

## Research Article

# The Implications of Including Women's Daily Lives in a Feminist GIScience

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### **Abstract**

In this paper, we argue that a feminist geographical analysis that examines women as active agents in their daily lives, pays attention to the multiplicity of women's experiences in relational space, and values knowledge for transformative purposes, provides insights as to how GIScience might develop in the near future. We draw upon our research with two different community organizations in North Philadelphia to show how a feminist geographical analysis can shape the conceptualization of a community GIS. We argue that collaborative work with community organizations based on "a view from below" necessitates alternative institutional arrangements while providing rich data to better understand the intersection of daily life and information and communication technologies (ICT) as experienced, in the particular case of our work, by poor women. Our research illustrates that understanding ICT frameworks from the perspective of women and in the context of their daily lives has important implications for GIScience.

### **1 Introduction**

One of the most important reasons for using a feminist geographical analysis to examine inequality as experienced by women is to gain a deeper understanding of the ways in which women are active agents in their daily lives through actions that ultimately may bring changes to patriarchal society. Because women's subjectivities are constituted not only by gender, but also by other relations of power and inequality, an analysis of women's daily lives requires attention to the multiplicity of their experiences as constituted in relational space. In this paper, we seek to provide insights as to how GIScience might develop as it incorporates more fully into its analytical framework a closer examination of women's daily experiences.

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We draw on our own collaborative work with two community organizations in North Philadelphia to show how a feminist geographical approach can shape the development of a GISystem. Our experiences with these two organizations illustrate that in the design of a GISystem, communities tend to emphasize aspects quite different from those typically expected by GIS practitioners in formal settings. Among these we have found that the geovisualization of information in ways that are relevant to people's experiences may be more important to them than "geographic accuracy" and that for geographic information resources to be relevant, spatial analytical tools such as scale, need to be handled with flexibility. We suggest that taking "a view from below" approach in the creation of a community GISystem challenges formal notions as to how GIS resources are supposed to be gathered, organized, and managed. A community GISystem that is relevant and consistent with the aims and views set forth by a community may in fact bear little resemblance to a GISystem intended to support spatial analysis or planning activities in "formal" settings.

We also show that when GIS researchers and practitioners approach their work with community organizations from the perspective of collaborators rather than simply as specialists who have most of the answers because of their formal training, alternative institutional arrangements are necessitated. Moreover, we show that because of this approach rich data on the nexus between women's daily life and information and communication technologies (ICT) becomes available.

Finally, we discuss some of the implications of our collaborative work for future GIScience research. We argue that an understanding of women's ICT frameworks within the broader context of their everyday experiences indicates the need to pay more attention to the intertwined relationship between GIScience and ICT, particularly in terms of developing geovisualization technologies that can better represent people's experiences, from their perspective, as well as being more accessible so that all people can actually use them for transformative purposes.

## 2 Critical GIS and Feminist Geography

One of the main contributions of the publication of *Ground Truth* (Pickles 1995) has been the consolidation of several critical discourses that look at the relationship between GIS and society. For example, some researchers have concentrated on the specific characteristics of public-participation and community GISystems, paying attention to the possible social benefits and costs of geographic information technologies in the context of public, non-technical settings (e.g. Schroeder 1997a, b, 1999; Craig et al. 2002; Carver 2003; Drew 2003; Ghose and Elwood 2003; Seiber 2003). Other researchers have concentrated on feminist approaches in GIScience (Kwan 2002a, b, c; Schuurman and Pratt 2002; McLafferty 2002; Pavlovskaya 2002; Hanson 2002; Gilbert and Masucci 2004). Kwan's (2002b) suggestion that a critical analysis engage feminist theory within GIScience is particularly interesting. First, Kwan suggests that feminist geographers engage GIScience in our own terms and for our own political purposes by drawing upon broader feminist critiques of science which attempt to come up with alternatives to the objectifying ways of knowing proper of masculinist GIScience. Second, Kwan argues for the inclusion of the voices of women GIS practitioners in the academy as a basis to bring changes to the field of GIScience. The comparatively few women in the field has resulted in a masculinist culture that can be alienating or even hostile to women. Finally, Kwan

suggests that we pay attention to the value of reflexivity among feminist scholars engaging in GIScience. She argues that the feminist recognition of the importance of researcher-subject interactions has potential to advance the empowering effects of GIScience.

We suggest three interrelated areas that may help feminist geographers engage GIScience in ways consistent with feminist theory and praxis.

First, we suggest a focus on conceptualizing women *as active agents* in their daily lives. For example, how does the embeddedness of women's daily lives in particular places shape their technological frameworks? How do place-based social networks affect their access to ICT? How do the time and space constraints that many women experience attempting to meet their multiple roles of mothers, family providers, and employees, shape their use of ICTs? However, focusing on the subjectivity of women in their daily lives necessitates new ways of conceptualizing the use of geographic information technologies. For example, while Kwan (2002c, d) has significantly advanced GIS methods for feminist research through the creation of extremely clever algorithms, the conceptualization of space she uses is one of space as a container, where women remain objects of the researcher's analysis. To use Kwan's own engagement with feminist theory as developed in media studies, the women in Kwan's 3-D geovisualizations do not return the look.<sup>1</sup> What would a GIS that includes women as subjects who make decisions in their daily lives look like? How can we geovisualize their relationship to technology itself? How do they conceive technology? In sum, what happens when the subjects of a GIS must use information technologies in their daily lives as part of their survival strategies?

Our second area focuses on understanding the multiplicity of women's experiences. If we are to examine women as active agents in their daily lives, we have to understand that women's subjectivity is constituted not only by gender relations of power and inequality, but also by racism and class inequalities, which in turn shape how women access, use, and conceptualize information technologies. As feminist geographers, we have to pay attention to the ways in which subjectivities are constituted in relational space, that is, one where meaning and identity are constituted by social relations (Massey 1993, 1994).<sup>2</sup>

Finally, as McLafferty (2002) suggests, we believe that a concern with empowerment is central to a feminist GIS practice. Feminist research is part of a larger political project challenging unequal gender relations (and, by necessity, other relations of power and inequality). Feminist geographers have to be concerned with the multiple oppressions we face within and beyond the academy even as we critically engage these problems through our research. By focusing on women's subjectivity in our research, we can address head on issues of empowerment while uncovering the intersection of daily life and technology.

To summarize, we intend to contribute to the larger GIS and society discourse by taking into account the multiplicity of women's experiences as active agents in their daily lives as a basis for GIScience knowledge. In addition, we intend to provide insights on geographic questions for the purpose of supporting the advancement of women's empowerment.

### 3 A Feminist Informed Approach for Community GIS

#### 3.1 Community Collaborations

A significant part of our collaborative work has been with organizations serving and led by women in North Philadelphia. In this paper we refer specifically to our collaboration

with the Kensington Welfare Rights Union (KWRU), a grassroots organization of poor and homeless people, and Harrison Plaza Tenant's Association (HPTA), a public-housing, tenant advocacy group. Our collaboration with these organizations consists mostly in assistance with the development of community information resources, including geographic information. However, because state of the art information resources are computer-based, one of our main challenges has been to deal first and foremost with the digital divide challenges experienced today by many communities in the US as social inequality has come to include uneven access to computers and other ICT resources.

To address these communities' need for computers, software, Internet access, and computer literacy, we have collaborated in a series of activities from 1997 until the present. These activities include: (1) assessing each organization's technology capacity and identifying their ICT needs; (2) creating technology facilities to support ICT access and use; (3) designing curricula to provide basic technological literacy; (4) assisting in the planning process for the development of community information resources; and (5) developing easy-to-use interfaces and networks to facilitate access, use, and dissemination of community information resources. We have learned about each community's ICT needs through our active participation in the organizations alongside other community members and leaders. But along the way, we have also conducted interviews with key members of KWRU and organized focus groups with women at the Harrison Plaza community.

### *3.2 KWRU Collaboration*

The Kensington Welfare Rights Union (KWRU) was started by a multiracial group of poor women in April 1991, in Kensington, North Philadelphia – a neighborhood particularly impacted by deindustrialization (for a more detailed discussion of the history, goals, and strategies of KWRU, see Gilbert 2001). KWRU women were concerned at the time with the immediate effects of the welfare-program cuts conceptualized and implemented by the Clinton administration in the 1990s.<sup>3</sup> In time KWRU has become a multiracial organization serving poor and homeless women and men. Although most KWRU members are African-American women and Latinas, a significant small group of white women and men also make up the organization.<sup>4</sup> KWRU has an executive board, commonly referred to as the War Council, which makes long-term decisions and determines strategies. The War Council consists of approximately 10 people (women and men, and African-Americans, whites, and Latinos) and an executive director (a white woman). Funding to run the organization comes mostly from private donations. People from other economic strata – mostly professionals – collaborate with the organization through a group called the Underground Railroad Project. In addition to helping poor people meet their basic necessities for survival, KWRU actively engages in reframing public policy debates from the perspective of poor people and building a broad-based movement to end poverty. As such, KWRU participates in building “tent cities”, helping people to obtain housing and welfare benefits, and organizing public protests, lobbying with politicians and aid groups, and so forth.

At the time of our collaboration,<sup>5</sup> 1997 to 1998, KWRU had set forth as one of their main objectives to reframe the US public debate on poverty and welfare policy as a matter of economic human rights violations as defined by the Universal Declaration of Human Rights (United Nations 1948). KWRU had gathered testimonials in a

national poor people's economic rights campaign against poverty and welfare reform. The purpose for collecting and disseminating the testimonials was to use them as a tool for organizing poor people. KWRU also planned to use the testimonials in a legal action against the United States that would be presented to the United Nations. In particular, they were focusing on the right of every individual to dignified work paid at fair wages, housing, health care, and education. The testimonials told of the impact of poverty and welfare policy changes on people's daily lives in different communities around the United States.

Our collaboration with KWRU involved assisting the organization to obtain a dedicated personal computer that could be used to organize and archive the testimonials that were being gathered through the national campaign against poverty and welfare reform. We also helped them develop an updatable, geographically indexed database that would allow users to retrieve and sort the testimonials. We created a data entry system using Microsoft Access that allowed a member of KWRU to input records into a database. At the time we chose not to disseminate the data on the Internet; therefore, members had access to the database through a specially designed Intranet interface. This interface was specifically designed to retrieve records by means of pointing and clicking on the desired information, since most of the people served by the organization did not know how to use computers. We partnered graduate student and faculty researchers with members of the organization to provide individualized training on how to use and manage the information system. Once completed, we stepped out of the process. The organization later on used the same approach to disseminate the testimonials on its website. The KWRU member who ultimately managed the system subsequently enrolled in coursework at Temple University, in Philadelphia, to improve her ICT skills, and eventually completed an MA and obtained employment with a cartography laboratory at another university in Philadelphia.

### *3.3 HPTA Collaboration*

The Harrison Plaza Tenant's Association (HPTA) is an organization that represents the interests of residents of the Harrison Plaza Public Housing Development – a complex of four public housing developments in North Philadelphia, managed by the Philadelphia Housing Authority (PHA). HPTA also represents the interests of neighborhood residents who live nearby in private residences (for a more detailed discussion see Gilbert and Masucci 2005a, b).<sup>6</sup>

HPTA is involved in several community advocacy activities, some of which are managed in coordination with partnering organizations. Its offices are located at the Harrison Plaza Community Center, which in turn is owned and managed by the Philadelphia Housing Authority. HPTA's activities include: (1) managing the Community Center's programs; (2) holding meetings to disseminate information about policies and procedures of the PHA; (3) learning about tenant concerns that can be communicated to the PHA; and (4) overseeing the access of community members to health and educational services. In 1999, the Community Center served over 3,000 residents; yet, there was only one useable computer available.

Our collaboration with HPTA, from 1999 until 2001, centered on developing basic and technology literacy programs for the residents. But this involved having to start with the creation of a technology infrastructure for basic computing. After a year of planning and preparation and in partnership with Temple University, the US Department of

Education, US Department of Housing and Urban Development and the Philadelphia Housing Authority, the Harrison Plaza Demonstration Community Technology Center (CTC) opened its doors to residents, on a trial basis, from 2000 to 2001. After 2001, the CTC moved its operations to the elementary school adjacent to the Community Center. During its trial period, the CTC consisted of: (1) seven new personal computers, modem connections, and a printer; and (2) resume-building and adult literacy software and educational games for children.

Our collaboration with the CTC focused initially on providing basic and technology literacy for working-age women affected by the transition from welfare-to-work due to changes in US welfare policies. Specifically, our aim was to enhance their job searching skills using Internet resources. We developed an interactive web-based tool for training the women on basic computer skills and the Internet, and we conducted focus groups to learn about the community's geographic and other information needs with the ultimate purpose of eventually expanding our programs into a full-fledged community GISystem. However, as HPTA members were also interested in addressing the computer learning needs of the children served by the after-school program run by the Community Center, we ended up including children in our collaboration. In time we also saw our collaboration with the Community Center grow to include, among others, the role of mediators between HPTA and other partnering organizations at the CTC, particularly over issues regarding member's privacy.

Women's need to balance the benefits of participating in our programs over their multiple roles as household providers and children caretakers presented significant barriers to their direct participation in the literacy and job-seeking programs at the CTC. Their direct use of the CTC ended up being very limited. Yet those same women wanted the CTC to help their children gain ICT skills while providing supervised after-school activities. As a result, the primary users of the programs that we intended at the start for working-age women ended up being children and elderly women, and this meant having to make significant adjustments to our programs to meet the specific needs of the actual users. We developed and staffed an after-school program that served elementary school children. This enabled their mothers to have a safe place where they could send their children. The after-school program was set up to assist children with their homework as well as to gain ICT skills.

We learned that one of the most significant aspects of the participation of the elderly women in our training programs was that it provided them with an opportunity to network with each other. It also supported them in tasks associated with organizing among members of other community groups, including their churches, sewing groups, and day-care centers. The geographic information resources that the women eventually identified as necessary for the CTC related mostly to accessing community services and overcoming logistical daily life challenges. For instance, one woman who ran a church based after-school program near the CTC was interested in: (1) involving Temple University students with instructional programs; (2) establishing another CTC such as the one where she was receiving training; and (3) obtaining instructional supplies for use in the program she managed. Another woman, on the other hand, was interested in accessing design patterns on the Internet that could be used with her computerized sewing operation. She brought her sewing machine as well as patterns to the training sessions once her skills advanced beyond basic computer use. And, not surprisingly, all women had a keen interest in learning how to use e-mail so that they could communicate with family members living far away.

### *3.4 Alternative Institutional Arrangements*

The lack of basic computer infrastructure at both organizations meant having to develop alternative institutional arrangements and spaces. To address this need, we created both information resource systems using shareware and the software bundled with the computers rather than proprietary GIS software. Another solution was to heavily rely on the Internet as a means for accessing and disseminating information. Moreover, as we did not have adequate age-and-level specific curricular components, we resorted to developing a series of service-learning courses at Temple University. These service-learning courses allowed Temple University students to channel their own research on community ICT needs and uses within the context of the programs we were developing. Since Temple University students' learning was an important element that needed to be addressed in our collaborative work, we organized our collaboration with KWRU and HPTA to satisfy both the ICT needs of each organization while at the same time addressing the students' need for advancing their own educational goals as required by their coursework.

Students' access to the physical sites as well as their personal safety took on an unexpected importance and we found ourselves negotiating space and travel logistics alongside the development of the basic ICT infrastructure. And, to make sure that students understood their role in the organizations, we also found the need to ground them in feminist and critical frameworks of analysis. This permitted them to better understand how the individual agency of the women and children involved in these collaborations could fruitfully enhance their own educational and research goals.

We also relied on virtual space for networking with students and community members. Our use of e-communication, a-synchronous task management strategies, and a distributed systems approach allowed us to advance a model for community GISystems that situated the development and use of ICT resources at the "locus of use" rather than in a specific frozen space or institutional setting. While such spatial approaches are commonplace today, they were not 10 years ago. This strategy speaks directly to the concern that many GIScience practitioners express with using technology on its own terms to advance the empowerment for marginalized groups. In our collaborative work with KWRU and HPTA we were able to jump to state-of-the-art technology within a low technology framework and utilize resources without navigating the barriers that would have been present had we proceeded through formal training programs or by hiring technical "experts."

### *3.5 The ICT-Daily Life Nexus*

Most importantly, our collaborative work has provided an opportunity to understand poor women's ICT frameworks in the context of their daily lives. We have found that women's perspectives on the uses of information resources, in general, and the need for geographic information specifically, significantly differ from what we, as professional geographers and GIScientists, have been trained to think and expect. For example, our initial plans for the CTC at HPTA called for the development of a "traditional" GISystem 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 adequate time to acquire even the most basic

computer and Internet skills needed to make good use of a GISystem. 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/when women had time to acquire the basic skills.

We also learned that these women were far more interested in improving their children's chances in life than their own. An often-expressed sentiment was that maybe it was not too late for their children to gain the necessary skills to be competitive in the pursuit of their own educational and employment goals. This generational deference speaks to the overarching time trajectory difference between the women we worked with and ourselves. By contrast, we tend to measure empowerment as a struggle attainable by ourselves rather than as something to be expected of the next generation. Even women younger than our Temple University students felt that they would rather see their children acquire ICT skills offered at the CTC.

Finally, we learned that the quality of information resources was not as important as putting to use ICT technologies to overcome spatial isolation. For instance, we strongly disagreed with KWRU's dissemination of the testimonials through the Internet on the grounds that it is necessary to protect individual privacy, particularly when the dissemination of information can potentially expose individuals to legal action. From a university perspective too, to reveal such personal information as address, name, and occupation violates basic research standards. From the perspective of KWRU, on the other hand, such dissemination could help to break away from the isolation and shame that poor people experience. Their organizational goal was to expose uncomfortable truths suffered by the poor to a non-poor (and Internet connected) audience. Furthermore, they wanted to show to other poor people, who were Internet connected, that their experiences were not unique and were a worthy node to organize around.

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 GISystem. For example, in KWRU's case, we developed software interfaces to facilitate entering and retrieving information by users with little or no previous computer knowledge. We found that a combination of clickable maps and geographically indexed information was a much more intuitive means to use the information compared with spreadsheets or keyword identifiers. Given that many users were limited by *both* basic and technology literacy, the geovisualization of the testimonials created a pathway for access that would otherwise not have been possible.

Initially, KWRU was not concerned with geographic representation in the dissemination of testimonials; they were concerned with the magnitude of the representation. They did, however, want to be able to direct news reporters to testimonials coming from local communities. By geovisualizing the testimonials, we were able to help members realize the geographic extent of the network they had created and to begin formulating new strategies that employed geographic frameworks to represent their case. They had already been drawing on local examples for global audiences, as well as interacting through e-communication, such as e-mail and listservs, with organizations across the U.S. and internationally. In time, a more nuanced approach for organizing geographic information emerged in their strategies: they developed a virtual tour of the Kensington neighborhood that included an on-line commentary resulting from the actual tour that they provided to visitors from other partnering organizations.

In the case of HPTA, there was a totally different attitude to the potentially harmful effect of disseminating personal information. Initial plans for creating Internet access called for a direct link between the CTC and the Philadelphia Housing Authority's

server using a T-1 connection. HPTA decided instead to invest resources on a modem connection. Their view was that individual e-mails could be intercepted if they were networked with the Philadelphia Housing Authority's server. And, if reviewed, e-mail content might reveal information that could result in the eviction of tenants.

#### **4 Implications for GIScience**

It is important to emphasize that our collaborative work would not have been possible without balancing the complex mix of fully developing our research with the time and spatial constraints experienced by women (as researchers and as users) and the ICT resources available to poor communities in the face of the digital divide. By using a feminist framework – one that sensitizes the research to the vicissitudes experienced by poor women in their daily lives – we have been able to better understand women's relationship to ICT resources and, as a consequence, to come up with more relevant ways to address those needs. It is important to understand how people conceptualize technology as a step towards understanding how they might use and benefit from a GISystem.

For those of us trained in GIScience, keeping geographic categories distinct is of great importance. But for users interested in solving daily life problems, such as job procurement, geographic categories are much more fuzzy. The reason for this is that everyday life is much more refined and complex than the geographic categories typically used to develop GISystems. Children in our after-school program at HPTA used the "T and T" logo to represent their Community Center during a showcase event. As geographers, we automatically interpreted the logo in "spatial" terms and thought that it referred solely to the street names identifying the corner where the Community Center is located. We marveled at the sophistication with which the children came up with such a geo-referenced point to identify a key landmark in their highly localized world. In the case of the children served by this center, their interactions with home, school, family, church and commerce are all situated within a few blocks from each other. Eventually we learned from an adult HPTA member that "T and T" referred to the youth gang that hung out on that corner after dark. For the children what mattered was not the "geographical", but that which has to do with fear and, perhaps, admiration.

Finally, we find that to address the ICT needs of a community we must put to use our most sophisticated skills as GIScientists, not our least. In other words, to produce a GISystem that incorporates "a view from below" requires that we move beyond our formal knowledge base. But engaging with this challenge can allow for a new and exciting GIScience. Some of these improvements are already underway: (1) an increasing presence of web-based GIS tools; (2) the development of age-and-level appropriate GIS curricula; (3) the adaptation of new types of electronic devices to GIS tools; and (4) the development of interactive ICT and GIS systems. But these new developments are not sufficient by themselves. We need to continue developing GIScience strategies that are intertwined with a feminist geographical framework. Specifically, we need to deconstruct traditional categories of analysis in order to better understand women's daily lives, we need to move away from essentialist ideas about space and focus instead on women's subjectivities in terms of a relational space that is constituted in terms of multiple relations of power and inequality. We need to map at more local scales, build geographic categories from more refined scalar points, construct categories from empirical data, and create new geovisualization techniques that truly represent women in space.

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## Notes

- 1 Stephen Heath synthesizes many of the film theory questions on subjectivity referred to by Kwan (2002c) in his essay "Narrative Space" (Heath 1986), originally published in *Screen* in 1976. Heath also discusses the possibility for a cinema that deconstructs the ideological apparatus of looking using the particular case of *Death by Hanging* by Japanese filmmaker Nigisa Oshima, who breaks with editing conventions by allowing the main character of the film to look back at the camera as if directly addressing the spectator. It is not clear that we are at a point at which we can claim that we have developed GISystems that allow for the subjects of analysis to return the look of the researchers in the sense discussed by Heath in his essay, but efforts by feminist GIScientists may be interpreted as an attempt to move in this direction.
- 2 There is a large literature in feminist urban geography that explores women's daily lives in cities by examining how identity and place are mutually constituted and how women's subjectivities are shaped by multiple relations of power and inequality (for reviews, see Gilbert 1993, McDowell 1993, Bondi and Rose 2003, and Preston and Ustundag 2005).
- 3 In 1996, Aid to Families with Dependent Children was replaced with Temporary Assistance to Needy Families (TANF). The federal government eliminated the guarantee of cash assistance to poor women and their families. Instead, TANF, a block grant administered by the states, required work in exchange for time limited assistance (see Gilbert and Masucci 2005b for a detailed description).
- 4 It is difficult to estimate the number of people involved in KWRU at any one point in time, over time, or in terms of varying degrees of involvement. KWRU usually has a number of campaigns occurring simultaneously as well as regular activities, such as food and clothing distribution programs and assistance with housing, utilities, childcare, and welfare regulations and benefits.
- 5 We started our collaborative work with KWRU in 1997, partly with funding from a grant from the Philadelphia Higher Education Network for Neighborhood Development. The project was showcased at the Poor People's Summit held in Philadelphia on 11–13 October 1998. In 1999, the project was expanded, with funding from Temple University's Geography and Urban Studies Department and the UCenParcerias program, in Brazil, and as part of a partnership between Auburn University, Universidade Estadual Paulista, and Temple University, to include an international conference on *Information Management and Technology Use Workshop for Economic and Environmental Community Organizations* that was held on 23–25 March 1999. The conference gained the attention of Temple University's Office of Community Partnerships, which invited us to present a proposal to the US Department of Education to assist HPTA with the creation of the Harrison Plaza Demonstration Technology Center (CTC). The US Department of Housing and Urban Development and the Philadelphia Housing Authority provided matching grants to support the CTC.
- 6 As of April 1999, the average annual income for residents of Harrison Plaza, all of whom are African-American, was \$6,906 (Gilbert and Masucci 2005a, b). Almost all residents were living in extreme poverty, defined as below 30% of the median household income. Only 22% of the households received any wages and 65% were receiving welfare benefits.

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