities, few empirical studies have been conducted to analyze the geographic patterns of inequality associated with basic computer and Internet access. Rather, geographers have steadily engaged concerns about the relationships between information, accessibility, and technology (Crampton 2003). The works that do exist on geographic patterns of inequality point to a persistent observation that the geographies of innovation are closely connected to the underlying spatial patterns of racial, gender, and economic inequality (Greenstein 2005; Grubesic 2002; Larson and Jacobsen 2009; Schwanen and Kwan 2008; Zook and Graham 2007).

For example, Grubesic's work (2002) on the disparities of network activity in Ohio shows that urban areas in the state have led the adoption of cyber-network implementation and innovations. Greenstein (2005) echoes this observation for the U.S. as a whole, noting that rural areas lag behind urban ones in broadband adoption,

and indicates that the clustering of information technology professionals in urban areas may play a significant role in fostering and perpetuating this well-documented uneven geographic pattern of adoption. Zook and Graham (2007) go further, pointing out that the Internet both transforms as well as creates new geographies on the ground in uneven ways. Schwanen and Kwan (2008) focus on examining how mobile access to the Internet through the use of cell phones can collapse time-space constraints that individuals experience. Implicit in their work is that mobile communication devices are tools for overcoming fixed-in-space constraints of earlier innovations in access to the Internet represented by computers in homes and community settings. Even so, Larsen and Jacobsen (2009) conclude that while mobilities increase because of increased use and prevalence of ICTs, particularly handheld communication devices, uneven distributions of benefits associated with these new mobilities remain. They argue that this is because the underlying context within which these movements occur are still integrally connected with the material and social circumstances of people's daily lives (Larson and Jacobsen 2009).

One of the problems posed by the limited attention paid to the geographic inequalities created and perpetuated by the Internet is that the means by which alternate geographies regulate the digital divide are poorly theorized and analyzed (Crampton 2003). As a result, the policies developed to deal with digital divide issues have over-emphasized access per se but without attention to the system wide transformative affects that result from the infrastructure investments.

Only recently have scholars turned their attention to identifying metrics for evaluating the effects of ICT investments, often with the thrust to do so at a very macro scale of analysis (for examples, see: Crandall et al. 2007; Holt and Jamison 2009; Kandilov and Renkow 2010).

Among the more nuanced examinations of the geographic implications of ICTs are theoretical works of geographers and digital inequality society scholars. For example, Curry (1997) explored geographic dimensions of ICTs through examining the interplay between virtual communications and the uses and connectivity of places, as well as how this technology can shape the meaning of place. Hargittai (2002) and Andrews and Kitchin (2005) were among the first to discuss the conceptual problems with equating the digital divide solely with location and quality of ICT infrastructure. Andrews and Kitchin (2005) also introduced the idea that ICT and social inequality have rarely been considered in geographic terms. Crampton (2003) and Warf (2001) both considered the issues of embeddedness in place in terms of the digital divide and the unevenness of the digital divide across multiple scales. Other scholars have picked up on the importance of the digital divide in place and identity politics by demonstrating how geographies of everyday life are closely impacted by virtual communications (Adams 1997, 1998; Dodge 2001; Dodge and Kitchin 2005 a, b; Hillis 1998).

Collectively, these works recognize how ICTs are embedded in specific places, integral to place-making and unmaking, and situated within the power relations of particular places, times, and

communities. Parallel to the theoretical discussions within critical geography outlined above, are a series of policy concerns that have emerged related to ICTs. These discussions have focused on individual privacy and public space monitoring concerns (Curry 1997; Dodge and Kitchin 2005 a, b; Pickles 1997), economic and organizational effects of ICT (Aoyama and Sheppard 2003; Symons 1997) and individual and community empowerment possibilities (Curry 1997, Streibel 1998). Even though these works have begun a focus on the intertwining of ICTs and place-identity formation, the specific experiences of poor people – particularly poor women – have not been examined. Our prior work has contributed to this literature by illustrating the importance of scale in order to better address this issue (for example, see Gilbert and Masucci 2006) and by emphasizing the importance of connecting empirical work with policy directions related to the specific circumstances faced by poor women.

One of the goals of our empirical work on the digital divide in North Philadelphia has been to employ the theoretical advances in critical GIS and GIS and society to better understand the geographies of the digital divide. Critical GIS scholars have provided some important insights about the power nexus of geospatial technologies and empowerment/disempowerment dynamics faced by poor people and marginalized communities (Elwood 2010). Crampton (2003), Warf (2001), and Wilson (2000) were early advocates for the importance of connecting an understanding of ICT access to socio-economic, political and spatial inequalities by depicting specific cases of the uneven geographies of ICTs. Hanson (2000) highlights the

importance of understanding that knowledge is situated in specific places. Hanson notes that this is particularly difficult for understanding women's use of information and their frameworks for using ICTs as means of information access (2000, p. 273). Crampton further describes the digital divide as a fundamental inequality in access to "knowledge in the information society (2003, p. 142)."

The Digital Divide and Geographic Information Systems

Elwood's (2010) recent review of critical GIS advances in geography highlight two trends in the field. First, she argues that critical GIS and GIS and society work is explicitly challenging the fixed nature of spatial data sets through new hegemonies of representation and visualization and through new methods for eliciting spatial data sets per se (Elwood 2010). Second, she identifies a number of new directions that reflect the larger call for critical GIS to leverage geospatial technologies for analyzing social inequalities in connection with other theoretical constructs such as feminist theory and social theory (Elwood 2010).

Other scholars have gone further by pointing out that not only do critical geographers have the ability to draw on technology of the field, such as using GIS tools to critically interrogate inequality as well as aid in constructivist agendas for representing the concerns of marginalized groups, but also critical geographers and GIS scholars can employ geospatial technologies in new ways (Wilson 2009). Some scholars have been innovators in non-GIS geovisualization techniques (Aitken and Craine 2009; Cieri 1996; Cosgrove 2008; Crampton 1999,

2009; Dodge and Perkins 2008; Kwan 2007; and Kwan and Ding 2008). Jung and Elwood (2010) have advanced the integration of qualitative analytical tools within GIS applications. They have also worked to integrate multi-media and GIS to better reflect geographies in alignment with community and problem contexts, exemplifying this trend (Jung and Elwood 2010).

Our social action research has added to these non-traditional approaches for critical GIS and geovisualization by drawing on the perspectives of the women with whom we have worked to advance a theory of feminist GIS (Gilbert and Masucci 2006). We have done this through developing projects and programs that supported collaborations with women in North Philadelphia who in turn shared detailed information about their daily lives and their perspectives on ICTs that could inform the development of information resources, maps, visual content, and information systems that supported their respective goals. They did so in the contexts of our mutual involvement in ICT, GIS, and data development projects and associated training programs. Our understanding of women's frameworks for ICTs came through the processes of: (a) identifying collaborative contexts in which shared problem identification and solving processes could be pursued, (b) identifying resources that could be developed and leveraged, (c) sharing expertise applied to co-defined problems, and (d) co-creating spatial data and knowledge. Feminist analyses informed not only the approach for technology development but also for literally creating spaces for work at community sites, using virtual technologies to reshape the academy,

and embedding technology in feminist coursework.

It is precisely because of our engagement with GIS on its own terms – through knowledge and application of the technology and use of GIS tools for spatial analysis, data fusion, and data management – that we developed information resources for analyzing problems framed in new ways. We also found that it was equally incumbent for us to leverage our expertise in GIS to engage feminist work on *its* own terms. The reasons we were drawn into the collaborations in North Philadelphia were due to our expertise in GIS and ICT, our feminist framework for analysis and our interest in social justice. As such, our research contributions drew on both traditions of discourse, illustrating the importance of this integrated approach.

The Digital Divide and a Focus on the Daily Lives of Women

Our social action research in North Philadelphia has also been informed by a feminist geographical analysis. Our focus on the experiences of poor women in three different places and problem contexts has provided a deeper understanding of the multiplicity of ways in which the specific contextual inequalities they face shape their perspectives and agency. Our review of these cases serves as a basis for raising policy-oriented questions and shows that their ICT use frameworks are embedded in the specific details of their daily lives, place-based networks and navigation of relational space because of these social connections.

Our focus on these dynamics based on the application of theories from digital inequality and society, feminist geography, critical GIS and

critical pedagogical perspectives has centered on learning how women conceptualize ICTs and geographic information technologies (Gilbert and Masucci 2006; Gilbert and Masucci et al. 2008). Our work contributes to a small but growing literature on feminist GIS (Kwan 2002 a, b, c; McLafferty 2002) and new conceptualizations of both ICTs and GIS. Kwan (2002 c) began this direction with methodological innovations in which women's spatial knowledge and experience were captured, analyzed and visualized using GIS analytical and visualization tools. Her approach constructs new knowledge through accessing the experiences of women that would otherwise be invisible (Gilbert and Masucci 2006). Her work reflects a feminist goal of prioritizing women as subjects of research as a means of constructing new understandings and geographies through their inclusion.

Our work has built on this by examining how women, particularly poor women, conceptualize technology per se. We have used GIS to geovisualize these conceptualizations; and we have challenged geographers to look at ICTs as a more macro-level framework within which GIS problems are just one subset of technology concerns (Gilbert and Masucci 2005 b, 2006). For example, our work with KWRU illustrates that poor women's use of ICTs can provide a platform for assessing the usefulness of more specific technologies such as GIS to represent particular subsets of information in strategic and tailored ways for a multiplicity of organizing and survival contexts.

Feminist geographers emphasize that women's subjectivities are grounded at the intersection of identity formation and social relations embedded in particular places. Women's subjectivities are shaped by

constellations of power relations such as gender, racism, and class embedded in places (for a recent discussion of the concept of intersectionality in feminist geography see Valentine 2007; for earlier discusses of gender, race, and power see Gilbert 1997, 1998; Kobayashi 1994; Massey 1993, 1994). These subjectivities become a basis for shaping the values women place on ICTs, the technology related self-efficacies they develop, and their purposes and needs for ICTs (Gilbert and Masucci 2006).

Supporting women's empowerment based on an understanding of their experiences is one of the central tenets of feminist geography and feminist GIS (McLafferty 2002). Through stressing the importance of women's perspectives, our work has provided insights about how ICTs and empowerment are connected through women's daily lives. We have developed collaborative ICT and GIS programs as a means of advancing empowerment through adapting the advocacy methods used in a number of participatory GIS studies (Carver 2003; Kellogg 1999; Nedovic-Budic and Pinto 1999; Sieber 2000). The feminist geographic underpinnings of our work have underscored the importance of basing ICT development and use within the communities where we work and an understanding of the power dynamics within their daily lives that are differentiated on the basis of gender, racism, and economic inequalities.

Our work, therefore, challenges notions that women are not technology innovators or savvy users, early adopters, or interested in ICTs in relation to their daily lives. Rather, we have sought to gain an empirical basis for understanding the ways in which women

conceptualize, innovate, adopt, strategize and assess ICTs across many dimensions of their lives. We have found that despite the relatively low level of ICT access, exposure, and self-efficacy women have, they none-the-less have well formed conceptualizations about its potential benefits as well as harmful effects; its relevance for their lives; and its transformative impacts on their lives, their social networks, and their communities.

Our use of a social action methodology, in which we form collaborations and partnerships to support technology development and learning programs, has been implemented with the aim of advancing women's empowerment at the geographic scale of their daily routines on their own terms. This has led to a self-reflexive strategy for critically examining the power differentials between others and ourselves; among institutional and community partners; and with students involved in programs. As participants from resource-rich settings in the context of our partnerships and collaborations, our role has often been to provide a long-term perspective on the likely outcomes of different options in planning and implementing technology use while avoiding projecting the aims of our institutional perspectives onto the communities.

3

FRAMING DIGITAL DIVIDE RESEARCH IN THE PHILADELPHIA CONTEXT

The 1990s benchmark studies on the digital divide (NTIA 2004, 1999 a, b) showed that homes with incomes of $75,000 and above were twenty times more likely to have access to the Internet than homes at the lowest income level. The studies also found that the population most affected by the digital divide was female heads of households: married families with children have 18 times more access to computers and the Internet than do female heads of households. Moreover, married families with children were the group with the greatest access to computers and the Internet.

The reports fostered awareness among civic leaders across the country that social and digital inequalities are closely connected, and therefore an understanding of the intersection between them is important to the formulation of public policy. During the same period, the use of ICTs among social, education and health service agencies and providers exploded. ICTs were used to foster communications, implement programs, disseminate information, facilitate transactions,

and engage clients. The overlap between the growth of ICTs for delivery of public goods and the awareness of digital and social inequality convinced many community organizations and municipalities that social inclusion could come through digital inclusion. The result was broad public and private investments in digital infrastructure, training, and services.

Philadelphia emerged as a leader in implementing digital inclusion policies through advancing a public agenda of launching a municipal Wi-Fi system, a wireless protocol for accessing the Internet throughout the city (Kim et al. 2008; Wireless Philadelphia 2006; Wireless Philadelphia Executive Committee 2005). The aim of the program, called Wireless Philadelphia, was to support community access to government resources, information resources of the School District of Philadelphia, and community and civic information (Jain et al. 2007; Wireless Philadelphia 2006; Wireless Philadelphia Executive Committee 2005). Philadelphia's approach was coupled with community organization efforts to provide low-income residents with low or no-cost computers, training on how to use computers and the Internet, and training on how to access some of the city's municipal and educational information resources. The effort was an extension of an already well-organized grassroots effort in the city to provide Internet access at the community scale. Wireless Philadelphia emerged in 2006 as both a policy directive and entity that partnered with an ISP (Earthlink) to implement Wi-Fi infrastructure, a below-market-rate fee for service, programs for community partners, and proof of concept projects aimed at highlighting the benefits of the newly created cloud

of Wi-Fi coverage in the city (van Audenhove et al. 2007).

Wireless Philadelphia's[3] lifespan was short due to several factors including: (a) Earthlink's disinvestment in municipal Wi-Fi around the country due to the untimely death of the program's champion and a failure to establish a successor for the initiative, (b) the rise of Wi-Fi services and hotspots provided by other private ISP companies and local businesses and organizations, (c) the increase in mobile technologies that access the Internet, and (d) the decrease in cost and increase in numbers of service providers for household wireless services (Reardon 2008, Urbina 2008). What the Wireless Philadelphia policy did highlight was the exaggerated importance policy makers placed on infrastructure solutions for achieving digital inclusion without paying attention to the social challenges faced in communities.

Inequality in North Philadelphia

Wireless Philadelphia was implemented against a backdrop of extreme social and economic inequality that characterizes the city. The program was meant to address a deep-rooted problem in the city by providing Internet service in aging infrastructure that is difficult to network using wired and cable technologies in poor inner-city communities, including the North Philadelphia neighborhoods where we were working. A city of 1.5 million people, Philadelphia incorporates a higher concentration of racialized minorities among its population of 1.5 million than the state of Pennsylvania as a whole: 43 percent are

[3] Wireless Philadelphia is now known as the Digital Impact Group (http://www.digitalimpactgroup.org); this change was made when the City of Philadelphia shuttered its municipal Wi-Fi program in 2008 (Urbina 2008).

African American and 11 percent of Hispanic or Latino origin, compared with 10.4 percent African American and 4.7 percent Latino/Hispanic statewide (U.S. Census Bureau 2007).

The City of Philadelphia's poverty rate is 21.1 percent compared to the national average of 13.2 percent in 2008 (U. S. Census Bureau 2009) and the Pennsylvania statewide poverty rate of 9.8 percent (U. S. Census Bureau 2009). The poverty rate rose to 24.4 percent in 2010 (PEW Charitable Trust 2010). The city poverty rate for all children under the age of 18 is 34.2 percent, compared to the 18 percent national rate (U. S. Census Bureau 2007).

Most of North Philadelphia is characterized by geographically concentrated poverty and a high degree of racial segregation. In North Philadelphia zip code areas of 19121, 22, 32, and 33 – the zip code areas immediately surrounding Temple University – the population totals 99,087, of which 68,298 or 69 percent are African American and 24,142 or 24 percent are Hispanic (U. S. Census Bureau 2011). Forty-one percent of this population is living below the poverty line; and unemployment ranges from 48 – 62 percent in each zip code (U. S. Census Bureau 2011). A further indication of the economic stress in this area is indicated by the fact that 19 percent of the housing units in these zip codes are vacant, related to the de-industrialization and loss of local jobs that occurred in Philadelphia during the past 50 years (McKee 2008; U. S. Census Bureau 2011).

The economic underpinnings of inequality in the city are also reflected in entrenched health and educational disparities as well.

Twenty three census tracts within North Philadelphia surrounding Temple University's main and health sciences campuses are currently designated as medically underserved due to an extreme shortage of primary care physicians and extreme poverty among residents living in those settings (U.S. Department of Health and Human Services 2011). Moreover, 24.9 percent of women in Philadelphia have no prenatal care during their first trimester, significantly more than the national rate of 16.8 percent (Pennsylvania Department of Health 2002). The annual rate of death for all causes in Southeastern Pennsylvania is significantly higher than the overall state rates (893 vs. 869); the rate in Philadelphia itself is 1,077 (Pennsylvania Department of Health 2002). While these all-cause death rates are undoubtedly influenced by factors such as urban violence, the underlying health disparities are also significant in explaining the differences from the statewide rate.

In the neighborhoods of our case studies, a similar set of circumstances prevails. KWRU is located in the heart of the Avenida Cinco commercial and residential district, which is home to numerous recent Latino immigrant populations as well as many Puerto Ricans. It is situated in the vicinity of North Philadelphia's 11th Street Corridor, one of the most economically distressed districts of the city. The area is characterized by extreme poverty and spatial isolation due to a history of deindustrialization, disinvestment, and racial discrimination in housing and labor markets. When we started working in the area 14 years ago, the mean household income was $10,035 and nearly 55 percent of the population and 74 percent of youth lived below the poverty line (U. S. Census Bureau 2009).

The Harrison Plaza community was not very different. At the time we worked on the implementation of a community technology center, Harrison Plaza was home to more than 7,500 residents. Nearly all of the residents were African American. Their average annual income in 1999 – the year we started working with the residents – was less than $7000, indicating that they lived in extreme poverty (Gilbert and Masucci 2005 b, 2006). Only 22 percent of households received any wages at all. Sixty-five percent were receiving welfare benefits. Ninety-five percent of students attending the middle school received free or reduced lunches. Not unexpectedly, educational attainment levels were also low: 45 percent of adults had less than a high school education; and only 29 percent had a high school degree or equivalent (Gilbert and Masucci 2004, 2006).

The pattern was repeated among the North Philadelphia participants in the Women's Heart Health and Telemedicine Program (WHH program) with whom we worked. The program involved over 300 individuals living in North Philadelphia neighborhoods sharing similar levels of economic marginalization as outlined above. The specific cohort of women involved in our analysis of digital divide and telemedicine use were all African American, earned less than $15,000 per year, had only an 11^{th} or 12^{th} grade education, and were largely unemployed (Gilbert and Masucci et al. 2008; Masucci 2009).

The Changing Context of Welfare Policy

In spite of the extreme levels of inequality experienced by poor people in North Philadelphia, as well as in many other places across

the country, the policy framework for combating poverty radically shifted just as we were beginning our research on poor women's frameworks for ICTs. The 1996 "welfare reform" defined our point of departure, as it had a profound effect on poor woman and the organizations that worked to support them. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 fundamentally reshaped the welfare system as it had been known in the U.S. over the previous 30 years by eliminating the federal guarantee of cash assistance to poor people. It established a program called Temporary Assistance to Need Families (TANF) that provided a block grant to the states with conditions for individual recipients that included stringent work requirements in exchange for time-limited assistance. The new policy was designed to ensure that poor women would not remain "dependent" on welfare assistance but would be required to find "work" outside of the home.

The explicit goal driving TANF was that poor women with children would become economically self-sufficient through employment. Many activists and progressive academics argued that the program was punishing poor women who had low levels of job readiness and educational attainment while facing the prospect of non-living wage jobs in sex and race segregated occupations (e.g. Dujon and Wilthorn 1996; Gilbert 1997; Mink 1998; Quadagno 1994). Furthermore, they argued that the welfare debates were racialized and gendered, based on demeaning stereotypes of poor women of color.

Our work with groups in North Philadelphia took place during the onset of TANF implementation, during which time many different

service agencies were employing ICTs as a tool for addressing the work readiness challenges women on welfare would face in order to attain paid employment. While we did not agree that technology access was a panacea for workforce development, many of the women with whom we worked did stress the importance of gaining access to ICTs as a fundamental beginning point for improving their marketability as workers (Gilbert and Masucci 2004, 2005 b).

Pennsylvania's Welfare Reform

The new legislation gave states significant latitude in determining how to spend TANF funds within the broad parameters of the legislation. Therefore, welfare rules vary significantly across the different states. Pennsylvania had the third (later fourth) largest welfare caseloads in the United States behind California and New York (Wood and Wheeler 2003). Its welfare policy, particularly in the early stages, is generally in the middle of the range of benefit levels offered across all states ($403 maximum for a family of three) and in the middle to the less stringent side in terms of work requirements, sanctions, and time limits (Wood and Wheeler 2006). However, some of Pennsylvania's policies were distinctive. Seith et al. (2007) argue that welfare reform in Pennsylvania evolved in three administrative phases. The first phase is from 1997-1999 as the Department of Public Welfare (DPW) instituted the new programs. The second phase occurred between 2000 and 2002 when the first recipients reached a 24-month time limit to be employed. A third phase began in 2003 when Ed Rendell, the former Mayor of Philadelphia, became Governor and instituted less punitive policies than had been mandated.

March 1997 marked the beginning of the implementation of TANF in Pennsylvania (for a detailed review of welfare policy in Pennsylvania as well as the impact on Philadelphia see Bloom et al. 2009; Michalopoulos et al. 2003; Polyne et al. 2003; Seith et al. 2007; Wood and Wheeler 2006). The Pennsylvania program was called RESET – Road to Economic Self-Sufficiency through Employment and Training. All state welfare recipients were placed into the State's RESET Program. The stated aim of the program was to provide a framework for women to establish a paid work history that could lead to economic self-sufficiency. The requirements of the program were that welfare recipients, who consisted almost entirely of women, were to take responsibility through developing an "Agreement of Mutual Responsibility (AMR)" under the guidance of a caseworker (Gilbert and Masucci 2005 b). These were personal plans that laid out the steps for a combination of training and job seeking strategies that recipients would pursue as first steps in transitioning from welfare-to-work.

Once the AMR was signed, participants in the RESET program were required to start a job search for a period of eight weeks. Participants could pursue this on their own or with the assistance of stated-sponsored programs. Women who failed to find employment during this eight-week period had the option to participate in one of several next steps, including: community service, education and training, literacy, welfare-to-work, or adult education programs. These could be sponsored by the state or pursued independently; however, there was a 12-month limit on being able to pursue full-time education as a pathway for transitioning from welfare-to-work.

Women who were unable to find employment after two years faced a requirement to work for a minimum of 20 hours per week in one of several types of settings. These included subsidized jobs, unsubsidized jobs – including on-the-job training programs, and community service roles. Women in the RESET Program who pursued education and training had to do so after meeting the minimum requirement of 20 hours of qualified work requirements. Women who were unable to obtain employment after 5 years would permanently lose all cash assistance, as would women who failed to participate in the program requirements.

Because Pennsylvania, unlike most states, did not require 20 hours of work activity until after 24 months, there was a lot of concern around what was going to happen to the first recipients who would hit that limit in March 1999 (Wood and Wheeler 2006). This was true not only of the people administering the programs, but also of the women with whom we were working at the time. The March 1999 deadline loomed large in many women's minds. Few women were actually sanctioned within the first few years of the initiation of the RESET Program; however, the number of sanctioned individuals doubled from three to six percent of recipients in an average month between 1999/2000 and 2001/2002 (Michalopoulos et al. 2003, p. 20). When the March 1999 deadline went into effect, nearly 33,000 adults on Philadelphia TANF rolls were required to participate in work or service for 20 hours a week (Seith et al. 2007, p. 58).

The second phase of the policy was implemented between 2000 and 2002 after the first recipients began reaching the two year work

trigger, which resulted in a sharp increase in exit rates (Seith et al. 2007). The adult recipients in Philadelphia who were required to participate declined by 57 percent between March 1999 and December 2002; those exempted fell by only 23 percent (Seith et al. 2007, p. 61). DPW enforced participation requirements strictly. In the post 24-month period sanctions got increasingly severe, meaning the entire family was sanctioned for either 30 or 60 days and participation requirements were enforced (Seith et al. 2007). Lifetime sanctions were relatively rare but included 411 individual cases and 196 family cases between 1997 and 2005 (Seith et al. p. 61). Since 2002, Pennsylvania was sanctioning TANF recipients at a rate similar to the national average of approximately 30 percent (Wood and Wheeler 2006).

During this time period, DPW began to address the people who had multiple barriers to employment (Seith et al. 2007). The Maximizing Participation Project (MPP) was voluntary and geared to people who were exempt from work due to medical or physical disabilities. The Community Connections Initiative (CCI), a pilot program across the state and in Philadelphia, was the first to have third-party outreach workers to work with people who had been sanctioned. Additionally, DPW introduced "The Time Out Initiative," which stopped the clock for up to one year for recipients who volunteered to work or participate in services before they were required to do so. Importantly, seven months after the five-year federal time limit was reached in March 2002, DPW implemented the Extended TANF program, which continued benefits to adults who were

participating in work-related activities for 30 hours a week or who had been exempted and were now required to participate in MPP. By the end of 2004, nearly 22 percent of the adult caseload consisted of post-60-month recipients (Seith et al. 2007, p. 63).

The third phase of the policy began in 2003 when Ed Rendell became Governor and began implementing programs he had pushed for as Mayor of Philadelphia (Seith et al. 2007; Wood and Wheeler 2006). Rendell expanded education and training opportunities through the Good Cause for Education policy which postponed the initial job search requirement and reduced the hourly participation rates for people who were enrolled in education and training. In 2004, DPW created policies to prevent sanctions, which declined sharply (Seith et al. 2007). Furthermore, in 2005 DPW piloted two neighborhood Employment, Advancement and Retention Network (EARN) Centers; these were similar to programs that Mayor Rendell had implemented but which had been defunded. There are currently ten EARN Centers in Philadelphia, each providing a continuity of services located in one place. Finally, and belatedly compared to many other states, Pennsylvania initiated a diversion program to assist people who were experiencing a temporary interruption to income due to a crisis.

TANF caseloads for Pennsylvania increased between 2003 and 2005. Moreover, the State has repeatedly failed to meet federal participation benchmarks, which was not an issue because of the large caseload declines in the early years (Wood and Wheeler 2006). The Deficit Reduction Act of 2005 reauthorized TANF so that the caseload reduction credit would be determined by caseload declines after 2005

rather than 1995. In response, DPW began implementing policies to enforce work participation and increase sanctions (Seith et al. 2007).

The aftermath of the financial crisis in 2008 and changing Federal policy are making it increasingly difficult for poor people in Philadelphia. The recent 2010 election of a Republican Governor in Pennsylvania means welfare policy will change again but likely resulting in fewer services. The United States Bureau of Labor Statistics (2010) reported unemployment at 11.2 percent in Philadelphia County as recently as September 2010.[4]

Unemployment rates and TANF and Food Stamp caseloads have increased – each at different rates – in Pennsylvania between December 2007 and September 2009 (Pavetti et al. 2009; Pavetti and Rosenbaum 2010). TANF caseloads have increased 4.8 percent, Food Stamps increased 24.5 percent and unemployment increased 92.6 percent (Pavetti and Rosenbaum, 2010 p. 17 and 18).

The TANF block grant is of fixed size so Congress allocated additional funding on a contingency fund to help states deal with downturns. On December 8, 2010 President Obama signed into law legislation that extended the TANF block grant for FY 2011. It ends funding for the TANF Contingency Fund (Schott and Pavetti 2010). Furthermore, the U.S. Congress failed to extend the TANF Emergency Fund, which was created by the 2009 Recovery Act (Schott and Pavetti 2010). Pennsylvania is estimated to have a 6.4 percent reduction in Federal TANF Funds, which is one of the lowest reductions nationally

[4] See http://data.bls.gov/cgi-bin/print.pl/ro3/urphl.htm for complete dataset.

(Schott and Pavetti 2010, p. 9).

Our work in North Philadelphia took place during the time period leading up to the implementation of TANF and for nearly a decade since it was implemented. The programs we created with our partners were shaped by TANF implementation in numerous ways. KWRU organized in anticipation of the implementation of time limits to begin work requirements in the Pennsylvania RESET program. We will discuss further how KWRU challenged the legitimacy of the policy because of its reduction of resources for poor people to gain economic stability. From the perspective of the case study of Harrison Plaza, the planning of the CTC implementation was aligned with the anticipated work and service requirements that the RESET program mandated. Residents and community organizers feared the new requirements would have repercussions for housing, childcare, health care, and family cohesiveness. Our work with telemedicine system users documented how job scarcity and employment transitions had taken a toll on individual health and family economic survival.

Exploring Poor Women's Perspectives on the Digital Divide in North Philadelphia

Our work with these three groups of poor women extended over the TANF implementation period in Pennsylvania as follows:
(a) Kensington Welfare Rights Union (KWRU) from 1996-2000, (b) the Harrison Plaza Residents Council (HPRC) from 1999-2003, and (c) the Temple University Women's Heart Health and Telemedicine Program participants (WHH program) from 2004 – 2008. Not only did our work

coincide with the implementation of TANF, it also occurred as the national policy debate on the dimensions of the digital divide and how to overcome it was unfolding beginning in the late 1990s.

We first collaborated with KWRU in 1999 to create a service learning course that produced an intranet system in order to disseminate the testimonials provided by poor people from across the U.S. gathered during local and national campaigns to raise awareness about economic human rights violations and contest welfare system changes implemented in the 1990s. We worked with KWRU to obtain equipment and provide training that would support the documentation effort through development of a clickable, HTML based system for organizing the testimonials and showcasing them at a series of public events that raised awareness about the need for a living wage in Philadelphia.

KWRU's role was connected to its much longer history of activism related to welfare rights in response to changes in TANF. The information system was presented at the Poor People's Summit held in Philadelphia and featured at an international workshop that we organized collaboratively with KWRU aimed at identifying a framework for information technology use for economic human rights and environmental justice efforts.

As a result of that workshop, we were invited by Harrison Plaza Tenant's Association (HPTA) to develop a university-community collaboration, which created a community technology center (CTC) and associated educational programs with tenants of Harrison Plaza public

housing development located just a few blocks from Temple University. The CTC was designed to support poor women involved in the transition from welfare-to-work through providing technology related resources. The goals included providing educational programs, fostering an understanding of on-line resources related to job readiness, instructing children in basic computer skills, and implementing ICT training courses open to residents and Temple University students.

Based on the training approaches we developed with elderly women of Harrison Plaza, we became involved in training a larger group of North Philadelphia residents to use telemedicine system communication tools and learn about heart health information and wellness. We focused on a small subset of participants comprised of a group of poor, African American women who provided detailed information about how their use of ICTs would impact their health and daily lives, to contribute to the development of a new theoretical framework for examining technology use contexts as a basis for overcoming the digital divide (Gilbert and Masucci et al. 2008). This group of women had little prior experience using computers, and yet anticipated that telemedicine system use could improve their access to health care providers through more frequent communications about their risk factors for heart disease (Gilbert and Masucci et al. 2008; Masucci 2009; Masucci et al. 2006). The WHH program aimed to address the interrelated health and ICT literacy needs faced by the program participants, with a particular emphasis on the needs of poor women. It also emphasized the connections between providing basic

technology training and improving health self-efficacy among poor women in North Philadelphia.

We drew upon a team of Temple University technology literacy mentors called Harrison Campus Compact (HCC) to provide individualized technology training tailored to the specific skills and health knowledge backgrounds of the participants in the WHH program. This involved providing one-on-one training, workshop presentations, web development, and the use of social media to improve access to information about heart health and wellness across a spectrum of chronic conditions and diseases with a special focus on the information needs of poor women participating in the program.

In support of these specific technology-training efforts, we developed a series of collaborative community geographic information systems (GIS) activities aimed at challenging the "view from above" approach for developing community data resources.

Developing a Model for Integrating Community, Research and Instruction

Because one of the main pathways to gaining employment was to have marketable skills, and because of the restrictive environment in which women could pursue educational goals, our work across these groups focused specifically on providing technology training as a key component of our social action methodology. Central to this strategy was to develop a university-community collaboration that was comprised of a number of partnerships with specific individuals, groups, organizations, and institutions to address the challenges that

were prevalent for poor women in Philadelphia related to the RESET Program.

In the case of KWRU, the organization was forward looking, seeking to strategize ahead of the impending changes. In the case of Harrison Plaza the focus was to deal with the challenges as they were unfolding for the community as a whole, including not only the effects for women but also for the members of their larger social networks. In the case of the women involved in the telemedicine studies, we encountered women dealing with the long-term effects of the economic restructuring that had been ongoing for the past three decades, and particularly the employment instability that was translating into health challenges in the long run along with the educational needs not only for navigating jobs but for other services as well. We observed how these transformations and larger economic trends were affecting individuals at the family scale. Some women had faced numerous job transitions while others were dealing with sick adult children or living in multigenerational households as a survival strategy. None admitted to being on TANF but a significant percentage of the women we worked with had incomes well below the poverty line.

Across these groups, we found that a theme of public intervention was the reliance on service-mission organizations to fill the roles that government entities were vacating due to the loss of public funds and erosion of the social safety nets put in place during the 1960s. In the case of KWRU, this meant leveraging partnerships with a number of universities to bring student labor, social capital and

knowledge that could be used to improve organizational capacity and attract new audiences and media attention to amplify the visibility of the concerns of poor people. In the case of Harrison Plaza, the efforts were to connect technology community needs to newly forming service/educational programs and requirements percolating through the RESET program, school district and university curricula.

Our collaborations therefore emphasized drawing on the resources of our institution to provide some of the educational and community service components that could meet community needs related to ICTs in connection with the work skills development, educational training, and service components that were embedded within the RESET guidelines. Along side of this objective was another series of goals to develop information resources based on co-produced knowledge with our collaborators that could provide a basis for participation in decision-making in both formal and informal processes for engaging these various institutional and policy realms. Finally, our programs provided conduits for student learning and engagement of these issues as well as a context for participating in social action research of their own and in connection with our projects.

A primary consideration in making decisions related to the various partnerships and projects was how to identify the successful development and implementation of program components from the perspectives of various participations including community organizations, community members, students, faculty and the university. A further consideration was how to achieve long-term sustainability for those components that were identified as successful

from these various evaluation criteria.

Our collaborations began through service learning courses, in which the aims of student learning included providing experiential learning opportunities that would engage the concepts of praxis, privilege, social inequality, and the societal ramifications of digital disparities in connection with economic, health, and civic participation challenges faced in poor communities. Our work went beyond conventional service learning courses through: (a) addressing the fundamental tensions that often exist between institutions and settings with vast resource differences, (b) examining how the duration of commitments can impact outcomes of programs, (c) considering the effects of race, class, and gender positionality of students and ourselves vis-à-vis our community collaborators, and (d) identifying common ground across the various constituencies that could serve as a platform for empowerment for each group.

The community projects that we chose to pursue in each of the three case studies addressed digital divide concerns that were raised by the communities themselves. We worked with students to discuss both empowering and disempowering impacts of digital technologies, as well as to provide a critical interrogation of the geographic displacements that are connected with ICTs. Yet in each case, our point of collaboration centered on the perception of us as technology experts on the part of our community collaborators, with this as a primary focus of their interest in working with us. In return, we hoped to learn about why women who experience economic marginalization and material deprivation persistently and consistently view ICTs as a

pathway for achieving their individual, community and organizational goals.

We learned across all of these examples that women had highly nuanced critiques of ICTs, but none-the-less did not want to be excluded from the digital society that was developing around them. Therefore, our work with students as a beginning point of engagement with these groups focused on challenging students to: (a) consider the often complicated ethics of technology sharing, training, and implementation; (b) examine the potential of technologies to bring both positive and negative outcomes for communities; and (c) question the relationships between digital, geographic and social inequalities that were reflected in the ICT use frameworks of these various collaborators.

Building on the service-learning projects that we initiated through our department's curriculum related to community development, we expanded our community collaborations to implement technology literacy programs that extended beyond the duration of a semester. These programs integrally involved students as researchers and collaborators whose roles were to contribute to building individual and community self-efficacies with respect to using ICTs, planning ICT implementations, developing information, managing and sharing digital content, and tailoring IT use for specific problems.

We have written extensively about the critical pedagogical framework that guided the involvement of students in various

community collaborations (Gilbert and Masucci 2004, 2008). We have pointed out that central to our engagement was a focus on ethical concerns related to our respective power differentials among all participants, alternate goals and objectives for collaborations, efficacy issues that related to which projects were pursued, how they were pursued, and outcomes and strategic directions that resulted from our efforts. We have also commented extensively on the sustainability criteria that shaped the long-term planning and involvement with each organization (Gilbert and Masucci 2004, 2005 b, 2006).

The discussion of each case study that follows will review the dynamics of the collaborations we engaged to address the central question of how digital inequality was experienced by women in the context of the policy environment that women were facing in Philadelphia. We will extend our prior work by discussing the policy considerations that result from our experiences and those of the women with whom we worked. This involves both the need to reconsider policy directives of the past as well as to suggest new concerns that ought to be at the center of current public decision-making with respect to addressing inequalities in ICTs access and use and related information flows. Finally, we critically examine the role of scholars, students and academic institutions in collaborations that involve large power, technology, and knowledge creation differentials in order to suggest how universities may better engage with communities to support the empowerment goals of poor people.

4

ICTs AND ORGANIZING

Our collaborative efforts with the Kensington Welfare Rights Union began just as the organization was strategizing to contest welfare reform as well as address the time-specific needs of women facing welfare reform requirements. While our work was focused on addressing digital divide barriers, we collaborated around the activities underway that formed part of the strategies women used to access employment, educational, and welfare related services. Specifically, we examined how barriers to technology access, the increasing use of ICTs related to service provision, and the policy requirements of welfare reform were interconnected and experienced in the daily lives of the women with whom we worked (Gilbert and Masucci 2005 b, 2006).

KWRU, as a grassroots organization of poor people rather than a non-profit organization of advocates and service providers on behalf of poor people, had real difficulties in securing funding to support its

operational expenses and action strategies. The result was that the organization had a constant and acute lack of resources; little money or access to funding agencies; extremely limited space; virtually no computer hardware, software or Internet access; and an absence of expertise related to ICTs among the poor people in the organization who served as staff members.

One of the consequences of this fundamental lack of resources was that the organization was in a permanent state of flux; and the involvement of collaborative partners was constantly renegotiated due to changing power dynamics provoked by the influx of any new form of capacity – including new technology. Despite the resource limitations and associated instability, KWRU was able to develop a highly sophisticated information resource for challenging mainstream power arrangements.

Our involvement with KWRU included a traditional participatory and advocacy approach to providing access to computers and the Internet, such as supplying refurbished or new computers, Internet access, and some training to the organization (Epstein et al. 2008; Ghose 2003). We also engaged with KWRU to understand how ICT related more fundamentally to its needs and goals, which were constantly in transition due to the structural dynamics of the organization. Through our participation in technology capacity building and training, we observed that ICT considerations were increasingly central to KWRU's organizing efforts and educational activities, strategic planning, and resource allocation choices, until ultimately, the overall organizing efforts were transformed iteratively with ICT use

and development.

The Development and Use of Information and Communication Technologies by KWRU

The Kensington Welfare Rights Union (KWRU) was formed in 1991 by a multiracial group of poor women in the Kensington neighborhood of North Philadelphia that came to be known in the 1980s and 1990s as the "Badlands" because of the drug trade and associated violence that were concentrated in that locale. Kensington, a multiracial neighborhood in Philadelphia, was devastated by deindustrialization and the consequent unemployment and poverty (Davis et al. 2005). KWRU's original motive for organizing around welfare reform was in response to cuts in General Assistance made by Governor Casey in the early 1990s. At the time we began working with KWRU, its primary motive for organizing was to respond to a new round of Federal welfare program cuts and associated state-level policy changes that would follow from proposals by the Clinton administration.

African American women and Latinas predominantly comprise KWRU's membership, although there are smaller but significant groups of men and white people involved in the organization as well. An executive board governs KWRU; this group was called the *War Council*. At the time we worked with KWRU, the War Council – consisting of approximately ten people of diverse origins along with an executive director – was involved in long-range planning as well as strategic decision-making. Members rotated on and off of the War Council;

although the group was multiracial, a white woman led it. [5] [6] The members of the War Council were poor and homeless people from Kensington – not professional organizers. This was complemented by alliances with a group of professionals, such as social workers, lawyers, and academics, whose role was to provide human resources, as well as material donations, to KWRU. This group was referred to by the organization as the Underground Railroad Project. In addition, there were approximately ten students from elite local colleges working with KWRU at the time of our involvement; many of the students lived together in a house in a different part of Philadelphia. Thus, most of KWRU's funding came from private donations from non-poor people rather than in grants via their collaborations with partnering entities like the Underground Railroad Project.

KWRU had three goals that derived from their analysis of the conditions of poverty and their philosophy for organizing.[7] Their first goal was to engage public discourse about poverty as well as welfare reform by drawing on their experiences as poor people. Their second goal was to create an anti-poverty movement led by poor people. Their third goal was to support the needs of poor people by providing

[5] Cheri Honkala, the executive director, moved from Minneapolis to Kensington. She is a former homeless mother and welfare recipient. She is the co-president of the National Welfare Rights Union. Her life story has been told by Zucchino (1997) and is featured in the film *Poverty Outlaw* (Yates and Kinoy 1997, www.skylightpictures.com).

[6] For a discussion of the relationship between the National Welfare Rights Union (NWRU) and KWRU see Gilbert 2001.

[7] This discussion is drawn from Gilbert 2001, which provides a detailed description of KWRU in the context of a broader comparison of welfare rights organizing the 1960s and 1990s in the context of a changing political economy.

resources, including food, shelter, education and health care either directly or through access to services.

The members of KWRU believed that mobilization is best accomplished through the common experience of poverty, but they conceptualized class, gender, and race as interrelated processes.[8] They also believed that poor people need to be at the forefront of the movement, based on their analysis of how economically and educationally advantaged men took over the earlier welfare rights organizations. As a result, KWRU prioritized multiracial organizing and alliances with the working poor through the labor movement in order to build a more effective coalition. Finally, the organization attempted to reframe the poverty debates from an international perspective on economic human rights. KWRU used an economic human rights framework to build alliances between the unemployed and employed poor as part of an international organizing effort. They also aimed to shape national politics indirectly through influencing the United Nations rather than the Democratic Party due to its shift to neoliberal policies such as welfare reform. This approach also reflected their view of the importance of the increasing prominence of a human rights framework in the political mobilization of poor people more globally.

KWRU engaged in many courses of action to meet their goals. These included helping people to obtain housing and welfare benefits, providing clothing and food distribution for local poor people, creating tent cities to house the poor and raise awareness of the needs of

[8] For a more detailed discussion of the history, goals, and strategies of KWRU see Gilbert 2001.

homeless individuals in Philadelphia, and lobbying at the city, state, and federal levels (for more details see Gilbert 2001). In response to the threat of welfare reform in 1996, KWRU members marched to Harrisburg, the capital of Pennsylvania. They transported a tent city to the Pennsylvania State Capitol steps, were arrested on the White House lawn, and testified at Congressional hearings. On March 3, 1997, the day that Pennsylvania adopted its own version of welfare reform, KWRU occupied a Philadelphia jobs center and announced its affiliation with the National Union of Hospital and Health Care Employees, AFSCME, AFL-CIO. KWRU also affiliated with the U.S. Labor Party, a national workers' rights party founded in 1996.

It was through their frustration at the lack of response from Philadelphia, Harrisburg, and Washington D.C., that members of KWRU developed the idea to take their protests against welfare reform to the international community. This led to them to initiate the Economic Human Rights Documentation Project, a campaign to elicit testimonials from poor people across the country about the effects of poverty on their ability to obtain health care, education, and economic security. The project collected the testimonials as evidence of the violations of the Universal Declaration of Human Rights (UDHR) stemming from poverty and welfare reform policy.[9]

KWRU organized a 125 mile long *March for Our Lives* during the summer of 1997. The march began at Philadelphia's Liberty Bell and

[9] Articles 23, 25, and 26 of the Universal Declaration of Human Rights state that everyone has the right to jobs at fair wages, an adequate standard of living, and education (United Nations 1948).

continued throughout ten days until participants in the event reached the United Nations (UN) (Gilbert 2001). When the representatives of KWRU arrived, they formally presented the violations to the UN. Approximately 100 people marched the complete route from Philadelphia to New York City, including members of the National Welfare Rights Union from affiliated organizations in Massachusetts, Michigan, Minnesota and California (Gilbert 2001). There were approximately 120 in attendance at rallies held in Philadelphia when the march began; nearly 300 attended a rally at the UN at the conclusion of the march. About two-thirds of the marchers were welfare recipients, poor and homeless people; the rest were supporters including union leaders and membership. Several unions provided direct financial support for the March, while the Labor Party provided important logistical assistance along the route.

In June of 1998, KWRU organized another event, called: *New Freedom Bus: Freedom from Unemployment, Hunger and Homelessness*.[10] The purpose of the national bus tour was to expand the collection of people's stories of economic rights violations due to poverty and welfare reform as well as to help KWRU make connections with other poverty rights organizations. This tour culminated in a tribunal in New York City where human rights experts listened to testimonials and declared that the U.S. was guilty of violations. Following the tribunal, KWRU held a Poor People's Summit at Temple

[10] For a more detailed discussion of the earlier campaign see Gilbert 2001. For discussions about PPEHRC and later campaigns see Bricker-Jenkins and Baptist 2006 and Bricker Jenkins et al. 2007.

University, which was attended by organizers from over forty states and Puerto Rico who joined together to discuss economic human rights. The National Poor People's Economic Human Rights Campaign (PPEHRC) was begun after the March for the Americas. However, it was not formally structured until October 1999 at a conference that brought KWRU, PPEHRC, and representatives from organizations in Canada, and Central and South America together to talk about organizing an international poor people's movement. On November 2, 1998, KWRU was one of four organizations in the world to be commended by Mary Robinson, the UN High Commissioner on Human Rights in her official report to the UN General Assembly (UNHCR 1998).

Our involvement with KWRU from 1996-2000 was focused primarily on the Economic Human Rights Campaign. The activities we undertook with KWRU included helping to: (a) organize and present the documentation, (b) train KWRU staff members to create an electronic archive of the paper documentation, (c) manage the electronic as well as the paper archives, and (d) use the collection in connection with other actions undertaken by KWRU, including co-organizing a workshop on the uses, possibilities, and limitations of ICTs for organizing.

Documenting Economic Human Rights Violations

Initially, this project began through working with KWRU to obtain a small grant to purchase one computer that would be used within the organization to facilitate the conversion and management of paper

testimonials into electronic formats. We also worked with the organization to create easy to use applications for consolidating their record keeping using the computer as a means of improving capacity to handle the anticipated influx of testimonial documents from the bus tour, workshops and other actions. We linked educational opportunities for Temple University students to the creation of an intranet system we co-developed with KWRU. Temple University graduate students were also involved in showcasing the system at a meeting of poor people's organizations held in Philadelphia in 1998.

The organization's initial considerations included such issues as: the role of technology in documentation, the skills needed to organize the documents, the extent to which the documentation should be analyzed, and the types of products that would be generated. We worked with KWRU members to develop a filing system, database, and intranet to use internally to illustrate the information for people with limited literacy (for a detailed discussion see Gilbert and Masucci 2006). Our collaborative goal was to develop a geographically indexed database that could be updated and used by people without computer or even basic literacy skills. In order to ensure that members of KWRU could use the database, we developed software interfaces that used geovisualization techniques such as clickable maps and geographically indexed information as a means of accessing testimonial records. These interfaces proved to be more intuitive for members to use when searching for information than spreadsheets or keyword identifiers. Through developing a database structure that was accessible via the clickable map and web pages designed in HTML, we were able to assist

the organization with disseminating the testimonials to other poor people without needing to train members in the use of more complicated and costly software applications like SPSS or Excel.

Creating easy to access electronic archives of the testimonials was one of KWRU's main goals. However, KWRU also wanted to be able to show the data to other poor people that were planning to attend the Poor People's Summit held at Temple University. We discussed privacy concerns related to the testimonials with KWRU members, and suggested that the testimonial information should not be available on the Internet because the format in which the testimonials were presented did not protect individual privacy. Our solution was to use technologies that support the *Internet* dissemination of information within the confines of the Summit by making the database created accessible via an *intranet* comprised of the web pages we developed. The website was not hosted on the Internet via a networked server, so the site could only be accessed on the local computer where the data and web pages resided. At the time the Poor People's Summit was held, KWRU agreed with our recommendation not to disseminate the information on the Internet. However, this decision later became a source of tension within our collaboration.

While the (non-Temple University) students working with KWRU prior to our involvement had computer skills, none of the poor people in KWRU had such skills. We involved Temple University graduate students and faculty researchers to train KWRU members on how to use and manage the information system. In fact, a KWRU member

who ultimately managed the system subsequently enrolled in coursework at Temple University to improve her ICT skills. She eventually completed her Masters degree and obtained employment with a cartography laboratory at another university in Philadelphia. Once KWRU members had the ability to update and display the data, we stepped out of the process of developing and maintaining the system.

KWRU members were experienced in drawing on local examples for global audiences and using e-mail and listservs to link with organizations across the U.S. and internationally (albeit relying on non-poor student skills and access to ICT); however, they did not express interest in ensuring geographic representation of the testimonials initially. This changed when journalists began requesting information about local testimonials as they were traveling around the U.S. on the freedom bus tours. Our suggestions about how to organize and represent the testimonials geographically helped KWRU members recognize and construct new strategies that relied on the geographic extent of the network.

A second area of our collaborative work with KWRU was the development of an information management and technology use workshop that brought together several economic and environmental justice community-based organizations from across the Americas including KWRU, Foundation SOS Mata Atlântica, Coalition of Immokalee Workers, Jesus People Against Pollution, and New Jerusalem Laura. This workshop took place March 25-27, 1999. The aim of the workshop was to draw upon the experiences of community-

based organizations that work at varying scales, with different types of information and levels of technological capabilities, and that share the common objective of improving the quality of life for poor people in their respective local contexts.

There were four action plans that were developed during the workshop. The first was that all participating organizations agreed that it was critical to identify problems, priorities, and strategies for improving accessibility to information and technology. The second action plan agreed upon by the organizations was to identify strategies that facilitate organizing and communication in which technology and information play a central role. In particular, KWRU and the other participating organizations were concerned with how to use the Internet to attract middle class support and broaden coalitions of activists. The third action plan was to develop an independent information network for organizing the poor for economic human rights and environmental justice. This was seen by the workshop participants as distinct from using ICTs for organizing since many poor people did not have access to ICTs. It further speaks to the differentiation that KWRU and the other workshop participants made between information and its importance for organizing as compared with the use of ICTs to share and disseminate information. In both the second and third areas there was a lot of concern about weighing the perceived benefits against the possibility of exposure to surveillance by the state. The final action plan was to broaden the vision of linkages among activists and other resource groups toward the goal of building a movement to end environmental and economic injustice.

Project Outcomes

At KWRU, ICTs were used for non-mainstream goals. Our experience with KWRU illustrates that technology can be empowering in ways that are not adequately conceptualized by conventional approaches to the digital divide that have been the impetus for much of the policy directions related to improving access to ICT infrastructure. Our work shows that one of the key elements missing from the concept of the digital divide is the notion that people facing barriers to ICTs have agency regarding information resources.

KWRU's informational needs led it down the collaborative path to attain technology and training related to its own definition of empowerment. Not having access to information technology was not a barrier to accomplishing highly sophisticated information resource development outcomes.

While we were able to assist KWRU members in achieving their ICT goals within the framework of their organizational objectives and strategies, tensions arose. One of KWRU's main tenets and core organizing strategy was to have the organization led by poor people; but we noted early in our collaboration with KWRU that many of the non-Temple University students who had been assisting them prior to our involvement drew on a sophisticated set of technology skills, undermining KWRU's objective to keep the leadership and decision-making in the hands of poor people as ICTs became more central to its mission. Our commitment was to collaborate with and train poor people themselves; this threatened many of the non-Temple

University students who attempted to re-assert the importance of their role to the organization as the technology advocates and implementation specialists, as evidenced by their comments and behaviors. For example, a number of the students involved in assisting KWRU with technology actively worked against our involvement. One particularly interesting example was that a few (male) students who were assigned to take care of poor women's children during the workshop were angry that they were not invited to participate since they felt they had technology skills. They went to other leaders in the organization and successfully pleaded their case against the decisions of the poor people organizing the workshop. In so doing, they took the place of poor people themselves as participants in the workshop. When we asked why they had been successful, we were told that these students often used their credit cards to help support and/or deal with cash flow problems experienced by KWRU.

Another tension we experienced related to our role as academics and the associated requirements for the ethical conduct of research that we must uphold as members of the university's faculty. This requirement contrasted sharply with the organization's internal operational framework around such issues as privacy, confidentiality, the value of information, and information dissemination. After we helped set up the intranet to improve organizational management, we discovered that student volunteers unaffiliated with us or our institution had made the intranet's contents available over the Internet. Since the intranet content had contained highly personal

accounts of the ways in which individuals were experiencing and coping with poverty, and included comments of civil rights leaders and other activists, we became highly concerned about the potential negative impacts to the individuals who had provided testimonials now that their statements were public in a more widely accessible format. To be sure, the testimonials were provided to KWRU in order to put the experiences of the poor in the spotlight through sharing individual stories of the impacts they were incurring with UN officials in a public event. KWRU held that there was an implicit understanding that the testimonials were public because of their aim to use them as part of the tribunal at the UN, much as would be the case if an individual signed a petition.

The testimonials KWRU had received were from a variety of sources and maintained in a variety of formats. Some individuals provided testimonies as part of organized events, others were interviewed, some filled out forms, and yet others filled out web-forms with the assistance of student volunteers. Once the information records from the testimonials were integrated within the intranet, they were more easily transferable to other media because they were available in electronic formats. Since the individuals who provided testimonies did not sign disclosure forms, releases of confidentiality, or receive explanations of how the information might be used by KWRU, we had been working with members of the organization to develop guidelines related to the use of this information. Throughout our involvement in working with KWRU members to develop a system for managing the documentation, we raised the questions about what

standard of privacy the organization, along with those who provided the testimonies, wanted to maintain. The members of the organization with whom we worked on the system ultimately implemented the intranet as a means of providing access to the information among the members but maintaining the privacy of those who provided testimonials. However, KWRU members were not the only ones with access to the content.

The challenge to preserve privacy among those who provided testimonials quickly became part of a broader disagreement that erupted because we were collaborating with and training poor people to do the ICT work that non-Temple University students ultimately controlled. While we believed that most people who gave information understood that it was no longer "private," and we understood KWRU's objectives to share the information to achieve their organizing goals, we ultimately decided that we could not involve ourselves or Temple University students once KWRU, along with the students from other universities, changed the terms of the use of the information if we were to approach the collaboration from a scholarly framework. Moreover, in making this decision, we understood that a collaboration that did not meet both the criteria needed for KWRU as well as for ourselves and our students could not be sustained. Once the testimonial information was publicly released, we opted to discontinue our collaboration with the organization as representatives of our institution.

The university resources that we brought to the table created tensions within the organization as well as constrained our

involvement because of university regulations. In the long run, we simply did not have the time or money needed to sustain the partnership as it was organized. Furthermore, while our students had meaningful roles and achieved desired learning outcomes, it was impossible to coordinate the academic time line with the organizations' needs.

Another constraint that we faced was that students from our university did not have the same level of resources as the students from other, more elite universities in the area. Most of our students were first generation college students, students of color, and/or were employed. If they were not working in jobs outside of the university, they received work-study funding in order to be able to pay for their tuition. While our students clearly had more resources than the poor and homeless members of KWRU, the resource divide between students and "recipients" that is often rightly problematized in the service learning literature, was not quite as stark as is often portrayed. Further, some of the members of KWRU were or strove to become Temple University students, further blurring the institutional barriers that are often characterized as being much less permeable. We needed to figure out ways to ensure that our students had the ability to participate in the educational opportunities provided by the partnership; and that meant we needed to find ways to support our students financially in addition to finding resources for our community partners.

We, along with KWRU, mutually decided to end our formal collaboration for these reasons. We subsequently began to assess

what a long-term, sustainable partnership would look like in the context of our institution and local surroundings.

Policy Implications

The case study of KWRU explores the possibilities and limitations for ICTs in how poor people organize for their economic human rights. KWRU used ICTs in order to break the isolation of poor people in a number of different ways. First, the organization used ICTs as a way to communicate with other poor people's organizations in order to build connections and linkages with other organized groups. Second, it used ICTs as a way to communicate with non-poor people directly and indirectly through the media. Third, it used ICTs to reach poor people who were not organized in order to bring them into the larger movement. While there were limitations in terms of poor people's access to ICTs as well as their skill levels, KWRU was able to represent the testimonials in a manner that not only did not require computer literacy, but also helped alleviate limitations in communication because of the lack of basic literacies among many members. Finally, members of KWRU used ICTs to aid in reframing the debate about poverty away from the supposed deficiencies of poor people towards an understanding of economic human rights.

The use of ICTs not only assisted KWRU in achieving its goals, it actually transformed the nature of their tactics. As with other resources, however, we found that the increasing centrality of ICTs in KWRU's organizing efforts shaped internal politics due to issues related to the use and control of the resource. Furthermore, it shaped how the

organization conceived of and acted upon issues of privacy. We find that the ICT/organizing nexus serves as an example of how marginalized groups construct the development and use of ICTs in unique ways to increase empowerment.

This case study raises a number of important policy concerns. First, we need a broader discussion of who has the right to decide what information should be made available in the public domain. Second, our collaboration demonstrates the importance of basic literacies as an underpinning for gaining technological literacy and self-efficacy in the use of ICTs. Finally, it suggests the importance of paying attention to how institutional arrangements may or may not support the larger policy goals.

One central issue that emerged is that democratizing information sometimes put individual privacy concerns in conflict with the need to make information public. From KWRU's perspective, however, individual privacy was not a priority because the organization's leadership views privacy as negatively impacting the ability of the organization to use individual stories to disseminate information about the effects of poverty and welfare policy. Ultimately, their decision was that the greater "good" of the potential for structural change outweighed the individual's right to privacy.

KWRU did not use the technology for mainstream goals nor were they concerned with privacy in the ways that are currently understood in the U.S. The policy implication is that we need to democratize the planning process as well as the access to information so that

traditionally marginalized people, both economically and in terms of ICTs, have the ability to speak on their own behalf about their values and goals in relation to the democratizing of information. This necessitates that there is enough common understanding of how ICTs can affect information accessibility so that different stakeholders can negotiate these terms in a fair and equitable manner.

From our experience collaborating with KWRU, we saw that a major barrier to democratizing the planning process and information through ICTs was not only a significant gap between the computer skills and experiences held among members of the organization as compared with university partners, but also a gap in basic literacies such as the ability to read and write in English (whether due to limited educational opportunities and/or English as a second language) between the two groups. We addressed some consequences of literacy barriers through, for example, developing an appropriate software interface so that KWRU members would be able to access and share the testimonials. Yet, our collaborative efforts to work with KWRU members to develop and maintain the intranet system were dramatically impacted by the significant differences in initial level of skills across the collaboration, requiring tremendous time and resources to address.

The interrelated issues of resources needed for the projects we worked on (e.g., time, financial, labor, hardware and software), resource differentials between the partners, the long-term sustainability of the partnership, and the empowerment of different partners and stakeholders (community members, students, faculty)

raised important questions about the nature of our institutional arrangements. As we became involved in new partnerships, we began to think of what kinds of institutional arrangements would work best to achieve longer-term sustainability and more effectively address the varying needs and interests of different partners and stakeholders.

5

ICTs AND ECONOMIC EMPOWERMENT

The demonstration community technology center (CTC) at Harrison Plaza Public Housing Development in North Philadelphia is our second case study. The demonstration CTC was open from 2000-2001 although our partnership began in 1999 and continued through 2003 at another location. At the time, it was innovative because in addition to creating the computer infrastructure to support the needs of residents and community members, we collaborated with the community to develop educational programs related to basic, technological, and employment skills.

Ten years later, this model is being implemented on a much larger scale in poor neighborhoods across Philadelphia. The City of Philadelphia recently received 6.4 million dollars in federal stimulus funds from the Recovery Act to expand public computer center

capacity at 77 expanded and new sites throughout the city.[11]

The 2011 Philadelphia Martin Luther King Day of Service focused on the digital divide (Clark 2011, Ransom 2011). According to the Director of the Greater Philadelphia Martin Luther King Day of Service, "If Dr. King were here today, he would see that 41 percent of Philadelphians do not have access to the Internet" (Clark 2011). On January 17, 2011 more than 100 volunteers worked to refurbish used computers that were ultimately slated for donation to organizations throughout the city. It represented the launch of the Freedom Rings Partnership, a joint project among the Urban Affairs Coalition, Drexel University and the City, which recently won a $25 million federal grant from the National Telecommunications and Information Administration to refurbish computers and establish 77 neighborhood technology centers during the next two years.[12]

Yet these new investments may recreate the problems we experienced while setting up the CTC at Harrison Plaza and later, nearby locations. An investment in labs without investments in people results in many of the problems that we experienced related to "soft systems" such as human capital capacity because we simply did not

[11] For a full discussion of the new stimulus funding program, see: http://cityofphiladelphia.wordpress.com/2010/07/02/city-of-philadelphia-to-receive-6-4-million-in-stimulus-funding-to-expand-public-computer-centers website accessed on January 6, 2011.

[12] See following websites accessed on January 6, 2011 for details: http://cityofphiladelphia.wordpress.com/2010/07/02/city-of-philadelphia-to-receive-6-4-million-in-stimulus-funding-to-expand-public-computer-centers; http://www.mlkdayofservice.org/; http://technicallyphilly.com/2011/01/03/philly-give-camp-wants-you-for-mlk-day; http://www.freedomringspartnership.com/about-us.

have the resources to overcome them. Our experience is that the creation of the CTC instigated layers of issues around how to use the computers because of the inequalities on the ground. In fact, while the original CTC project evolved significantly in terms of collaborators and locations, some parts of which are still ongoing, the challenges on the ground remain the same today. There is the same community infrastructure in place – consisting of a community center, geographic isolation from jobs and services, and substandard schools (although the local high school was closed last year). Our point is not to say that this is a hopeless task, but rather that the much larger, new investments in public access to computers and the Internet need to take into account the lived experiences of women such as those at Harrison Plaza in a manner that is not narrowly defined around access to computers and the Internet.

Our collaboration with residents of Harrison Plaza began at the time that many of the women living there were beginning to navigate newly implemented welfare-to-work rules, which included a five-year lifetime limit for receiving assistance. Many policy makers and welfare recipients had the perspective that increasing women's technology skills was a pathway to employment opportunities. Our focus was on examining both the positive and negative aspects of ICTs as a factor in changing the circumstances of poor women affected by welfare policy and understanding the barriers to accessing technology.

This case is a good example of why the policy of simply providing access to computers and the Internet is not sufficient. The assumption made by the Philadelphia Housing Authority (PHA), the

Department of Housing and Urban Development (HUD) and even the leadership of the residents' council in the late 1990s was that women facing welfare cuts would prioritize gaining technology skills in order to find jobs. In fact, we found that the most significant barriers to poor women's participation in the CTC and related programs were the time and space constraints that women experienced due to their roles as economic providers for their families, mothers, caregivers, and students (Gilbert and Masucci 2005 b, 2006). The need to search for jobs combined with their reliance on public transportation, the lack of affordable day care, and the geographic isolation of this neighborhood from employment sites, meant that women found it hard to find time to engage in these programs because participation did not count as part of job training. The result was that the women prioritized using the CTC programs that provided homework assistance so that they could have a safe place for their children to stay during non-school hours.

Implementing a Community Technology Center at Harrison Plaza Public Housing Development in North Philadelphia

Our involvement with the Harrison Plaza community began in 1999. Temple University's Director of School and Community Partnerships approached us to follow up on a request she received from the Philadelphia Housing Authority to consult with them on the establishment of a computer center that was being planned for implementation at Harrison Plaza public housing development's community center. Harrison Plaza is located approximately four blocks south of Temple University's main campus. We met with the various

stakeholders including representatives of the residents, the PHA, and HUD over a period of six months beginning in 1999 and agreed to collaborate in developing a community technology center (CTC) and associated educational programs.

Primary among the stakeholder groups we worked with were the residents of Harrison Plaza via their elected representatives to a Resident Council called the Harrison Plaza Tenant Association (HPTA). The Philadelphia Housing Authority contracts with Tenant Support Services, Inc. (TSSI), a non-profit organization, to assist residents through various kinds of support services. TSSI organizes the elections for the Resident Councils at each public housing development.[13] The HPTA offices were at the Harrison Plaza Community Center, which is owned and managed by the PHA. The HPTA managed the use of the Community Center for activities including meetings, an after-school program, and health services.

As mentioned earlier, approximately 3000 residents of Harrison Plaza public housing development used the Community Center when we began working there in 1999. In addition, the community center served nearly 7500 residents of the 11th Street Corridor living in the neighborhood where Harrison Plaza is located. Despite these numbers,

[13] Former Executive Director Carl Greene was fired in September 2010 due to multiple allegations of sexual harassment and misuse of finances. He had been Executive Director since 1998. Greene appointed Asia Coney, a tenant organizer, to direct TSSI in 1998 after she had supported him for the position. She herself has come under scrutiny for her salary, PHA home (Philadelphia Daily News, posted August 24, 2010, http://www.philly.com/dailynews/local/20100824_Workings_of_ tenant_group_ a_mystery.html) and running a political action committee that was used to get out the vote in public housing (Philadelphia Inquirer, posted October 10, 2010, http://www.philly.com/inquirer/front_page/104651689.html?viewAll=y).

at the time we began planning to implement the CTC, there was only one computer available for the entire community (Gilbert and Masucci 2005 b).

We collaborated with the HPTA from 1999 until 2001. It took a year of planning among the informal partners of the HPTA, Temple University, HUD, and PHA before the CTC opened its doors in October 2000. The institutional partners were awarded funding from HUD's Technical Assistance Grant program for $55,000 for equipment and software. HTPA also organized the distribution of recycled computers for home use. We, along with another Temple University faculty member from Engineering, undergraduate and graduate students, set up the lab.

Once the basic infrastructure was in place, we worked with the HPTA to develop educational programs and staffing the CTC. A combination of drop in hours, community courses, Temple University courses, job training workshops, and after-school programs were implemented between 9 a.m. and 9 p.m. in Fall 2000 and 9 a.m. to 6 p.m. in Spring 2001. We coordinated and worked with Temple University undergraduate and graduate students involved in service learning courses, individual and programmatic research projects, and a community service work-study program to implement the educational programs in the newly created lab environment (for more detailed discussions of the CTC infrastructure and programs as well as the involvement of Temple University students see Gilbert and Masucci 2004, 2005 b, 2006).

The roles of the various collaborators, the nature of the collaboration, and the purpose of the partnership changed rapidly from the beginning. During the planning process, we initially saw our role as supporting the HPTA in negotiating with PHA and HUD. We also tried to advocate the concerns of residents based on our recent experiences with KWRU and later on through our direct interactions with residents. We worked one-on-one with a number of the members of the HPTA to establish the program line up and schedule, prioritize needs for the CTC, advise on specific technology investments, and address a multiplicity of concerns about the potential impacts of the CTC once it opened.

Throughout the duration of our collaboration with the Harrison Plaza community, we observed significant power differentials between the HPTA and residents, and among members of the HPTA itself. These dynamics became increasingly difficult to navigate as the partnership developed over time. While we expected such dynamics based on our previous experiences, and an understanding of how even minimal resources can make a large difference among impoverished people, the tensions within the HPTA and between some residents and some members of the HPTA were strong. After the demonstration year ended, we developed a longer-term approach to working on the digital inequalities experienced by families in Harrison Plaza. This resulted in working extensively with families and youth at different locations, including a family center and in local public schools (Gilbert and Masucci 2004, 2005 b, 2006).

We will highlight some of the key issues and difficulties that we

experienced at different stages of the partnership that provide insights into how the lack of access to ICTs might be more usefully addressed than current practices.

The Planning Process

We saw our initial role as learning the values, interests, and goals of the HPTA more generally and in relation to the CTC. We could then provide support to the HPTA to aid in understanding how the technology might forward the values, interests, and goal more broadly defined than simply in terms of improving access to ICT infrastructure. In so doing, we wanted to help ensure that those values, interests, and goals were understood by other partners and then translated into the specific configuration and operational procedures for the demonstration CTC.

During the initial planning process, the focus of all of the other main partners including the HPTA, HUD, and PHA was on providing computer skills and job training for women who were transitioning from welfare-to-work. While it was clear that the HPTA members were concerned with providing job training opportunities for women on welfare who were facing time limits, it was not clear to us if that was their main concern or if they saw this as a pathway for getting funding and support from PHA and HUD for a CTC more generally. However, we had a strong critique of welfare policy both more generally in terms of its ability to steward women into economic security through job attainment.

We sharply challenged the notion that improving ICT access

would facilitate this transition. Because of this, we were concerned that tethering ICT access and use to welfare-to-work transitions had the potential to severely constrain rather than facilitate women's job searches, skills acquisition, and educational participation because of the stringent time constraints imposed by the requirements of welfare reform. We worked to ensure that the CTC and related programs would not be constructed or used in a manner that would do harm to or punish the women we were hoping to help to empower as defined by the women themselves.

In fact, one of the leaders of KWRU was involved in some of the initial planning meetings and was concerned about the members of the HPTA being too focused on what PHA and HUD wanted rather than what she perceived residents might want. For example, some women were interested in connecting ICT use to small-scale entrepreneurial opportunities they wanted to pursue, such as providing child care services, catering and sewing within the neighborhood. The job skills and attainment thrust of the PHA and HUD implementation model were more focused on training women to be service employees in larger firms, many of which were located significant geographic distances away from Harrison Plaza.

Despite the fact that all of the main partners seemed to share the same goals around the CTC's focus on providing computer and jobs training to women receiving welfare benefits, two issues that are particularly relevant to policies related to digital inequalities arose, raising tensions within our collaboration: the purpose of the center and privacy.

In the planning meetings, there was a man from the community who was running an after-school program in the community center for approximately twenty-five children attending the adjacent elementary school. He, as well as some members of the HPTA, began to advocate strongly for the CTC to be of use to children who were in the after-school program. We helped the HPTA translate their goal into a request for Macintosh computers and educational software in accordance with what the public schools used to educate students at that time in addition to the Windows OS personal computers and appropriate software for job training. We spent a year as technology "experts" challenging the decision by PHA and HUD to use PCs in the CTC because their choice represented a prioritization of responding to welfare-to-work policies as opposed to other community and resident goals for the center. PHA and HUD were convinced that PCs provided the most appropriate platform for job and work readiness training. Community members and residents insisted on the placement of at least some Macintosh computers in the lab configuration because they are prevalent in the public schools, highlighting that many of the women were prioritizing their children's use of the CTC over their own.

The partners were unable to agree on the balance of Macs and PCs, so we worked outside of the formal process to purchase a few Macs and begin a patchwork network that was in place when the CTC programs began (Gilbert and Masucci 2005 b). The fact that the children's and mother's needs became framed oppositionally was problematic in that it belied how most of the women themselves thought, which resulted in the CTC being used differently than

anticipated by HUD and PHA.

A second issue that arose during the planning process was that the HPTA was concerned about how the configuration of the CTC could negatively impact the resident's privacy in relation to the PHA. The HPTA was concerned that individual emails could be intercepted if the CTC was networked to the PHA's server resulting in the eviction of residents (Gilbert and Masucci 2006).[14] Instead of connecting to the PHA's server using a T-1 connection as suggested by the PHA, the HPTA members decided to invest resources on a modem connection (Gilbert and Masucci 2006). This example demonstrates that the women of the HPTA and the residents experienced a much more limited ability to control or shape what information was made public and chose to protect themselves as best they could.

It also demonstrates the nuanced and differentiated experiences of people in relation to ICTs depending on their embeddedness in particular power constellations and places. On the one hand, the HPTA concerns about privacy were very different than that of KWRU, illustrating that the perspectives of the "have nots" are differentiated and therefore the planning process requires engaging the people who will be directly affected by any given policy solution. On the other hand, it does highlight how the "haves" and "have nots" are likely to experiences different frameworks because either they are enmeshed in different power relations and/or are differentially constrained, or they

[14] Public housing residents can have their leases terminated for any criminal activity, drug or alcohol abuse, and violations of federal, state, or local laws that directly relate to tenancy (http://www.clsphila.org/Content.aspx?id=676 accessed January 7, 2011).

have different means to address the concerns.

Poor women on welfare and living in public housing experience far more surveillance of their daily lives than do the non-poor. Because the consequences of the loss of privacy for women at Harrison Plaza had the potential to jeopardize their eligibility for housing and public assistance, this concern was a top priority to address. Moreover, we had to do so from a completely different conceptualization of privacy than is characteristic of our own circumstances or those of the other institutional partners – where computer access is virtually ubiquitous, computers do not have to be shared, and most have access to computers in multiple locations, including at home, work and school.

Implementation

During the implementation year of the demonstration CTC we experienced two sets of issues that have significant policy implications. The first set of issues had to do with who used the CTC and for what purposes. The second and related set of issues had to do more broadly with varying types of resource constraints that again called into question the sustainability of the partnerships as well as our ability to meet the needs of the community and university partners.

While the initial focus of the CTC resources was to engage women experiencing the welfare-to-work transition, the main users of the CTC were actually children and older women who were not at that stage in the life cycle (Gilbert and Masucci 2004, 2005 b, 2006). The women who were the target users of the CTC were completely

enmeshed in the daily struggle of providing for their families, navigating services, raising children, and meeting the welfare-to-work requirements. They literally did not have the time to participate in the basic computing classes, Internet access classes, or open computer hours when there were people available to assist with specialized software to improve basic literacy, computer literacy, and typing and resume-building applications.[15]

One of the main goals of the collaboration was to develop an interactive web-based tool for training women on basic computing skills and the Internet (Gilbert and Masucci 2006). We conducted focus groups to learn about the community's geographic and other information needs. What we found was that the women wanted information about the types and locations of services they could draw on related to the impending TANF requirements, including job training and seeking, health care, and child services, delivered on hard copies because they did not have reliable, unmitigated access to computers or the Internet or the skills to use them. A number of our graduate students worked to compile such as list.

Another group of women whose needs were never discussed during the planning process, but used the CTC facilities, were older, non-working age women, many of whom were grandmothers of children in the neighborhood (Gilbert and Masucci 2006). These

[15] If women were to get credit for participating in the programs as legitimate activities to engage in as part of welfare rules, we would have had to become involved with local, state, and federal regulations to do so—something beyond our resources or interest. We had thought that HUD and PHA would have brought people in to do employment training, but that did not materialize.

women often dropped into the center during open hours, and some also participated in basic computing skills classes. Because they did not have to navigate the welfare-to-work rules, their time was more flexible than that of women involved in RESET, enabling them to drop in to the CTC and establish relationships with some of the technology trainers. These women used the CTC to learn basic computing skills and how to access the Internet. They used these skills to facilitate their involvement with groups such as a sewing group, day care centers, after-school programs and churches. They also wanted to use email to keep in contact with family who had moved away or were serving in the military.

The fact that the needs of these women were literally invisible to all partners prior to the implementation phase suggests why it is important to involve a wide variety of people in the planning process and to examine how funding priorities may be inappropriately driving the discussion. It also underscores our suggestion that there are both significant needs and difficulties associated with creating spaces for publics who may not be recognized.

Another group that heavily used the CTC and associated programs but were largely invisible during the planning process were children and youth enrolled in local public schools in kindergarten through 12th grades. During the implementation year we became responsible for the after-school program as a much larger number of children began taking advantage of the CTC resources than had ever used community center in the past. Over 50 children used the programs developed on a daily basis. In addition to computer training,

the programs included homework assistance and different "clubs" and activities such as arts, drama, and physical recreation. Through activities such as assemblies, open houses, and celebrations of the children's achievements, we were able to draw adult family members to the CTC allowing us to introduce many women, for the first time, to computers (Gilbert and Masucci 2006).

One of key lessons we learned that shaped future collaborations was the ways in which developing the ICT skills of their children embedded in broader educational and recreational programs was a particularly effective way of engaging women who were under incredible stress and constraints due to poverty and welfare reform. Because there was no way given our resources that we could help women meet their welfare reform related needs directly through the CTC and associated programs, we were able to more effectively help them by providing quality activities for their children. Furthermore, many of the women prioritized their children receiving access to and education about ICTs over themselves, seeing it as a way of improving the next generation's opportunities. Yet it was through their children that many of them were able to gain some access to the CTC and to begin to develop basic computer skills.

Resources

A second set of issues related to tensions that arose around resources among the HTPA, us, and other partners. This shaped the nature of the collaboration, our role in the collaboration as well as the level if its effectiveness.

We were able to bring considerably more financial and labor resources to this collaboration than to our previous one with KWRU. After our experiences with KWRU, we decided that the only way we could ensure the sustainability of a partnership as well as work toward the empowerment of all partners (community members, Temple University students, and ourselves) was to develop an integrated model of research, critical pedagogy, and outreach (for a more extensive discussion of this model see Gilbert and Masucci 2004, 2008). We increased the number of students involved in the partnership as well as the quality of their experiences. For example, over the year there were four critical service-learning courses offered to Temple University students, two of which were held at the center and open to community members as well as the students. Over 50 undergraduate and graduate students engaged in the programs during the first year as service learners enrolled in formal classes, work-study and volunteer mentors, and research assistants. We also increased the financial resources available for the programs through seeking internal and external funding, enabling us to put in place a training program for Temple University students involved in the CTC and a supervisory staff that could implement the training as well as assist with the management of a growing set of university guidelines that emerged because of the scale of the involvement of Temple University students.

Despite the increased resources, however, it was not enough to meet the needs of the families with whom we collaborated. Most of the financial resources were provided to students through their work-study awards; with residents receiving value through accessing free

computers and courses made available through paid and volunteer staffing of the CTC. Yet, even with the HUD Technical Assistance Grant, we were not going to be able to buy enough hardware and software, nor were we going to be able to hire and train enough people to create and staff the programs necessary to meet the needs of 3000 PHA families or the surrounding residents.

A lot of the tensions among the HPTA, residents, us and other partners were due to the limited size and multiple uses of the community center itself, which was controlled by the HPTA. The community center was located in the middle of the four residential buildings and adjacent to an elementary school. It was approximately 3000 square feet in size. It housed temporary office of nurses from Hahnemann University (now Drexel University), who were providing primary care in anticipation of the building of a freestanding 17,000 square foot health center. In 1998, Hahnemann and the PHA secured a $3.3 million grant from the federal government to locate a health center in a new public housing development in the 11th street corridor.[16] It also housed HPTA offices and meetings, the after-school program, nutrition and exercise programs, a food donation program, a regular Narcotics Anonymous meeting, and frequent community events such as memorial services.

The goal of the community center was to provide a geographically central place for residents to be able to get the services they so desperately needed; however, there was literally not enough

[16] For a description of the center see: http://www.drexel.edu/11thstreet/history.asp.

space nor were there enough financial resources to meet the needs. The addition of the computer lab not only doubled the number of students and increased the hours of operation of the after-school program; it also caused friction over the competing uses and needs of the community center as a whole. On a number of occasions we arrived to find the lab completely dismantled with no prior notification because the space was needed for another purpose. Twice, the HPTA closed the after-school program just before the children were due to arrive. While the ostensible reason was that the children were too noisy, it was clearly over conflicts around the use of the space. Unsurprisingly, this provoked a strong reaction from the parents of the children participating in the program who demanded it remain open placing us in conflict with the leadership of the HPTA.

It was often difficult to navigate the various entities within the community center itself. One small example of how difficult it was to navigate for us who were relatively empowered in the context of the center was that there was a child in the after-school program who appeared to us as if she was having difficulties breathing due to an on-going asthma attack. She was able to breathe but not well. When we took her to the visit the nurse a few steps away we were told that there was nothing she could do because the attack wasn't "acute" and she would need to get permission from her parents or guardians in order to be treated at the clinic. We were stunned and wondered if we should call an ambulance. We wrote a note to be sent home with the child about our concerns and the availability of the nurse. This example illustrates the level at which the residents were regulated and

enmeshed by local, state, and federal policies and regulations.

From a policy perspective, it is important to realize the multifaceted ways in which people experiencing digital inequalities are marginalized economically, politically, socially, and geographically. Our work suggests that any attempts to overcome digital exclusion must recognize and be able to address other forms of exclusion.

Project Outcomes

The leadership of the HPTA, as well as many residents, wanted the Community Technology Center and related programs because they saw it as a pathway to jobs at a point in time when the possibility of families reaching their time limits for welfare benefits was becoming an imminent reality. Yet the women for whom the CTC was intended were unable to participate in the educational programs initiated at the center because of the time and space constraints imposed on them by welfare reform policy and poverty. While the CTC failed in this regard to meet the direct aims of providing job training for the women, it was successful in ways that were not envisioned during the planning process.

Because of the involvement of many of these women's children, the CTC provided enhanced ICT access for children and youth while granting some opportunities for the women to come to the CTC. The CTC and associated programs allowed the women to deal with the larger issues they faced while having their children taken care of in a way that they thought was educationally beneficial. Furthermore, it was through their children that many women began the process of

learning more about ICT. They were coming to the CTC to pick up their children and participate in child related activities such as assemblies. It was in this context that they we were able to assist them in learning some basic computing skills.

Meanwhile a group entirely left out of the planning process—women who were beyond working age—gained access to and knowledge about ICTs and related information flows. These women were not constrained by the demands of welfare policy. And while they were involved in many community activities, they had the time necessary to gain the skills that they deemed of worth to them.

We were unable to assist the community in creating a permanent facility for the CTC that emulated the health center model. Rather, the CTC after-school program was subsumed within a newly funded Family Center located at Harrison Elementary School, a building next door to the community center. We collaborated with the Family Center to fulfill the new program model needs, and continued to involve Temple University students to participate in service learning, work-study and volunteer mentoring, and research activities. We saw this as a way of alleviating the difficulties we had encountered with the facilities, yet continuing the relationships we had forged with many of the families of the children and youth using the youth related programs of the CTC (Gilbert and Masucci 2004). Essentially, we moved the programs and our students while working with the same families. However, because of the nature of the funding for the Family Center, we found it increasingly difficult to ensure the quality of the experiences of both Temple University students and the children

involved in the program.

At the time, we sought funding to initiate a mobile technology lab and associated programs, borrowing the concept of bookmobile libraries. We thought that a mobile technology lab would have allowed us to preserve the ICT programs that had been established for the other constituencies and to connect with new settings, overcome the lack of ICT infrastructure within the community, and further tailor the programs to specific needs of different groups. However, our inability to gain funding for that particular program, along with the reallocation of computers from the CTC to other uses within the Harrison Plaza community, cut short the collaboration with the HPTA.

Moreover, a growing divergence between the needs of the community and the university led to shifting priorities for university investments of time and money, punctuated by the initiation of the Temple University Partnership Schools program in 2002 (Gerwertz 2002). Temple University was one of six service providers who formed part of a restructuring effort to improve management and student achievement for low performing schools in the School District of Philadelphia. Harrison Elementary School was not named a partnership school.

While there is no longer a permanent CTC with a fixed facility located in the Harrison Plaza community, we have used this initial collaboration as a spring board to other programs addressing the digital divide inequalities of this community as well as others surrounding Temple University's main campus, reaching approximately

250 families a year at six different locations (Gilbert and Masucci 2004).

Policy Implications

Our experiences with the HPTA and residents as compared to those with KWRU demonstrate decisively that the "have nots" are differentiated in their frameworks for ICTs and related information flows and exhibit agency in relation to ICTs. Both the leadership of the HPTA and the residents viewed ICT from the framework of more "mainstream" goals including employment and educational opportunities. Unlike KWRU, they were not attempting to change the policy debate or implementation. And while both KWRU and HPTA were concerned with privacy, suggesting that this is a policy concern that must be addressed from the perspectives of the "have nots," the nature of the concerns were very different.

Yet, like KWRU members, Harrison Plaza residents were severly constrained in their access to and use of ICTs by their economic marginalization. Harrison Plaza residents also experienced a level of extreme geographic isolation that contributed to their marginalization. In the case of Harrison Plaza this isolation was not due to geographic distance, but rather to social boundaries related to poverty, safety, and lack of basic facilities. Yet both KWRU and HPTA lacked the financial resources to create the basic computing infrastructure; and both organizations represented people who did not have access to computers at home or work. Furthermore, both organizations represented people who needed assistance not only with computer

skills but also with basic literacy suggesting that we need to pay attention to the intersection of basic and technological literacies.

Our experiences working with the families at Harrison Plaza indicate that more attention needs to be paid to the intertwining of different forms of marginalization. It is impossible to view digital inequalities outside the context of economic, political, and social marginalization. Additionally, there needs to be greater attention paid to the ways in which social policies are contributing to digital exclusion more broadly, and simultaneously how ICT policy needs to be developed in relation to the other social policies shaping the lived experiences of the "have nots."

We will now turn to look at the ICT frameworks and experiences of marginalized women in relation to health care and outcome disparities.

6

ICTs and Health Care

The use of ICTs for health care among poor women in North Philadelphia who participated in the Women's Heart Health and Telemedicine Program (WHH program) is the subject of our final case study. Our goal in working with this group was to examine both the possibilities and limitations of ICTs as a factor in increasing access to health care and improving health outcomes. Our prior work with KWRU and HPTA illustrated that the use of ICTs in the context of other needed services was an important pathway for gaining experience, knowledge and the ability to evaluate the usefulness or problems associated with ICTs for the women with whom we worked. In the case of women involved in KWRU, we found that the use of ICTs to manage economic human rights documentation led to an increasingly strategic set of considerations around the role of information in organizing, the use of ICTs in disseminating information across organizing networks, and in impacting the respective roles of decision makers within the organization and among the partners. In the case of HPTA we found

that by coupling the investment in ICT infrastructure with technology-training programs reaching a broad array of users, women gained technology skills and knowledge not only by their own participation in programs but also by proxy as their children and other members of their social networks improved their skills.

Our involvement with the WHH program stemmed also from our recognition from working with women in the other two cases that the implementation of TANF was directly impacting women's accessing of other services, including education, health care, and employment services. Throughout the time period of our collaborations, ICTs were being pointed to as tools for filling gaps related to time, distance and costs of delivery and access to needed services (Bennett and Glasgow 2009). Yet, along with the increasing prevalence of ICTs as a pathway for increased access to services like education, job attainment, and health care, we also found that the disparities faced in each realm had the potential to ripple through the entire system, exacerbating social disparities rather than ameliorating them. We focus here on the impacts of digital exclusion on accessing health care because of the degree to which health care is being transformed by ICTs and its intrinsic connection with the decreasing economic stability faced by North Philadelphia communities at the onset of TANF reform.

It is important to note that even as we point out how ICTs were impacting women in unforeseen ways, there is a burgeoning literature that documents the advances that ICTs are supporting across a wide range of service delivery. Health care is one of the sectors that is being heavily impacted, with e-health and telemedicine systems at the

forefront of public and private investments to improving access to care, the quality of the standard of care – particularly for groups that are often underserved, and efficiencies in access and delivery of care (for a review, see Masucci 2009). Telemedicine systems that incorporate communications between patients and their health care providers are one of the aspects of this trend that have been shown to directly benefit patients due to the increased potential for managing chronic conditions and diseases (like high blood pressure, diabetes, and high cholesterol) because of the increased oversight that is possible (Masucci 2009).

Individuals living in poverty are often the most in need of such monitoring of chronic conditions to prevent more costly and devastating health consequences in the long run. People located in remote settings can benefit from telemedicine systems by having direct communications with care providers that can provide diagnostic, treatment and monitoring care that would otherwise be difficult to access due to time, distance and economic constraints (Wiles 2003, 2005). And, many benefit from telemedicine system supports for accessing health records from multiple locations, which can result in improving the efficiency, accuracy, and immediacy of care (Avison and Young 2007). These compelling reasons demonstrate that telemedicine systems are having a dramatic impact on the structure of patient care, and impacting treatments for a host of medical conditions (Avison and Young 2007; Halford et al. 2009).

ICTs and Health Care

Our involvement with poor women who wanted to learn how to use ICTs for managing health care began in 2004 as part of a health disparities program implemented by several centers located at Temple University along with community collaborators. These included: the Information Technology and Society Research Group, the Telemedicine Research Group, the Cardiovascular Research Center, Nonprofit Technology Resources (NTR), Critical Path, Campus Computer Recycling, Harrison Campus Compact (HCC) outreach group, and local churches and community centers in North Philadelphia.

The Temple University partners were responsible for creating the program contexts for using Telemedicine systems to manage health among individuals with a number of heart health conditions. The campus computer-recycling program and NTR provided low cost computers, information about community technology resources around the city, and technology support for some of the users. Critical Path provided free Internet access for some users through its dial-up services. Local churches and community centers served as venues for eliciting interest in programs, providing training, and creating ICT access points. HCC provided one-on-one training for program participants to use ICT resources.

It should be noted that our participation was connected most closely to the involvement of HCC. We formed this group when we implemented the Harrison Plaza CTC. HCC is a technology literacy education group comprised of university student workers and

volunteers who formed initially to provide technology training and mentorship to the Harrison Plaza CTC users. The group became more structured when the CTC after-school program was relocated in the Family Center at Harrison Elementary School. Over the past ten years, HCC has grown in size and scope, and is now drawn upon to provide technology literacy programs in a number of community settings throughout North Philadelphia.

The HCC group worked with the WHH program from 2004 – 2008 to help clinicians provide assistance to their patients to use telemedicine systems and access online health information resources. In addition, HCC assisted with the development of healthy lifestyles workshops, tailored web communication tools, and one-on-one basic computer trainings as a part of a larger effort to connect patient management of chronic conditions using donated computers and Internet service, web resources, and e-communication tools. Unlike both the KWRU and HPTA groups, the WHH program participants were not organized to achieve a collective set of goals; rather, they were comprised of individuals involved in a number of different points of contact to receive both health care and ICT training services.[17] But, we were able to translate many practices developed through our work with KWRU and HPTA for the WHH program, including to: (a) provide technology literacy training, (b) improve ICT access, and (c) connect the improvement of ICT self-efficacies with health care goals for the

[17] It should be noted that we worked with both women and men on these projects, and that our work extended to numerous health information and technology use programs.

women with whom we worked. Based on lessons learned in the past, we were able to significantly increase the scale of engagement because our focus was much more specifically centered on providing a basis for improving ICT skills among the women with whom we worked. Our case study will discuss the general program characteristics involving over 300 participants as well as to relate the specific experiences of a small subset of eight African American with whom we worked that faced significant economic instability (due to low annual incomes or unemployment) in the context of seeking to improve their health through using ICTs.[18]

The Women's Heart Health Program

The WHH program that we developed included three main activities: (a) development of a training system to learn how to use a number of different telemedicine systems to support patient-physician communications for managing chronic conditions prevalent among minority populations, (b) evaluating technology use frameworks of trainees, and (c) developing health education programs connected with the original technology-training activities that foster heart health and wellness. In addition to these activities, the program involved creating curricula and web resources related to women's heart health. Finally, we also worked with a number of community partners to continue to seek ways to overcome ICT access challenges faced by individuals involved in these programs. During the four years when the program was implemented, we trained over 250 patients to use specific

[18] A complete discussion of the subjects in this case study is found in Gilbert and Masucci et al. 2008.

telemedicine systems, developed a heart health clinical education program that has served 50 women, and maintained a web portal on heart health used by Cardiovascular clinicians and HCC technology trainers at Temple University.

At the core of this effort has been the extension of our work with the Harrison Plaza residents to coupling technology literacy with other realms of concern for poor women. Through examining digital divide barriers to accessing information resources found on the Internet, we were able to draw attention to the exclusionary effects caused by a lack of technology use experiences, training, and self-efficacy connected to the lack of access to ICT infrastructure in the homes, workplaces and communities of WHH program participants. This concern has profound implications when we consider the interrelated sets of inequalities faced by poor women and the nested ways in which basic literacy, technology experiences, social inequality, and lack of resources to pursue social needs like health care are interconnected. And, since health gaps persist between racialized minorities and women and mainstream populations, we focused our attention on how ICT digital divide disparities would intersect with health disparities.

Not only did the women with whom we worked face systemic disparities related to ICT access and broad social and economic inequality, they also faced a prevalent concern that different standards of care are used in health care services for women as compared to men (Adler and Rehkopf 2008). In addition, racialized minorities are often treated at later stages of the progression of conditions and diseases as compared to white people, which dramatically impacts

their health outcomes. Exacerbating these issues is the challenge posed by the lack of primary care facilities and affordable preventative care in inner-city neighborhoods and rural areas (United States Department of Health and Human Services 2004). We sought to understand how these different challenges were intersecting for women who were making significant efforts to link the use of ICTs to pursue health care and information.

A Focus on Heart Health

Our focus on issues related to heart health in particular was based in the prevalence of the problem within the North Philadelphia community where we work. To provide a sense of the magnitude of health concerns related to heart disease, it is important to note that it claims more lives than any other health condition in the United States with an estimated 80,000,000 people having one or more associated conditions (American Heart Association 2006). This includes over 73 million people with high blood pressure; nearly 17 million with coronary heart disease; 8 million heart attack victims; 10 million with angina; 6.5 million suffering strokes and 6 million suffering heart failure (American Heart Association 2006). Approximately 35 percent of all deaths in the U.S. are caused by heart disease (also called Cardiovascular Disease - CVD) each year making it the nation's largest cause of death (American Heart Association 2009).

Striking differences exist in the prevalence of heart disease across race and ethnic groups, with African Americans and Hispanics suffering greater rates and death than whites. Moreover, since 1984,

heart disease has claimed lives of women more than men, with about one death occurring per minute in women, or 460,000 deaths in 2004 alone (American Heart Association 2009). There are a number of gender-specific differences in risk factors for heart disease for women that make it crucial for them to be knowledgeable about how the disease progresses in women. For example, women in particular have especially significant risk factors for heart disease that arise when they have both diabetes and hypertension (American Heart Association 2009).

The current standard of preventive care for heart disease includes controlling risk factors through maintaining optimal blood pressure, serum glucose, and cholesterol levels (American Heart Association 2009). In addition, participating in a heart healthy lifestyle by maintaining a healthy weight, abstaining from smoking, and participating in regular exercise is a major public health goal in the U.S. (American Heart Association 2009). Several researchers have found that women not only lack knowledge about heart disease, they often do not realize it is a threat to their health (Hamner and Wilder 2008; King et al. 2002; Mosca et al. 2007). The significance of heart health awareness among women is underscored by data from a recent national study. Mosca et al. (2007) demonstrate that women who perceive themselves at risk for developing heart disease and are aware of how to prevent the disease take action towards a heart healthy lifestyle.

When surveyed nationally, white women, compared to either African American or Hispanic women, were shown to be more likely to

correctly identify risk factors for heart disease; and white women were also more likely to recognize the availability of early treatments (Mosca et al. 2007). For women of color, realizing that heart disease is a threat to their own health is even more urgent given that within the United States a significant difference in morbidity and mortality exists between white women and women of color, with a disproportionate share of suffering borne by racialized minority women (Appel et al. 2002; Appel et al. 2005; Fahs and Kalman 2008; Ziembroski and Breiding 2006).

Our Approach

We have drawn heavily from the work of other feminist geographers studying the health geographies of women to advance our social action methodology to support poor women in North Philadelphia to build basic, technology and health literacies with a special focus on heart health. Feminist geographers have made significant contributions to the emerging literature on health geography by showing that gender is implicated in all aspects of health, illness and health care (for reviews see Curtis 2004; Dyck 2003; Dyck et al. 2001). They focus on how space, place and culture shape women's experiences of health and illness, access to health care, and the quality of the standard of care they receive. This work radically challenges the bio-medical perspective that health is determined at the scale of the individual. It suggests that the concept of individual health should be seen in terms of the interconnections that individuals have with wider social, political and physical environments (Gatrell 1997).

We engaged in the WHH program in order to gain a new contextual understanding about the use of computers and the Internet. The program coupled training on the use of ICTs with training on basic facts about risk factors for heart disease, information about how to reduce these risk factors, information about how to monitor key indicators for the various risk factors, and information about how to use specific telemedicine system tools to transmit self-monitored information to health care providers. We oriented women to the use of computers; collaborated with health educators to present information about women's specific health concerns and risks for heart disease; and created online health resources and networks to support their engagement in health lifestyle decisions that could reduce their risk factors for heart disease (Gilbert and Masucci et al. 2008; Masucci 2009; Masucci et al. 2006).

While other geographers have contributed to the bio-medical perspective of health by focusing on the themes of environmental health, the geography of health care delivery, and the geographic patterns associated with demographic disparities in the presence and diffusion of disease (Hill and Peters 1998; Kearns and Moon 2002), our approach was tailored to the information needs and perspectives of the women with whom we worked. Drawing on culturally relevant examples of health challenges and solutions for the elderly, poor and racialized minority women with whom we worked, we tailored technology access to the unique educational needs of each program participant. For women using telemedicine communication systems, we designed training based on their prior use of technology (Masucci et al.

2006); while among women involved in heart health training, we tailored technology use to their wellness and lifestyle aims.

As we developed the project, we realized that utilizing geographic information technologies could further our understanding of the locational aspects of ICT in everyday life among the women involved in the program components. We developed a geographic information system (GIS) as part of the project in order to examine how basic, health, and technology literacy training programs connected with spatial dimensions of how poor women employed ICT towards health management objectives. Three questions were central parts of this inquiry. First, how did ICTs advance, limit, or transform individual poor women's health management strategies? Second, how did the management and use of ICTs advance, limit, or transform poor women's access to health care, quality of the standard of care that they receive, and health outcomes? Third, what were the spatial patterns associated with their ICT use, health management, and health outcomes?

Although GIS is often used to analyze the geographic patterns and processes associated with diseases, mortality, and life expectancy, critical geographers (including feminist geographers) point to the disjuncture between the uses of GIS and the attainment of socially relevant objectives such as improving our ability to alter disparities that exist between places (Craig et al. 2002; Fuller and Kitchin 2004; Gilbert and Masucci 2004, 2005 b; Kwan 2002 c; Pickles 1995 a, b). Underpinning this critique is recognition of the inherent relationship between GIS and power because, from the start, many geographic

information technologies were developed purposefully as "instruments of policy making" (Curry 1995). This is complicated by the paradox that while GIS can be a factor in transforming power relations in society, it can also be used in oppressive ways. Ultimately, critical geographers suggest that the lack of access to participation in the development of GIS signifies social and political marginalization (Carver 2003; Craig et al. 2002; Harris and Weiner 1998 a, b; Harvey 2000 and 2001; Kwan 2002 a, b, c; Niles and Hanson 2003; Schroeder 1997 a, b; Schuurman and Pratt 2002).

The work of Sara McLafferty (2002) underscores the relevance of this critique to examining the intersection of ICT and women's health. McLafferty notes the disempowering effects that resulted when a grassroots community-based GIS campaign to determine the environmental factors contributing to high incidences of breast cancer in Long Island evolved, at the urging of women activists, into a federally funded multi-million dollar GIS. As the public investment grew, public agencies, researchers and private corporations emerged as the central stakeholders of GIS development, ultimately displacing the women activists. Not only did women lose their voice in defining the purpose of the system and the approach to gathering spatial data, privacy concerns meant they also lost access to the collective database that was created.

While McLafferty's work provides a beginning point for a feminist geographical analysis of ICT and health, GIS as a framework for health geographies cannot provide a complete picture of how ICT reflects, reinforces, or creates new geographies of everyday life (Gilbert and

Masucci 2005 b). As feminist geographers study the intersection of space/place, identity, and processes of power and inequality at multiple scales, they have a significant contribution to make to the overall discussion of ICT and women's health. The incorporation of these topics into the overall discussion of ICT and women's health should make it possible to better understand the complex ways that ICT advances or limits women's access to health care, the standard of care that they receive and ultimately their health outcomes.

The GIS we developed for the WHH program was designed to support the implementation of a system to assist participants in the program to gain access to ICTs as well as to provide an information resource that can be used to explore the connections between their daily lives and their health outcomes. We found that the participants enrolled in the telemedicine studies live in close proximity to public transportation routes, suggesting that multiple self-efficicacies are involved in accessing both health care and ICT training. We also found that individuals in the study relied heavily on the training services we provided in order to access the telemedicine system, further emphasizing how transportation, health and ICT self-efficacies are intertwined for the women with whom we worked.

Project Outcomes

Our approach for implementing the WHH program was also informed by the U. S. Department of Health and Human Services Healthy People 2010 guidelines related to health disparities, the use of technology to promote wellness, and the use of technology to assess

the impacts of the delivery of services for underserved populations through improving health literacy (U.S. Department of Health and Human Services 2004). Healthy People 2010 was launched in January 2000 to provide a national health promotion agenda. Among its recommendations is that the proportion of homes with access to the Internet be increased to 80 percent from the baseline of 26 percent measured in 1998 due to the critical importance ICT access and use when shaping health care strategies, particularly among underserved populations.

The WHH program responded to this mandate by instituting training as a central means of mitigating problems in home access to computers and the Internet among the individuals who were involved in several studies related to the use of Internet telemedicine systems (Masucci et al. 2006). Only 43 percent of those involved in the telemedicine study that examined its use for managing risk factors associated with heart disease had home computers and access to the Internet, yet 84 percent demonstrated one-time compliance with system use (Masucci 2009). Among that group, average system use was one time per week for the first three months of involvement in the study (Masucci 2009).

One of the ways we confronted the problem of the lack of access to home computers among many of the participants was to implement strategies that both addressed barriers to Internet access for underserved patients and improved their knowledge base related to risk factors and lifestyle concerns related to heart health. We worked with our partners to teach participants how to use Internet

telemedicine systems to manage chronic conditions. We also worked to support access to ICTs through leveraging our network of partners to: (a) provide delivery of free computers and dial-up Internet access; (b) train patients in the use of basic computers, Internet health information web sites, proprietary information systems for self-managing patient health; (c) develop patient-provider e-communication tools and training patients to use them; and (d) create web resources that were easy to use by patients who did not have prior computer and Internet experience.

In addition, we worked with our partners to identify community technology resources and facilities that could augment home computer and Internet access as well as provide additional training. We did this by supplying patients and providers with maps and descriptions of community technology centers and other resources where patients are welcome to use the Internet and can receive training, providing campus-based training and assistance with home technology use via monitoring telephone help-lines.

A second goal of Healthy People 2010 is to develop the use of information systems to examine the relationship between disparities in health outcomes and the analysis of risks and other related environmental factors to support improved care for underserved populations (U.S. Department of Health and Human Services 2004). Our use of GIS involved connecting residential locations where WHH participants lived with resources that could support their use of the telemedicine system. We mapped the location of community technology access points, transportation hubs, and health services

locations. We also mapped socio-economic characteristics of the neighborhoods where they lived. We gathered information related to telemedicine system use as well as health outcomes, so we were able to map the relationships between health and neighborhood characteristics as well.

We used the GIS to tailor assistance for women to gain additional training and ICT access as needed to use the telemedicine system. We found a number of paradoxes through using GIS in connection with the telemedicine system among the poorest women in the program, including: (a) they traveled extensively in order to find points of ICT access for using the telemedicine system, (b) their travel to gain additional training or access to ICTs was often coupled with other health care needs, and (c) their use of ICTs for accessing the telemedicine system often occurred in locations where they received assistance to use the computer, thereby losing their privacy with respect to the data they were transmitting through the system.

Healthy People 2010 emphasizes that fostering health literacy is a key to improving health outcomes and changing underlying health disparities (U.S. Department of Health and Human Services 2004). In response to this public health objective, we worked with a group of cardiologists and health educators at Temple University to create web-based information resources for women with risk factors for heart disease. We aimed to support women in gaining self-efficacy in the use of e-communication technologies, to improve their effectiveness in the use of telemedicine systems, and to improve overall quality of health information use and communications with health care providers.

In order to increase women's self-efficacy related to ICTs and health we: (a) developed language translation capabilities of existing tools, (b) created e-incentives for meeting system compliance standards associated with given interventions, (c) linked social networking tools for supporting health and fitness with on-line health management tools designed to manage specific chronic conditions through proprietary access paths, (d) developed educational training and ongoing e-training support for each intervention, and (e) worked to enhance the interoperability of systems for accessing telehealth intervention tools (for instance, creating multiple access strategies such as instant message, e-mail, and Internet access modes for engaging telemedicine system resources). Finally, we worked to improve access through providing opportunities to obtain free or low cost ICTs through partnership arrangements with community organizations and major institutions in Philadelphia (such as NTR, CTCNet, and ParentNet).

We evaluated these approaches through focus groups, interviews, and one-on-one engagement in training to learn how better to improve outcomes related to health literacy, ICT use, and health outcomes. We found consistently that basic, health, and technology literacies were closely interconnected and mutually reinforced outcomes across all three domains. Women who had better functional and basic literacy also had more likelihood to use ICTs, better self-efficacy with respect to ICT use, and better health outcomes overall (Gilbert and Masucci et al. 2008; Guigar 2007; Masucci et al. 2006).

Policy Implications

Rather than simply providing computer or Internet access, our work shows the importance of combining technology training with issues of concern for women's daily lives. We find that women overwhelmingly gain the necessary technology literacies to advocate and pursue their health needs when the use of ICTs is tied to health care management, despite persistent digital divide barriers they face. By understanding the intersection of acquiring these self-efficacies – health management and technology literacy – we gain insight into how the embeddedness of ICTs in daily life relates to health outcomes and quality of life for poor women.

It seems that those most marginalized might benefit greatly from telecommunications; yet it is clear that technology literacy training is what produces the efficacy. The policy implications of these results are profound. Given the potential of telemedicine to address some of the crisis in medical care in this country including the minority health gap, the lack of insurance for millions of people, and the skyrocketing costs of health care, who will pay for this training? The women with whom we worked aimed to lower their risk factors for heart disease – one of the most impacting health challenges they face – yet their access to a vast amount of information about heart health as well as online networks to support their wellness goals was shaped by their ICT skills and experiences. Our work showed that poor women have the potential to gain both health and ICT self-efficacies at the same time, but not without significant training (Gilbert and Masucci et al. 2008; Masucci et al. 2006).

Our work also showed that women will travel to use ICTs in order to gain the benefits of improved communications with their health care providers, but in doing so they are increasing the complexity of already heavy transportation burdens in terms of time, cost and distance. This is particularly ironic since the experience of those having the most access to ICTs as compared to the least is that they eliminate or greatly reduce their need to travel when they use these technologies for similar purposes. And, in seeking intermediaries and members of their social networks to assist with using ICTs to improve communications as well as to increase the health data upon which their health care providers can provide therapeutic assistance, the poor women with whom we worked compromised their privacy with respect to their personal health information.

One of the most striking implications of our work was the extent to which the basic, ICT, and health literacy challenges faced by poor women were also geographic. In order to use ICTs, women navigated a complex geographic matrix of local technology centers, transportation systems to access technology-training programs, as well as local health services agencies and support systems. In order to meet these needs, we implemented a system that both increased access to facilities of our associated centers and community partners, training women in their homes, and using ICTs as well as phone communications to improve remote access to health care services, information and consultations. To accomplish this effectively, we needed to both understand the ways in which the women navigated their individual worlds and how those navigations were shaped by and

influenced their strategies for using ICTs to improve their health. At the programmatic level, it meant that we adapted our approaches to better synchronize both in time and space with the strategies women used.

Through coupling GIS with ICTs, we gained a better grasp of how space influenced their ability to leverage their involvement in one knowledge acquisition strategy to support the improvement of another. Once again, place-based social networks played an important role in how poor women accessed ICTs and shaped the type of information they received. How women use this information to make health related decisions must be taken into account in health promotion programs. A related question is whether or not ICT access ultimately impacts the kinds of social networks women use to improve associated basic and health literacies.

Our work examining women's navigation of basic, health, and technology literacies illustrates the growing importance and impacts of ICTs on their daily lives. This means that we need to better understand the ways in which women, particularly those from marginalized groups, view ICT and how GIS fits within those views. We have demonstrated that by broadening the conceptualization of accessibility around ICT we can better depict the geographic dimensions of technology in everyday life (Gilbert and Masucci 2004, 2005 b).

While a more traditional approach of mapping the location of community Internet access points in relation to the geographic

distribution of socio-economic, transportation, and health data is important for service delivery, it does not tell us very much about how people traverse the digital divide. For that we needed to develop our framework for analyzing how women perceive ICT in relation to the geographies of their daily lives—and this depends on their race, class, and disability experiences.

7

BRIDGING THE DIGITAL DIVIDE?

A conventional discussion of the digital divide links together demographic characteristics such as race, income, age, and gender to differences in levels of access to computers and the internet. The assumption is that lack of access to computer technology equates with lack of access to important information flows, and that providing access to computers and the Internet will solve the problem. In our work we argue this traditional conceptualization of the digital divide is inadequate to depict the complex processes that create, maintain and ultimately challenge digital divides.

There is an urgent need to reconceptualize the digital divide.[19] This is due in part to the dynamic and rapid growth in the use of ICTs, and also because of the concerns that this growth could exacerbate material and political inequalities in the U.S. Our perspective is

[19] Gilbert (2010) theorizes the intersection between digital and urban inequalities based on feminist and critical race theory, critical geography, and a Bourdieusian conceptualization of technical capital.

informed by the experiences of working with poor women to develop ICT skills and by the growing discourse on the digital divide in the fields of geography, education, and sociology.

Our feminist approach challenges the conventional understanding of the digital divide, which is often framed in terms of demographic characteristics rather than relations of power and inequality and the related assumption that access to technology is both the problem and the solution. Our work with poor women in Philadelphia extends this framing by advancing the implicit notion that the digital divide equates to information poverty that is closely connected to and reinforces the social, economic, and political marginalization faced by poor women (Gilbert and Masucci 2005 b).

We have sought to address a significant gap in the discourse on the digital divide by considering how poor women use information, technology, and their social networks to navigate the educational, health, and economic resources they need for the survival of themselves and their families. We aim to develop a new conceptualization of the digital divide by examining the multiplicity of women's experiences of ICTs in the context of routine matters of daily life such as taking care of their families, seeking employment and educational opportunities, engaging with social service institutions, seeking health care, and interacting with their social networks. This new conceptualization recognizes both women's agency in relation to ICTs and the ways in which their experiences are situated within constellations of unequal power relations in particular places.

Two Myths about the Digital Divide

Our social action research program with marginalized women in communities located near Temple University in North Philadelphia provides a constant reminder of the vast differences in material resources, including ICTs, they experience as compared with us. This painfully obvious juxtaposition, along with our experiences working with many women involved in our research collaborations, exposes two common misconceptions about the digital divide. There is a misconception that the digital divide has been overcome or at least greatly reduced. Furthermore, there is a mistaken belief that the "have nots" hold the same frameworks for ICT use as each other and the "haves," and that if the "have nots" can just overcome their individual deficiencies in access and skills, any remaining inequalities will disappear. These myths serve to obscure the ways in which urban and digital inequalities are mutually constituted and therefore cannot be overcome solely by providing access to computers, the Internet, or even training to individuals who are seen as deficient or lacking rather than embedded within relations of power and inequality.

As we discussed in our introductory chapter, the argument that the digital divide has been overcome or at least greatly reduced is exaggerated. Despite the rapid advances in ICTs, particularly the widespread availability of wireless Internet service and mobile devices (such as mobile phones, smart phones, GPS units and IPads) that has occurred due to advances in microprocessors and fiber optics, declines in costs for the production of devices and declines in cost for the delivery of wireless ICT services, most of the women with whom we

worked are still challenged by the actual technology. They continue to experience a lack of access to computers and the Internet; and when they do gain access they continue to face deficiencies in speed and reliability. Furthermore, as we have shown earlier in the case of the Harrison Plaza Computer Technology Center, the solutions in the public domain have never been permanent and have continued to rely on a corporate model for Internet service provision.

The myth that the people stranded on the "have nots" side of the digital divide are undifferentiated, lacking in agency, and have similar frameworks for ICT use as the "haves" is also counter to our experiences. Despite the fact that the women with whom we have collaborated seem similarly situated in both social and geographic space, they had very different frameworks for ICT use from each other. Their frameworks for ICT use were not necessarily what the traditional policy perspective would lead one to expect; rather they highlighted both the embeddedness of ICTs in the daily lives of marginalized people as well as their agency vis-à-vis ICTs.

An Integrated Approach to Community-University Partnerships

An important aspect of our research has been the process we have engaged in and the integrated research, education and community engagement model that we have worked to develop. We recognize that ours is not the only model underway: parallel models exist for other participants. Because of this, one of the most important aspects of our work has been to collaborate with partners to identify goals and perspectives that we share in common as a means of

sustaining partnerships over the medium and long-terms. Our efforts began as ones where student-learning experiences were prioritized due to our primary roles as faculty members and scholars. However, our work transitioned from course-by-course connections into a critical pedagogical platform for multiple levels of engagement and social action in which community and student learning, co-produced knowledge and data, and improving community organizational capacities with respect to ICTs were central to the collaborations we engaged (Gilbert and Masucci 2004, 2008). This transition resulted in the establishment of long-term, sustained community connections that formed the basis of mutually advantageous and co-developed research activities.

Yet we faced a number of challenges to accomplish this. Primary among these was to overcome the concerns our partners had based on their prior university-community collaborations as well as their experiences working with faculty members. Many had experienced a lack of reciprocity in terms of setting goals and the mechanisms to achieve them, resulting in a failure to achieve program sustainability over the long-term. We had to establish our credibility not only in terms of expertise related to ICTs but also as representatives of our institution and profession. In addition to this concern, we also needed to discern from among the various community members with whom we interacted which pathways would ensure that student experiences, participant involvement, and ultimately partnership arrangements met basic guidelines for safety, privacy, and legality due to our institutional affiliation. These concerns meant that while working with poor women

in extremely low-resource settings many safeguards for students in particular needed to be established in order to foster long-term commitments on the part of all collaborators.

We were constantly negotiating a balance of the benefits of placing our collaboration within the geographic context of the community with the benefits that many community participants articulated in wanting programs and activities to be located on Temple University's main campus. This classic dilemma of where to situate time, infrastructure, and material investments is particularly poignant because of the extremely close proximity of Temple University to the locations where we worked. In all three cases, not only do the community organizational settings reside within blocks of campus, but also there are community organizational members who work and study at Temple University.

Our approach was to find mechanisms within Temple University's institutional administrative structure that could address some of these barriers. For instance, we worked closely with Campus Safety to provide transportation for both Temple University students and community members to participate in programs in both community and campus settings. We worked to leverage campus-wide student funding programs to be able to provide them with wages that would sustain their involvement with the community through service. By doing this, we were able to leverage grant funding to provide stipends and wages for community members that would otherwise have been allocated to students in order for their involvement to be sustained. Through integrating aspects of our partnerships within our formal

course offerings at Temple University, we were able to use campus facilities to provide training for community members in state-of-the-art technology facilities. Community collaborators reciprocated by opening their spaces for parallel training and organizing activities where students would be able to work and collaborate on community research projects.

Despite the persistent large differences in resources between the university and the community partners with which we worked, the gaps in ICT use and development may have been even larger than they are currently had we not engaged in these programs. Moreover, our knowledge of perspectives on ICT use would be far less nuanced and reflective of a multiplicity of perspectives had we failed to work with community partners. Community partners in turn, gained access to an understanding of how ICTs are evolving and its deep integration within the delivery of education, health and services that are advancing both within the university and other institutions. These insights were particularly important for helping our partners to navigate where to place extremely limited commitments of time and resources as they embarked to support their respective communities.

We suggest that universities must do more to address difficult and complex questions about the impacts of partnerships they engage with communities because of the enormous resource disparities between the various partners. Who gains and who loses power through associating in university-community collaborations? What benefits are realized at the community level and how are these measured? How do the power dynamics between collaborators in

universities and communities relate to defining mutual outcomes and benefits as well as shared burdens and costs?

Reconceptualizing the ICT Policy Framework

By reconceptualizing the digital divide from the perspective of some of the most marginalized people in the U.S., we do not intend to suggest that we should eliminate traditional approaches for meeting community information and communication technology needs such as community technology centers, low and no-cost computers, and access to training programs. Rather, we contend that a reconceptualized policy framework that incorporates more elements and reflects the perspectives of marginalized people is required. Below we lay out these elements, which are based upon our research.

Place-based Social Networks

Our work with community partners in North Philadelphia emphasizes that poor women rely heavily on place-based social networks to access ICT resources. Our work has shown that they do this by connecting their ICT use to other endeavors that are grounded in the routines and social contacts of their daily lives. Because of this, we have found that many women: (a) couple ICT use with accessing other services such as education and health care, (b) learn by proxy through the gains in technology knowledge of family members and social contacts, and (c) deliberate carefully about when and how to invest in the acquisition of skills, equipment, and experiences with ICTs. The types and locations of these networks matter greatly in connection with their ability to gain access to and use ICTs for

empowering objectives (Gilbert and Masucci 2005 b, 2006). This reinforces the findings of earlier scholars related to poor women's decision-making more generally (Gilbert 1998; Lenhart and Horrigan 2003; Peake 1997).

We also found that poor women rely on place-based networks to assess and determine what matters about ICTs in their daily lives (Gilbert and Masucci 2006, Gilbert and Masucci et al. 2008). Our work has shown that this is crucial to understanding their decision-making and the ways in which digital divide barriers can be overcome.

Finally, we have found that the time, distance, and economic constraints faced by poor women dramatically shape their perspectives on how ICTs connect with their daily lives. The women with whom we worked were highly efficient at integrating ICTs within their overall optimization strategies for meeting their intertwined needs. KWRU members connected ICT use and access to national and international organizational efforts, both to bring people together as well as to use opportunities when people were together to advance ICT knowledge. Women involved in TANF transitions engaged the Harrison Plaza CTC because it was geographically nearby to connect their children with opportunities to use ICTs; and the women gained awareness, exposure, and skills by proxy because of their children's ability to access the center. Women involved in the WHH program shared insights about how they gained home, work, and community access to ICTs because of the importance they placed on being able to expand their knowledge of health information as well as improve communications with health care providers by using ICTs (Gilbert and

Masucci et al. 2008; Guigar 2007).

The Shifting Landscape of Access

Our work with women accessing a telemedicine system illustrated how important the landscapes of ICT access are for poor women. We documented how and why a number of poor women constructed their time and space movements to gain access. We highlighted a number of women's specific approaches to illustrate these processes, finding that even with just a few hours of access, lack of privacy using computers in home settings, little exposure to ICTs at work, heavy reliance on friends and trainers to assist with using specific computer applications, and a narrow view of the specific benefits of using ICTs, women still overwhelmingly wanted to gain exposure and skills (Gilbert and Masucci et al. 2008).

By understanding these experiences, we can better conceptualize the barriers that exist. If a woman prefers to gain access to the Internet in settings that provide technical assistance rather than at home, merely owning a computer does not constitute overcoming the digital divide, and having access to technical and educational support is key to redressing other ICT disparities. We suggest that paying close attention to how women address access issues is an essential element of their ability to gain technology literacy, which we contend is the foundation for overcoming digital divide barriers. Achieving technology literacy provides the basis for the self-efficacy skills needed to assess the benefits of particular technology use settings.

Differentiation of Poor People

While the three groups of women with whom we worked represent communities of women who on the surface seem to share many similarities in terms of their social and economic circumstances, they sometimes have strongly contrasting views about the role of information and ICTs as it applies to the challenges of their daily lives. Our research shows that undifferentiated analyses of poor women can result in disempowering outcomes if we fail to understand the complex and varied frameworks they employ in accessing and using information resources.

Our collaborations with these groups of women provided us with a detailed, contextual basis for examining the implications of the digital divide in terms of both its impacts on different groups of women and the policy directions that shape their experiences. We have found that what different communities of women think is important often differs from what we might advocate on their behalf or what we would find useful for research in other contexts.

Training and Resources Matter

Our work shows that training matters, perhaps more than technology, in shaping use, adoption, successes and self-efficacy. Moreover, self-efficacy is a better measure of new directions in ICT use than other factors (such as market innovations). It is abundantly clear that policymakers cannot address the digital divide without addressing other inequalities. To this end, we contend that an integrated service approach coupling ICT training policies with other services is a more

efficient and successful way of supporting those goals.

We have shown that projects meant to overcome the digital divide should do so from a better understanding of how the lack of basic computer infrastructure shapes the perspectives of communities on their overall ICT needs. In all three of our partnerships the need for ICT infrastructure was strongly connected to the need for community space more generally. Purchasing or delivering computers necessitated thinking carefully about how space in homes, community centers, classrooms, offices, and labs would be repurposed, maintained, and accessed to meet the larger ICT use goals that were projected. The ripple effect of introducing computers and Internet access did not end with the need to reallocate space, but continued to impact information use in multiple ways. These included impacts on the management and dissemination of information; tailoring information to specific problem contexts at multiple scales from the individual to the community; and connecting information to decision-making and operational strategies.

Key Questions in Addressing the Digital Divide

But ultimately, in the current context, our work shows that the digital divide cannot be solved if we continue to frame it as inequality in technology access. We have found that context is always important due to scale and capital considerations (i.e. companies and state by definition have more resources to shape technology context than do individuals). This suggests a need to understand where people are on the technology grid as a basis for training and programs as opposed to a normalized notion of technology haves or have nots. All are "have

nots" and all are "haves" – but in different ways, contexts, scales, adaptations, innovations.

While it is important that we as a society invest in strategies that will improve access to computers and the Internet such as investing in community technology centers, donating computers to community organizations, providing training programs for supporting workforce development and creating publicly accessible information resources, it is clearly insufficient to bridge digital disparities. These approaches have not fundamentally altered the landscape of empowerment among marginalized groups nor have they democratized information resources. We suggest that by learning what strategies are being employed successfully, both at individual and collective scales, we can gain a better understanding of how ICTs can be a part of improving quality of life.

We contend that a reconceptualized policy framework for addressing ICTs that reflects the perspectives of marginalized populations should consider these elements:

- a discussion of who has the right to decide what information should be made available in the public domain;
- a discussion about the relationship between democratizing information and civic engagement;
- an evaluation of the efficacy of public policies that intertwine technological and basic literacies as a prerequisite to accessing health, education, jobs and decision-making processes; and

- an evaluation of how technology access is shaped by social policies in order to assess how effective and progressive ICT policies should be intertwined with progressive social policies.

New institutional arrangements must take seriously the agency and experiences of marginalized populations. Using the example of our own institutional context, the university, we have pointed to directions that new institutional arrangements should take. Our social action research projects necessitated shifting university accountability from academic and research standards to accommodate community experiences and outcomes. The result was the development of a model of integrated research, critical pedagogy and community engagement that is evaluated based on the criteria of the sustainability of partnerships and empowerment of all participants—faculty, students, and community members. While these competing goals can be contradictory and fraught with tension, and we do not suggest that we have mitigated the unequal relationship between the university and community, we believe that we have been successful at beginning to rethink and revision university and community partnerships to promote social change.

The reconceptualized policy framework we present here is intended to be suggestive rather than comprehensive. Our main goal is to reaffirm that understanding the experiences and perspectives of diverse groups of users is crucial to policy development. While this raises the larger issue of the mechanisms that allow for planning and policy arenas to be democratized, our discussion focuses more specifically on ICTs. Three issues frame our discussion: Who makes

the decisions about what information is in the public domain? What is the relationship between democratizing information and civic engagement? How are technological and basic literacies a prerequisite to accessing other resources?

Who Makes the Decisions about what Information is in the Public Domain?

Each of our case studies demonstrates that despite being situated similarly in geographic and social space, the women had differing frameworks for, and values related to, ICTs. They also differed in important ways in terms of their ability to shape the information that is part of the commons. Our research provides concrete evidence of why it is so problematic that there is an extremely narrow group of people participating in discussions around the Internet and its functions. While it is common for people fighting for net neutrality and the democratization of information to point to the dangers of corporate control of the debate (and rightfully so), it is far less common for those representing public interests to recognize that their own ranks are comprised of a relatively small group of highly empowered technology users and producers.

The women involved with the Kensington Welfare Rights Union saw access to ICTs from the framework of challenging the public debate about poverty and welfare policy as well as an organizing tool to build a poor people's social movement. In one sense, their framework is most different from the "mainstream" goals of the traditional policy framework. They did not prioritize ICTs as a way to

access job training or services or even to participate in electoral politics. They refused to conceptualize themselves as neoliberal citizens needing to overcome personal deficits that were causing their poverty and marginalization. Rather, they conceptualized their experiences in the context of the intersection of institutionalized racism, institutionalized sexism and post-industrial capitalism. Their response was to engage in survival strategies that have been criminalized by the state, build a social movement to connect with other economically marginalized people, and to jump scales to reframe the poverty debates around economic human rights drawing upon international institutions (Gilbert 2001). In another sense, however, their frameworks for ICTs were more "mainstream" in that they perceived themselves as having agency and empowerment in relation to ICTs more analogous to the experiences of some of the most highly empowered and technically proficient ICT users and producers.

While their organizational goals were not met because they were unable to fundamentally restructure our society in the revolutionary way they intended, within their own frameworks and through their ICT use, they experienced significant achievements in terms of breaking their social and spatial isolation, bringing visibility to the experiences of poor and marginalized people, and reframing the public debate about poverty and welfare reform.

Our work with all three groups illustrated that empowerment is defined within the context of women's experiences, which are dramatically shaped by their place, social, and economic contexts. Our work with KWRU exemplifies that these goals often differ significantly

from mainstream notions of empowerment. For example, we disagreed with KWRU's use of individual testimonials related to economic human rights. KWRU made these public despite our strong disagreement with this strategy. Their reason for doing this was to remove the isolation that poor people often experience by drawing attention to the many people who are experiencing economic human rights violations due to poverty. Their willingness to expose information about daily struggles for survival was also aimed at helping poor people to connect with each other on their own terms. Because of our primary roles as researchers and faculty members concerned with research ethics, we viewed such practices as a violation of privacy of the individuals that could lead to harmful outcomes for these individuals, such as prosecution or loss of benefits.

The women involved with the Harrison Plaza Tenant's Association had a more "mainstream" framework for ICT access because they did view ICTs as a way to access information and services that would allow them to improve their skills and opportunities as individuals operating with "deficits" within a free market economy. Yet their experiences demonstrate how the mainstream policy framework is profoundly limited precisely because it is disconnected from the ways in which structural inequalities shape these women's daily lives.

While HPTA's frameworks for ICTs are more mainstream than KWRU's because HPTA did not conceptualize ICTs in terms of challenging unequal power relations, many of the Harrison Plaza residents did have broader analyses of racism, sexism, and class inequalities. In fact their frameworks for ICTs were situated within an

analysis of power dynamics although this manifested itself very differently than in KWRU. HPTA's view of the harmful effects of sharing personal information starkly contrasted with the views of KWRU members. The HPTA perspective was that we had to be extremely cautious to avoid creating conditions that would result in the use of ICTs to monitor residents in ways that might affect their ability to participate in the social welfare system. The organization was mindful of the constant encroachment of policy on the privacy of poor women, and while it wanted to bring ICTs to the community to support women residents in Harrison Plaza to gain access to a wider array of resources for jobs and job training, it did not want to compromise their privacy in order to do so.

A further example of how the HPTA's frameworks for ICTs differed from mainstream policy frameworks related to its conceptualization of the CTC in relation to broader community goals. The HPTA saw the CTC as part of a broader community center with multiple goals beyond training women to "get off welfare." Government officials from HUD and PHA who conceived of the CTC solely in terms of preparing women for employment did not support this broader set of priorities.

The women in the WHH program were analogous to the women at HPTA in that their ICT frameworks could fit easily within the assumptions of conventional accounts of ICT access and use. The women that we discussed in Chapter 6 valued ICTs in relation to health care particularly in terms of providing better access to physicians, the ability to find information regarding their own health on

the Internet, and communicating with other people in similar situations for support. Once again, however, their experiences suggest the mainstream policy framework is profoundly limited precisely because it is disconnected from the ways in which structural inequalities shape their daily lives.

One of the most difficult problems for the women involved was that they had difficulties understanding the information that they gained access to via the Internet because of a lack of basic literacy. This is part of the reason the model of giving people access to a computer and basic technology training and then stepping out of the process does not work. Our work demonstrates that a better approach is for health care trainers to integrate the computer, Internet, and the dissemination of health care information.

This is an indicator of the huge mismatch between the information and technology resources that are available in the public domain and what it is that people want to be available. Health information is useful if you have a constellation of education, reading skills, knowledge about one's own health, specialized health information, and self-efficacy. Giving women access to computers, the Internet, basic technology training, and the link to the MAYO clinic does not mean that they can make use of the excellent information provided on the site.

While all of the women with whom we have worked have differing frameworks for ICT use from each other as well as from conventional expectations, the women involved in health care do share

some common experiences with the women at KWRU and HPTA, particularly in terms who has the right to make decisions about what information should be publicly available. Their experiences raise the issue of how class inequalities shape people's experiences of privacy vis-à-vis communications. For many economically marginalized women, the use of the technology is happening in non-private environments. They often experience lack of privacy at work (where if they have access to the Internet they do not have private offices), in libraries or CTCs, or even at home where if there is a computer there is likely to be one that is shared with children and/or spouses. This is a very real barrier to access to information that reflects the underlying power dynamics at home, work, and society at large.

Another issue affecting many of the women is the increasing differences between poor and middle class users in that increasingly the typical middle class user is generating as well as consuming content. Because poor women may not know how to create content, there is a lack of transparency about how it works and a resulting lack of self-efficacy.

Many women expressed an interest in using the Internet, for example, to attain public services, go shopping and pay bills. They felt that this could help them overcome the time, space, and cost constraints they faced in their daily lives. For example, the costs of using public transportation for themselves and their children in order to go shopping, pay bills or attain services is disproportionately high given their economic circumstances. Yet the fact that they did not have credit cards, employment, bank accounts or even addresses

made this seemingly mainstream use of ICTs to minimize distance costs through online purchases impossible.

What is the Relationship between Democratizing Information and Civic Engagement?

The mainstream policy discussions about ICTs as they relate democracy and civic engagement are focused on e-government and political participation (for review of debates see: Bimber 2003; Mossberger et al. 2003; Mossberger et al. 2007). The belief is that ICTs have the potential to change people's engagement with government through the delivery of information and services digitally; voting digitally; and increasing people's political participation through online forums, information exchange, and contact between voters and candidates. Scholars have shown that the digital divide may exacerbate class inequalities as they intersect with e-democracy because of lack of access to the computers and the Internet and a lack of technology skills (Ibid). Yet the policy thrust is to empower poor people through better access to information and services either directly through government or indirectly through non-profits, and increasing civic participation by making it easier to vote. In this overall context, the increasing pressure for the poor to utilize ICTs is predicated in part on decreasing resources and the changing nature of service provision. From the perspective of service delivery, costs and benefits are constantly calculated about how improving information accessibility might decrease service (such as health, education, and welfare) gaps for minority populations and women.

Our research suggests that the mainstream policy directions related to democracy and civic participation will look very different from the ICT frameworks of the women with whom we have collaborated. For example, the experiences of the women in KWRU first and foremost call into question the limited conceptualization of civic engagement within mainstream policy approaches. KWRU was involved in a mode of civic engagement not intended or recognized by the mainstream policy approach. From the perspective of KWRU, e-government is seen as part of a broader neoliberal agenda of offloading the state's responsibilities onto non-profits, religious organizations, and individuals.

In the case of HPTA, the women were expected to utilize e-government resources in much of their daily life. A few examples of the government institutions with which they regularly interact include the Philadelphia Housing Authority; the School District of Philadelphia; and the Commonwealth of Pennsylvania's and the City of Philadelphia's employment, childcare, and TANF services. Yet there were significant barriers beyond access to computers, Internet, and basic training. It calls into question ICTs as a panacea and suggests that state resources may be better used in more traditional ways to increase the empowerment of poor women.

For example, our initial plans for the CTC at Harrison Plaza called for the development of a "traditional" GIS that would provide users with information on the location of employment and training services available for women on the welfare-to-work transition. We learned that women's daily activities, particularly as they were transitioning from

welfare-to-work, were far too constrained and affected by the whims of the welfare service organizations to the point that they simply did not have the adequate time to acquire even the most basic computer and Internet skills needed to make good use of a GIS. So, we resorted to printing easy-to-read-and-use instructions with links to websites and addresses of local resources that could be accessed if and when women had time to acquire the basic skills. In terms of technical knowledge, we found that it was more efficient to adjust the ICT resources to the level of the users than to expect users to rise to the level of the GIS.

In the case of the WHH program, women were pursuing the use of ICTs to gain better access to health care through improving their knowledge of health information and increasing communications with providers. Their pursuit of skills to perform these tasks meant they took on increased complexity in their navigation of space and social networks, since they needed to access training resources in locations outside of their homes. It also meant that they gave up privacy with respect to their health in order to access the training support they needed.

Their acceptance of these tradeoffs illustrates how basic needs such as health care can be powerful agents for shaping ICT use. Even as critical geographers point to the some of the negative consequences of the increased prevalence of ICTs as mediators of our daily lives, the women with whom we worked faced other vulnerabilities that far outweighed their ultimate concerns related to using ICTs per se.

How do Technological and Basic Literacies Interface as a Prerequisite to accessing other Resources?

In each of our three case studies, the major expense was not in the cost to establish the ICT infrastructure needed by the organization, but rather in the labor for training and managing information resources developed as part of the projects and centers. In each case, the community collaborators did not have the resources to initiate or support the set up of the infrastructure or the training of individuals. Rather, we were able to leverage funded research and course instruction to support setting up the infrastructure and training the people with whom we had collaborations.

The need for the groups we worked with to collaborate with universities and other institutions in order to gain access to basic ICT infrastructure and training resources contrasts sharply with the societal narrative suggesting that the digital divide no longer exists. This conundrum obscures a fundamental element in the discussion of the digital divide, which is the need for a more basic consideration of how gaining technological literacy impacts poor people's ability to access resources. Within this discussion, the costs and benefits of improving information accessibility towards the goals of decreasing health, education, economic gaps for minority populations and women must be thoroughly evaluated. Rarely are these concerns incorporated into ICT planning.

How do Technological Access and Social Policies Intersect as a Prerequisite to Developing Progressive Policies?

We have argued throughout the case studies that welfare reform, specifically the elimination of the federal guarantee of cash assistance to poor women with children and the creation of Temporary Assistance to Needy Families in 1996 profoundly shaped women's access to and use of ICTs as well as their frameworks for ICTs. In Chapter 4 we explored how KWRU's strategies were related to the organizational goals of reframing the poverty debates and building a social movement to end poverty. We also showed how the experience of poverty and punitive social welfare policy led to these women having little access to ICTs.

We pointed out in Chapter 5 that many women at Harrison Plaza saw access to ICTs and training as potentially helpful to find the jobs newly required by Pennsylvania's TANF programs. Yet the time and space constraints that women experienced due to welfare reform meant that the main users of the CTC became their children as well as elderly women, pointing to the fundamental contradictions in welfare-to-work policies. We also saw that policies related to public housing and education shaped women's ICT access and use as well as their frameworks for ICTs.

The case studies of KWRU and Harrison Plaza demonstrated that TANF was directly impacting women's accessing of other services, including education, employment and health care services. In Chapter 6 we examine how women's access to and use of ICTs as well as their

ICT frameworks are shaped by health care policy. Clearly the inequities in health services and health outcomes are directly tied to economic and political marginalization more broadly. Yet we demonstrated that the women gained self-efficacy in relation to ICTs and health information. This was due to the women being interested in health as related to themselves and their families and because there were significant resources placed on training for basic, technological and health literacies. As we suggested earlier, given the potential for telemedicine to address some of the outcomes of our broken medical system including the minority health gap, who will pay for this training?

What we have learned from our case studies is that poor women's access to and use of ICTs, as well as their ICT frameworks, are profoundly shaped by social policies including those related to welfare, education, and health care. If we are to address digital inequalities we need to examine how ICT policy and social policy can be re-imagined from the perspectives of poor women, and in an integrative and progressive manner.

Our Model

Our approach reconceptualizes ICT access to one that focuses on the interconnections among four elements: (a) information delivery approaches (how information is shared, disseminated and accessed through the use of e-communication technologies), (b) technology use contexts (what are the specific settings in which technology is accessed), (c) social networks (what is the role of social networks in

shaping access to and use of ICTs), and (d) the social policies and institutional mechanisms regulating technology access (specifically targeted to ICT use as well as more generally) (Gilbert and Masucci et al. 2008).

We developed this model to illustrate the importance of recognizing that mainstream frameworks for ICT use are not necessarily the same for groups who are economically marginalized when developing our program of support for women involved in accessing telemedicine systems using ICTs at home and in the community (Gilbert and Masucci et al. 2008). Not only is the agency of the "have nots" missing, but our research shows that the "have nots" use multiple frameworks for ICT that are poorly understood in the academic literature. Developing better policy requires examining the manner in which women's daily live are embedded in particular places and are shaped by wider processes of power and inequality such as institutionalized racism and sexism. For example, given that many people gain access to computers and the Internet through their employment, how does occupational segregation by sex and race affect women's access to ICTs?

Our model also anticipates the implications of different interrelated facets of technology access to consider the issues underlying how people interface with computer technology. The model represents an intersection between social science and information technology constructs that expands the notion of access to include information access, technology use contexts, social networks, and institutional regulation processes in interrelated ways. We argue that

these specific facets of technology access provide a better characterization of how poor people attain Internet information resources and use them in decision-making.

Learning what strategies marginalized populations employ successfully, both at the individual and collective scales, gives a better understanding of how ICTs can be a part of improving quality of life. In our case studies, the strategies used included sharing computers with place-based social networks, particularly family members, accessing educational programs at local community centers and libraries, and coupling ICT training with access to needed services. This indicates the importance of assessing community information needs and resources in any program that seeks to address the digital divide.

We suggest that our alternative model of the digital divide provides a more nuanced analysis of nature, extent, and causes of digital inequalities. It reveals how highly localized context ICT resources are, how place-based social networks are mobilized, and how the information and resources embedded in social networks are shaped by the extreme geographic and racial segregation experienced by all of the women participating in the study.

Increasingly in our society, technological and basic literacies are a prerequisite to accessing health, education, jobs, and decision-making processes. This technological explosion in our lives is often difficult enough for those who are middle class and well educated. Unless we actively take steps to overcome the digital divide, current technological changes and those sure to come, threaten to broaden

the gap between the “haves” and “have-nots.”

In reviewing these case studies, we have sought to spotlight the agency of poor women in being able to critically examine how ICTs connect with their lives. We have shown how three distinct groups of women exemplify a wide diversity of perspectives about how ICTs and their circumstances are interrelated. The knowledge that we have co-produced with these women, as well as the strategies we have employed to share their stories or alternatively withhold them illustrates the degree to which our differential empowerment has shaped this research. Yet, we also demonstrate why engaging these problems is of critical importance for us as geographers, feminist theorists, and digital scholars aiming to both document the challenges women are facing on the ground while simultaneously working alongside of women to improve the quality of their daily lives through social action strategies. Finally, we have sought to highlight why universities need to reexamine the approaches they take for engaging with community collaborators.

Our review of these cases serves to highlight that even within a relatively narrow range of mutual interests that we were able to agree on with our collaborators, it was possible to impact multiple constituencies in positive ways. And, as scholars, we have illustrated that more attention is needed to breaking down the walls between universities and communities as an example of the new institutional arrangements necessary to empower poor people in their daily lives and establish a more inclusive basis for policy making in the digital society.

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Information and Communication Technology Geographies

Strategies for Bridging the Digital Divide

Melissa R. Gilbert
Michele Masucci

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A growing number of academic experts, media outlets, and public figures currently suggest that the digital divide as it was conceptualized a decade ago – a gap in access to information and communication technologies (ICTs) between the "haves" and "have nots" – is no longer a significant social problem in the United States. At the same time, the increase in Internet users and advances in cloud computing are invigorating the quest for public policy makers to leverage the Internet as well as other ICTs as platforms for education, civic engagement, delivering and accessing services, hosting commercial activities, providing and accessing entertainment, participating in social networks, and supporting electronic communications of all sorts.

ICT Geographies draws upon 14 years of social action research with poor women in Philadelphia to argue that it is premature to declare the demise of the digital divide. What makes this book unique is that the digital divide is examined from the vantage point of some of the most marginalized people in the U.S. Most of the discussions of the potential for ICTs to catalyze societal benefits is situated within groups of technologically privileged and literate people and focused on the potential for ICTs as a pathway for achieving greater social and economic participation among the poor.

These discussions assume that the framework for ICT and empowerment is the same for mainstream and marginalized groups and therefore the problem of and solution to the digital divide is one of merely increasing access to ICTs and related information.

Drawing on case studies of women organizing for economic justice, seeking to attain employment, and trying to improve their health, the book argues that an understanding of poor women's frameworks for the use of information and communication technologies necessitates rethinking the policies that seek to address the digital divide. Specifically, we contend that in order to better bridge this divide, policy concerns need to transcend a limited conceptualization based on access to computers and the Internet towards an examination of how ICTs may exacerbate and/or mitigate social, economic, and political disparities in the United States. We further believe that this shift in policy concerns necessitates new institutional arrangements that empower poor people within relevant institutions and decision-making bodies.

Melissa R. Gilbert and Michele Masucci are Associate Professors in the Department of Geography and Urban Studies at Temple University where they have engaged in an integrated program of social action research, critical pedagogy, and university-community partnerships to effect social change both inside and outside the academy.

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