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Why social work needs mapping — Source link

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Abstract

Relative to other fields, social work has been slow to adopt geographic information systems (GIS) as a tool for research and practice. This paper argues that GIS can benefit social work by: (1) continuing and strengthening the social survey tradition; (2) providing a framework for understanding human behavior; (3) identifying community needs and assets; (4) improving the delivery of social services; and (5) empowering communities and traditionally disenfranchised groups. Examples from a social work course on GIS and published social work research help illustrate these points. The paper concludes by considering the ways that social work can contribute to the development of GIS.

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WHY SOCIAL WORK NEEDS MAPPING

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Relative to other fields, social work has been slow to adopt geographic information systems (GIS) as a tool for research and practice. This paper argues that GIS can benefit social work by: (1) continuing and strengthening the social survey tradition; (2) providing a framework for understanding human behavior; (3) identifying community needs and assets; (4) improving the delivery of social services; and (5) empowering communities and traditionally disenfranchised groups. Examples from a social work course on GIS and published social work research help illustrate these points. The paper concludes by considering the ways that social work can contribute to the development of GIS.

GEOGRAPHIC INFORMATION SYSTEMS (GIS) use computer hardware and software to capture, integrate, map, and analyze spatial data (Longley, Goodchild, Maguire, & Rhind, 2001). Over the past decade, they have emerged as indispensable tools for practice and research in the fields of city planning, environmental science, landscape architecture, public health, archaeology, sociology, and business. However, social work has been slower than these other fields to adopt GIS. A limited number of examples of GIS applications in social work are showcased on Web sites, in GIS literature, and at academic conferences. But social work journals include only a handful of examples of GIS applications (Hoefer, Hoefer, & Tobias, 1994; Queralt & Witte, 1999b; Wong & Hillier, 2001), and, with few exceptions (Felke, 2003; Wier & Robertson, 1998), GIS has not found its way into the social work curriculum. Is it time for social work to embrace GIS?

The cost and time involved in upgrading computer hardware, obtaining software licenses, and teaching computer skills in order to get started with GIS can be prohibitive, but the challenge in implementing GIS is not primarily about overcoming these technical obstacles. A much more fundamental need is to embrace an ecological framework, focusing on the role of the environment and spatial relationships on human behavior, upon which GIS builds. Mapping involves locating people in their environment, providing a perspective

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or "lens" that complements those provided by clinical practice and group work. Social workers have used ecomaps (Hodge, 2000) and genograms (Hardy & Laszloffy, 1995) for decades to visualize social relationships. GIS builds on this approach and adds a geographic component to mapping. Identifying spatial relationships—such as where clients live in relation to resources and hazards—provides insight into theoretical issues about human behavior and practical issues relating to access and equity. Only by understanding maps in these conceptual, rather than technical, terms can social work take full advantage of what GIS has to offer.

Building on this conceptual approach to understanding GIS, this paper is organized around five broad—and often overlapping—ways that mapping can enrich social work. First, better integrating GIS into social work education, research, and practice will allow social work professionals to continue and strengthen the social survey tradition. Second, GIS provides a theoretical framework for understanding human behavior that moves beyond an individual deficit model. Third, when used to assess needs and assets, mapping reveals patterns in disparity across race, income, and geography that are critical for promoting social justice and addressing needs of at-risk populations. Fourth, mapping can improve the delivery of social services when used to evaluate programs, locate new facilities, and organize work assignments. Finally, GIS can empower communities and traditionally disenfranchised groups when used to share information and facilitate public planning. After developing these themes, this paper turns to the issue of why GIS needs social work and how social workers can help insure that GIS is used to promote, rather than disenfranchise, communities.

Continue and Strengthen the Social Survey Tradition

Social work is relatively new to GIS, but social work is not new to mapping. A century ago, social workers played a leading role in the social survey movement that brought muckraking journalists, settlement house workers, businessmen, academics, and charitable foundations together around a common approach to studying communities. These pioneers used foot surveys, interviews, statistics, and maps to document living conditions of the poor in modern cities. They believed that capitalism, industrialization, urbanization, and immigration disrupted social networks and created a range of social problems that were often beyond the ability of individuals to overcome on their own. By documenting "how the other half lives," these progressives expected to generate understanding and sympathy among policy makers who could bring about social change (Greenwald & Anderson, 1996; Riis, 1890).

Charles Booth, a London businessman, drew considerable attention by using detailed survey results to show that one-third of London's population lived in poverty (Bales, 1999). Booth categorized London's population into seven classes—lowest poor, very poor, poor, mixed, fairly comfortable, middle, and upper—and used different colors on large maps to show where they lived in the city (Booth, 1903a, 1903b). His work is credited with launching the social survey movement

that influenced social workers and sociologists in the United States.

Frances Kelley, a resident and activist in Chicago's Hull-House, was the most prominent social worker in the early social survey movement. In 1893, the U.S. Congress commissioned *A Special Investigation of the Slums of Great Cities* to study poverty in American cities. Kelley and the residents of Hull-House conducted the Chicago study and used the same colors as Booth in their maps to show income and nationality (Hull-House, 1895). Booth's work also had a direct influence on a young W. E. B. Du Bois, who secured funding and a post as "assistant in sociology" from the University of Pennsylvania to conduct an extensive door-to-door survey, published in 1899 as *The Philadelphia Negro* (Du Bois, 1899). Du Bois expected that, by documenting the conditions under which African Americans lived, he would be able to recast the "Negro Problem" as one about systematic discrimination rather than individual pathology.

Paul Kellogg was the other leading social worker in the social survey movement. A progressive journalist, Kellogg served as editor of *Charities Magazine* (later renamed *Survey Magazine*) and had strong ties to the New York City Charity Organization Society. With a staff of over 70 researchers and funding from the Russell Sage Foundation, he conducted *The Pittsburgh Survey* in 1909. The resulting six volumes documented conditions in women's work, foster care, orphanages, education, and factories, and highlighted public health issues such as work-related accidents and typhoid (Greenwald & Anderson, 1996; Kellogg, 1909; Turner, 1996). GIS represents a new technology that allows social workers to reinvigorate the tradition of these early mapmakers, with their emphasis on understanding people in their environment.

Provide a Framework for Understanding Human Behavior

At the heart of these early mapping projects was a belief in what we now know as ecological theory, general systems theory, or ecological systems theory. These theories posit that people and their environments interact, so individuals influence their environments and environments influence individuals. Only by understanding these interactions and interrelations can we understand human behavior (Compton & Galaway, 1994; Rodway, 1986). Ecological theory is applied widely across disciplines. Some of that research adopts the language directly by studying the "ecology of work" (Coulton, 2003), "ecology of religion" (Farnsley, 2003), "religious ecology" (Eiesland, 2000), "school ecology" (Bowen & Richman, 2002; Clancy, 1995), "health ecology" (Honari & Boleyn, 1999), and "ecometrics" (Raudenbush & Sampson, 1999). Other research refers to the interaction between individuals and their environment as "neighborhood" (Ellen & Turner, 1997; Leventhal & Brooks-Gunn, 2003), "place" (Boyle & Willms, 1999; Macintyre, Ellaway, & Cummins, 2002), "contextual" (Duncan & Raudenbush, 1999; Veugelers, Yip, & Kephart, 2001), or "structural" (Scribner, Cohen, & Fisher, 2000) effects. Ecological theory pushes researchers and practitioners to look beyond the "deficit model" or a "blame the victim" mentality that looks only at individual characteristics to explain behavior. Mapping reinforces this

broader way of thinking by literally allowing us to see individuals in the context of their environment. Rather than discounting the influence of personal mental health, life stage, family relationships, or group membership on individual outcomes, mapping challenges us to understand these in a larger social and geographic context.

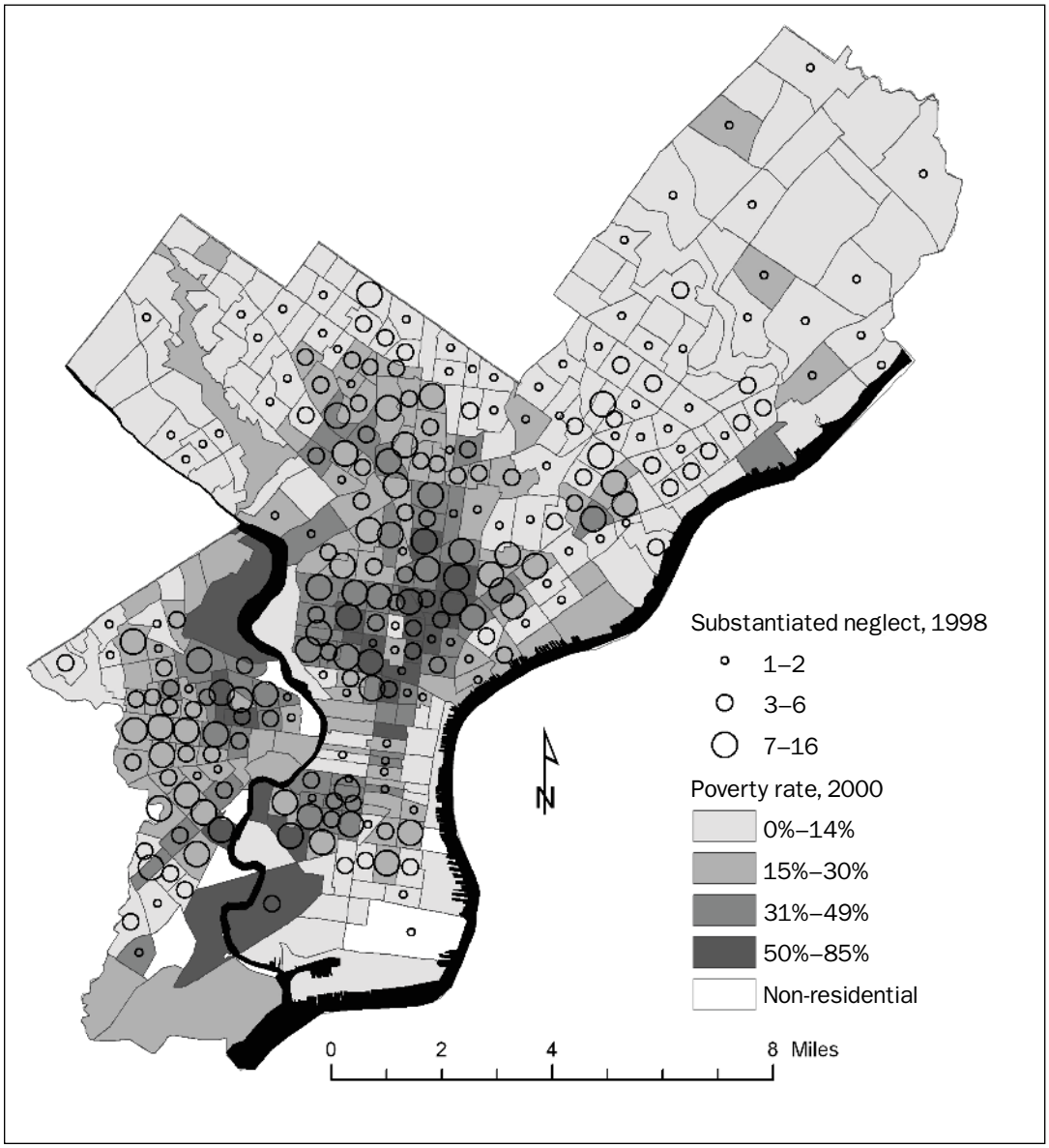
Not all ecological studies use GIS, but GIS can be used as a tool for testing ecological theories. For example, GIS can be used to map child welfare cases to determine whether incidents of child abuse and neglect cluster together and relate to neighborhood poverty levels. By mapping the location of individuals serving on probation and parole and indicating whether they were arrested again, one can analyze the relationship among recidivism, the concentration of other people on probation and parole, and single female-headed households. Interpersonal conflicts mediated by human relations staff can be mapped to look for spatial patterns across different seasons and relationships with poverty and vandalism. These are not hypothetical GIS projects; they were the final projects undertaken by master's level social work students in an introductory Community Mapping course taught at the University of Pennsylvania's School of Social Policy and Practice. Figure 1, based on one of these student projects, shows the strong relationship between poverty and incidents of child neglect. While one could demonstrate this correlation with a Pearson's correlation coefficient, the statistic 0.39 gives no indication of how or where the relationship varies across space. The map, however, shows that where child neglect and poverty are high, poverty is high. Specifically, areas such as central North Philadelphia have a strong positive correlation between neglect and poverty.

An ecological investigation of child maltreatment in suburban Maryland produced similar results. Ernst (2000) mapped a year's worth of administrative data from the Montgomery County Department of Health and Human Services, allowing her to link rates of physical abuse, neglect, and sexual abuse investigations to tract-level census data. Using GIS and multiple regression, she found that investigations of physical abuse were most likely in older, urbanized or newly developed parts of the county, in areas with the greatest number of apartment buildings and the least amount of economic and social resources. Investigations of neglect were most likely in the poorer and more isolated parts of the county. Investigations of sexual abuse were more common in the less-urbanized parts of the county than investigations of physical abuse or neglect. Ernst argued that, in addition to facilitating the statistical analysis, maps showing the distribution of child maltreatment investigations would have a greater impact on agency administrators.

The social welfare literature provides additional examples of how ecological theory is employed. In her article about the spatial mismatch between jobs and welfare recipients, Claudia Coulton (2003) argued that welfare reform was instituted with little recognition of the "multiple levels of ecological influence on employment of low-skill workers" (p. 160). As metropolitan job markets have become more dispersed in response to residential and commercial sprawl, welfare recipients in search of employment are often concentrated in low-income central city neigh-

borhoods. Knowing that there is a negative correlation between low-income job seekers and employment opportunities does not mean the reason is apparent. Coulton offers several possible causal mechanisms through which geography disadvantages these workers, emphasizing distance to work, limited social networks, and neighborhood self-selection. Coulton concludes that, in order for transportation, housing mobility, workforce

FIGURE 1. Child Neglect and Poverty Rate, by Census Tract



development, and community-building programs to overcome these spatial barriers, they must be designed to address deeply-rooted racial and economic segregation. Coulton's study does not use GIS, but it employs the kind of ecological and spatial thinking that makes GIS an important tool for policy and services research.

Assess Needs and Assets

Mapping is critical to understanding how and why the environment impacts individuals, but at an even more basic level, maps can provide powerful evidence of disparity. Patterns that may not emerge in tables or that make much less of an impression when represented as summary statistics may be compelling to a wide audience when mapped. Racial segregation provides one example. According to the 2000 U.S. Census, the Philadelphia metropolitan area population is 72.5 percent White and 19.6 percent Black or African American. This global descriptive statistic provides no information about the distribution of the Black population. Given that the U.S. as a whole is 75.1 percent White, one might assume that the metropolitan area is relatively integrated. Segregation measures provide a bit more insight. The Philadelphia metropolitan area has a dissimilarity index of 76.9, indicating that 76.9 percent of Blacks would need to move in order to evenly distribute Blacks and Whites across census tracts (Farley & Myers, 2002). Tables showing racial composition by municipality, zip code, census tract, or block group would begin to indicate stark differences in racial composition within small geographic areas, but summary statistics and tables provide no information about where Blacks and Whites live in relationship to each other. Figure 2, a map of racial composition, illustrates much more clearly the high concentration of Blacks in central and southwest Philadelphia, PA, Chester, PA, Camden, NJ, and Wilmington, DE.

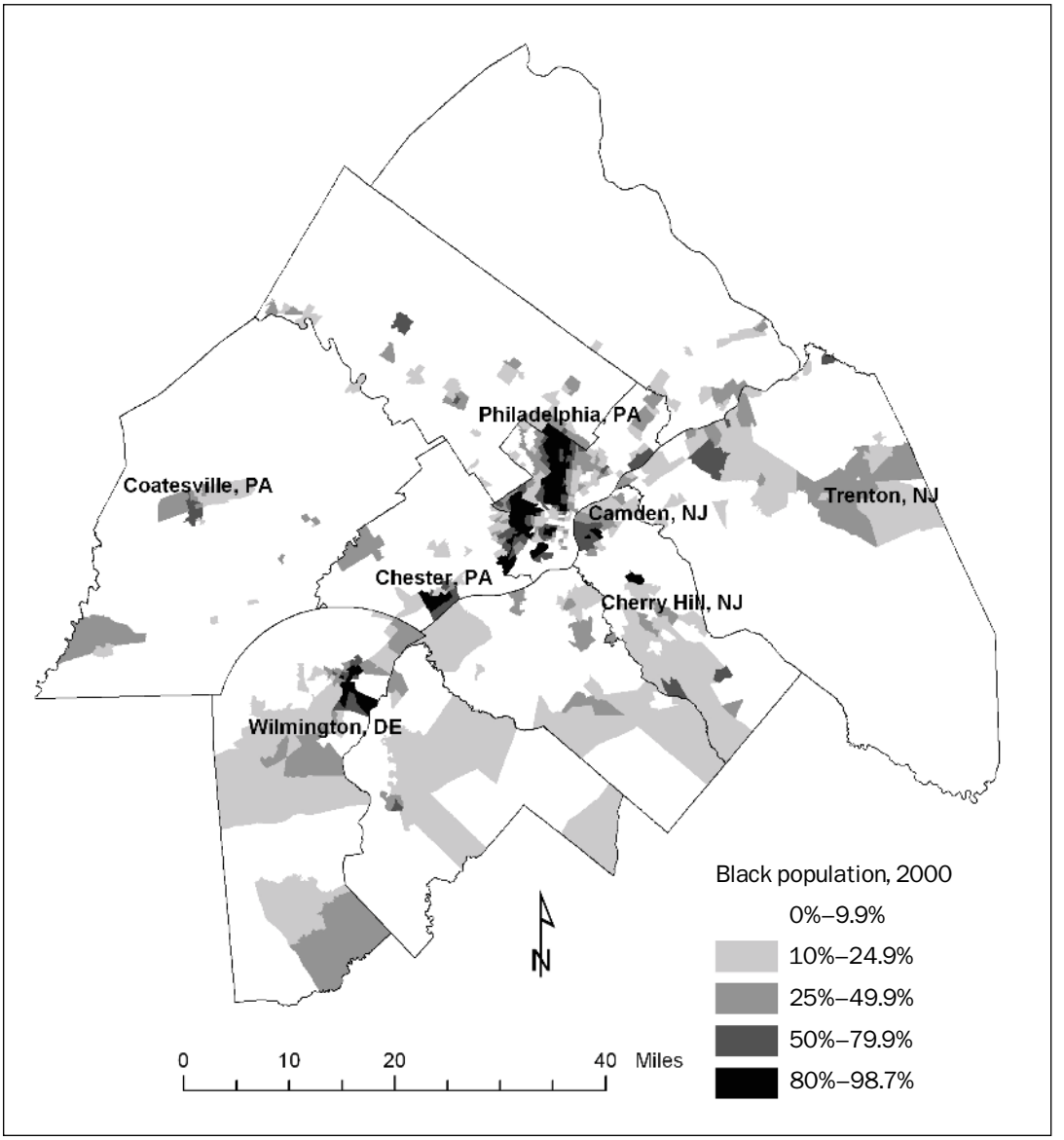
Documenting disparity has very practical implications. In order to obtain grants, funders may require that grant applicants conduct a needs assessment to show that a proposed program is desirable. These assessments may focus on geographic communities because social service agencies and community organizations frequently have geographically-targeted service areas. Several students in the Community Mapping course used GIS to conduct needs assessments for the populations served by their field placement agencies. They mapped resources available to their clients, including feeding organizations and health services for people living with AIDS and educational and social services for children with disabilities. They then shared the maps with their field placement colleagues.

The director of Miami's office of the Department of Children and Families found maps like these helpful in securing grant money for her agency (Greene, 2000). She regularly took maps of her service area to meetings with the Chamber of Commerce, United Way, state legislators, bankers and lawyers, and the county commissioner to impress upon them the needs of her residents. She had maps showing the concentration of recipients of Temporary Assistance for Needy Families (TANF), births to teens, AIDS cases, and drug and alcohol addiction.

Researchers from Salisbury State University collaborated with staff from the Wicomico County, Maryland Department of Social Serv-

ices to develop a GIS showing the distribution of welfare recipients, child abuse and neglect cases, and various support services (Chen, Harris, Folkoff, Drudge, & Jackson, 1999). The resulting maps indicated high levels of spatial inequity among service recipients who tended to live in the poorest parts of the service area and a spatial mismatch among the location of welfare recipients, child care providers, and potential employers. The electronic GIS replaced the maps with pins the department had been using, making it easier to map clients

FIGURE 2. Segregation of Blacks in Philadelphia Area, by Census Tract



relative to their neighborhood conditions and to print and share copies of the maps. Using GIS, department staff were also able to create more visually-effective maps that indicate where new services—particularly transportation—were most needed.

Mapping does not have to focus on needs. In promoting "asset mapping," Kretzman and McKnight (1993) have encouraged researchers and community groups to focus on neighborhood resources rather than just deficits. While this process of inventorying community resources does not necessarily involve literal mapping, GIS has been used to facilitate such inventories. Schlossberg's work (1998a) with the United Way in West Michigan involved mapping assets and needs together. The resulting *Community Atlas* (Schlossberg, 1998b) included reference maps and thematic maps showing United Way organizations, population density, extreme poverty, racial composition, youth and older adults, female-headed households, and educational attainment. A community development group in Milwaukee used a similar asset-based strategy to attract new retailers to their relatively poor neighborhood. By mapping aggregate household income per square mile—rather than median household income—they were able to illustrate how their area's higher population density provided opportunities for new retailers not available in the wealthier, but less populated, outlying areas (Department of Housing and Urban Development, 1997).

Many of the applications of GIS for needs assessments and asset mapping are relatively simple, but GIS can also be used in conjunction with inferential statistics to conduct more elaborate analyses. Queralt & Witte (1999b) estimated the need for child care and early childhood education services in southwestern Massachusetts by comparing supply and demand using reduced form equations. In order to model supply, they collected and mapped data on licensed child care organizations from administrative records with results from a survey of elementary schools including the location, price, and staff, as well as the characteristics of the families in the area, local child care regulations, zoning, number of child care referral agencies, and the amount of public subsidy for child care. Their demand model reflected characteristics of the children and families in the area, including parental wages and hours worked, and the proportion of land dedicated to residential and commercial use. They then used maps to represent spatially the discrepancy between the need and availability of services.

Queralt and Witte (1999a) acknowledged that their approach to estimating need may be more rigorous and costly than most public agencies can conduct and point to another more practical approach for assessing need. GIS has such a wide range of applications, it can be used for quick and simple maps that may document patterns already obvious to social service providers or it can be used as part of more data-intensive and statistically-sophisticated analyses. Regardless, the thinking is the same. Mapping allows information about individuals and households to be integrated with information about their communities so that funders, service providers, and researchers can understand individuals in the context of their communities. Documenting need is not enough; documenting *where* there is need is critical to intervention strategies.

Improve Delivery of Social Services

Assessing needs and mapping assets is often the first step toward improving services. GIS can be used to document disparity, but it can also be used to take the next step and plan more effective and efficient services. Interactive mapping systems can help social workers point clients to resources—or allow clients to identify nearby resources on their own. For example, Broward County, FL and Boise, ID both provide online GIS-based referral systems for child care agencies (Broward County, 2005; City of Boise, 2005).

In addition to pointing social workers and clients to services, GIS can be used to evaluate existing services. Two students in the Community Mapping course who had access to address-level child welfare data through their field placements used GIS to show where biological families lived in relation to foster families. In both cases, the local child welfare agencies were under pressure to place children in communities similar to, and nearby, those of their biological families. Their maps showed that placements were frequently made far from the home, in areas with different racial and economic backgrounds that were served by different school districts. One student used GIS to measure the distance between biological and foster families, allowing her to determine the average and extreme distances between the two. As an extension of this work, child welfare organizations could map all available foster households to determine which ones are closest to a family in need of placement. Mapping the location of biological families with out-of-home placements and the characteristics of their neighborhoods could also help with the development of geographically-targeted recruitment for new foster families.

Another example from the social work literature shows how GIS can be used for program evaluation. Wong and Hillier (2001) analyzed the distribution of program participants relative to characteristics of the census tracts in which they lived, in order to determine if areas with the greatest need were being served. They used principal components analysis to combine 14 variables from the 1990 U.S. Census previously shown to be related to a risk of homelessness into three distinct factors: social and economic distress, instability, and Hispanic overcrowding. By comparing the distribution of program participants to the areas with high scores on these factors, they were able to determine that several high-need areas had relatively few participants. In addition, they mapped the distribution of program sites and program participants to determine how far participants had to travel.

Empower Communities and Traditionally Disenfranchised Groups

When used to aid participatory planning processes and to distribute information about small geographic areas, GIS can be used to empower communities and include groups of people traditionally left out of decisions that impact their lives. Maps have the potential to draw people in, helping people to see how proposed changes in their neighborhood would affect them. The city planning literature provides multiple examples of how GIS has been used to facilitate community discussions and decision-making. Emily Talen (2000) used the phrase "bottom-up GIS" to describe

an approach to participatory planning that allows residents to use GIS to communicate how they perceive their neighborhood in contrast to "top down" GIS, which involves technical experts manipulating data in ways that marginalizes local knowledge. She described visioning exercises in Dallas, TX where a GIS facilitator introduced participants to basic GIS tools, the available GIS data layers, and the ways in which preferences and rankings could be displayed and analyzed. Participants then worked with the facilitator to create neighborhood boundaries and map themes and locations most important to them as they considered the impact of new walking and biking trails through the city.

Shiffer (2001) described how GIS can be part of spatial multimedia approaches to planning that utilize video, sound, text, and interactive maps to involve residents in decision-making. Spatial multimedia can be used to facilitate face-to-face discussions or used via the Internet to involve greater participation over a longer period of time. Spatial annotation allows participants to relate comments to specific geographic locations and share them with others. This might take the form of text, allowing for "discussion threads" as found on the Internet, or audio and video clips, allowing participants to include their own voice and image. These annotations can form the basis of a GIS archive that can be used to recollect previous discussions, concerns, and priorities. Shiffer has used these and other spatial multimedia techniques to gather information about resident experiences with public transportation.

Community information systems (CINS), Web-based systems for distributing small area data, provide another example of how GIS technology can be used to empower groups. Many of these employ GIS to allow users to search for information by location and create their own maps without needing to invest in GIS software and training. Most CINS integrate municipal agency data with information from the U.S. Census that, although technically public, may be difficult for individuals and small organizations to access on their own. Information about property ownership, vacancy, tax delinquency, code violations, and zoning make it easier for community development corporations (CDCs) to determine what properties to acquire and renovate. Aggregate information about poverty and educational attainment is helpful to social service organizations that need to conduct needs assessments. Neighborhood associations, students, and municipal agencies are among the other beneficiaries of such systems (Hillier, McKelvey, & Wernecke, 2005). Cities including Los Angeles (UCLA Advanced Policy Institute, 2005), Philadelphia (Cartographic Modeling Laboratory, 2005), Milwaukee (City of Milwaukee, 2005), and Nashville (Nashville Metropolitan Planning Department, 2005) provide some of the leading examples of CINS.

Closely related to CINS is the community indicators movement. Indicators are specific quantitative variables relating to small geographic areas that make it possible to evaluate the impact of programs and initiatives (Sawicki & Flynn, 1996). To be effective, they must be updated to reflect change over time. The indicators movement has its roots in the 1960s, but gained new momentum in the 1990s with developments in desktop GIS and the Internet. It aims to democratize data by

"promoting direct analysis of data by community groups" (Sawicki & Flynn, 1996, p. 176). The National Neighborhood Indicators Partnership (NNIP), sponsored by the Urban Institute, links local indicator projects in more than twenty cities—still just a fraction of the indicators projects around the U.S. Stakeholders, including representatives of the public, nonprofit, and neighborhood-based groups who will use the indicators, come together to decide what data elements would be most useful. Depending on the site, NNIP partners collect information about vital statistics, public assistance, schools, crime, health, housing, and economic activity (Kingsley, 1998).

Why Mapping Needs Social Work

As demonstrated by these examples of how GIS is being used to facilitate access to information and greater participation in decision-making, GIS has the potential to empower community organizations and traditionally disenfranchised groups. However, this potential is rarely realized, and GIS critics and supporters alike argue that GIS can easily be used to further marginalize people already on the far side of the digital divide. To take full advantage of GIS, users need a desktop computer with an up-to-date operating system, adequate processor speed, access to the Internet, and GIS training. "GIS has emerged as an elitist, anti-democratic technology by virtue of its technical complexity and cost," argued Rhina Ghose (2001). The GIS and Society and the Public Participation GIS literatures address these concerns and focus on ways to democratize access and push geographic information systems to be "community information systems" (Ghose, 2001, p. 141). The city planners, geographers, nonprofit research organizations, and community groups dedicated to these efforts make up just a small group relative to the for-profit companies using GIS to locate new branches of chain department stores and fast-food restaurants (Harder, 2002; MapInfo Corporation, 2004).

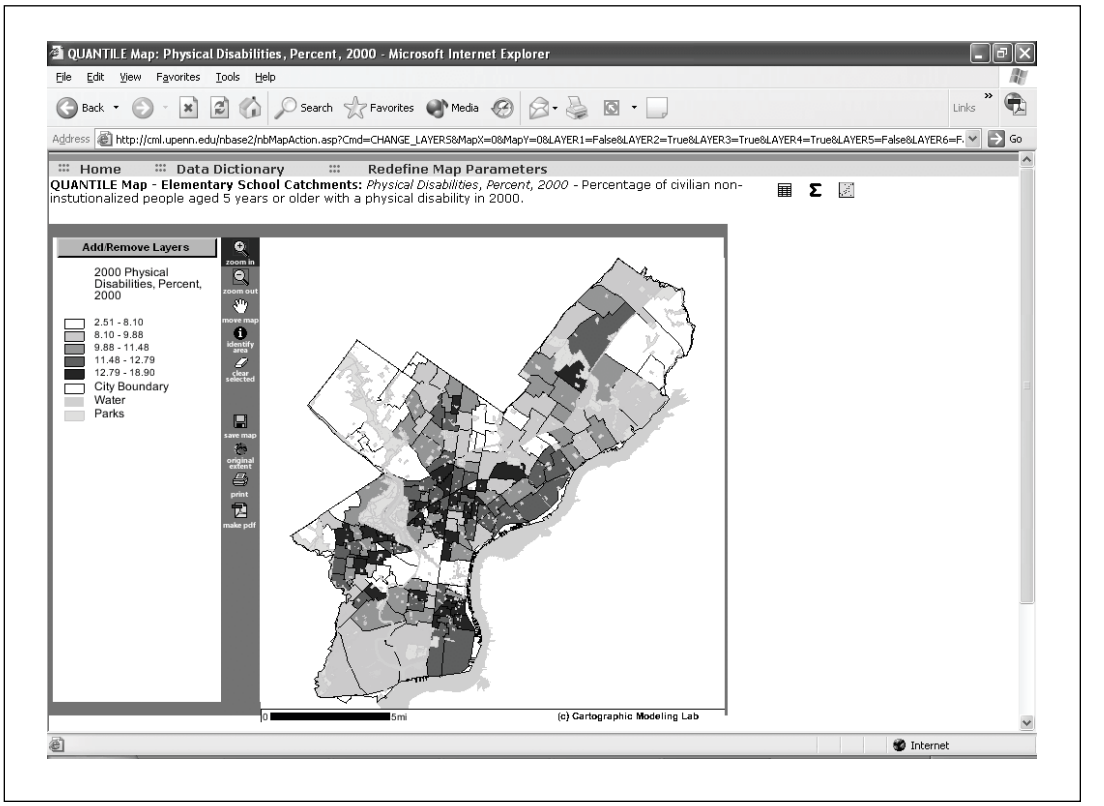
Social workers have a critical role to play in ensuring that GIS and other technologies are used to promote the social welfare of all people. Social workers are not alone in advocating for oppressed and marginalized people, but the National Association of Social Workers *Code of Ethics* calls on all of its 150,000 members to specifically take up this challenge. "The primary mission of the social work profession is to enhance human well-being and help meet the basic human needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty." (National Association of Social Workers, 1999, preamble). GIS is only one tool available for meeting this mission, but it can complement the clinical, policy analysis, and administrative skills that social workers already have.

Social workers have many different roles to play in efforts to democratize access to GIS. Social workers with basic training in GIS, survey data, and descriptive statistics can serve as teachers to staff at community organizations and nonprofit organizations. The outreach efforts of the Cartographic Modeling Laboratory (CML) at the University of Pennsylvania provide one example. The CML offers a field placement to a second-year MSW student each year who serves as the outreach coordinator, complementing its staff of technically-oriented

GIS experts, researchers, and database administrators. The MSW student offers regular trainings for students, community development corporations, municipal agencies, and neighborhood associations in how to use the CML's Neighborhood Information System, a map-based CINS focusing on Philadelphia neighborhoods (Hillier, McKelvey, & Wernecke, 2005). Figure 3 shows the simple NIS mapping interface that allows users to create maps, zoom in and out, and identify information about particular areas. Where CINS are not available, social workers can teach others how to access data and make maps using the U.S. Census Bureau's American Factfinder tools (Peters & MacDonald, 2004). While they provide much less flexibility than GIS software, using CINS and Web sites like American Factfinder are a cost-efficient and relatively quick way to access small-area data about communities.

Social workers are also needed to advocate for broad access to data. Much of the data that municipal agencies maintain are technically public, but it is often time-consuming and costly for individuals to acquire even small pieces of information. Social workers are needed to push public agencies to share their data or to negotiate data agreements with agencies. Again, this is work that people

FIGURE 3. Philadelphia Neighborhood Information System



outside the social work profession are also doing, but advocacy by social workers would strengthen these efforts. Social workers also have an important role to play in discussions about how and when data regarding vulnerable people should be shared because of their special sensitivity and training in issues related to confidentiality. University Institutional Review Board (IRB) standards, aimed at protecting universities against liability and designed primarily for medical research, are not necessarily appropriate or helpful when negotiating data access outside academia. Similarly, Health Insurance Portability and Accountability Act (HIPAA) standards are designed to protect health-care data, but do not necessarily apply to social service information.

Because they have access to sensitive data through their agencies or agencies with which they work, social workers have a special role to play in GIS-based research. Conducting research on child abuse and domestic violence, for example, is greatly facilitated by access to individual data about abuse reports and investigations. Certain practice-related questions—such as where clients live in relation to a social service agency and how caseloads can be assigned to make good use of staff time in the field—are unlikely to be addressed unless social workers are able to make the maps and conduct the necessary analyses on their own from inside social service agencies.

Social workers are also needed to serve as mediators, translating the technical jargon of the GIS software industry into terms understandable to colleagues, clients, and funders. They can connect community groups and nonprofit agencies eager to use GIS with resources, by identifying grants and assisting with grant proposals or helping groups find university partners with the technical knowledge to support community-based projects. Social workers trained in action research can organize collaborative research projects using GIS in a manner that engages and empowers people living in the communities depicted in the maps churned out by universities.

If this happens—if social workers become more involved in applying these tools, teaching others how to use GIS and disseminating data—social workers could change how GIS works. By asking different questions and applying tools that were developed for the natural sciences to understanding people in new ways, these efforts may reveal some of the limitations of existing software and suggest new tools that would be helpful. Customized GIS packages for business, transportation, and military intelligence already exist because there is a market for them (Environmental Systems Research Institute, 2005). What might a GIS package designed for social workers look like? Perhaps it would be easier to use than existing GIS software, less expensive to purchase, and require less computer processor speed. Perhaps it would have special tools for protecting data confidentiality and allow multiple users to interact with the same data simultaneously.

All of these potential roles for social workers—as teachers, advocates for sharing and protecting data, researchers, and mediators—require that they understand the value of GIS and have at least limited knowledge of how it works. A strong foundation in research methods and measurement is essential; knowledge

of basic statistics is also helpful. But schools of social work need to take the next step and offer classes in GIS. These might take the form of a semester-long course that integrates reading, discussion, and lab time. Shorter workshops and trainings could be offered as continuing education classes, pre-conference workshops, on-site computer trainings, and pre-packaged or live online GIS trainings. Dissertation grants to encourage graduate students to conduct new research demonstrating the value of GIS for social work, conference calls for GIS-related papers encouraging practitioners and researchers from social work and other fields to come together, edited books with case studies providing examples of creative and effective applications of GIS, a textbook on GIS for social work, electronic mailing lists to address technical questions, and Web sites to share resources such as course syllabi, data, and lab exercises would all facilitate this process. Now is the time for the social work profession and schools of social work to embrace GIS. Such a move promises to transform social work as well as GIS.

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