Combining Artistry and Technology in Participatory Community Planning

Kheir Al-Kodmany

A key principle of neighborhood planning is that residents know what is best for their communities. All too often, however, community residents are put in the position of reacting to the visions of "outsiders," planners and designers whose understanding of the neighborhood is less immediate and comprehensive. This can result in an incomplete meeting of the minds about community design, with residents limited in their abilities to visually express their ideas and planners and designers — however well-meaning — limited in their local perspective. This paper describes how the resources of a Geographic Information System (GIS) were combined with the talents of a graphic artist to stimulate participatory planning in Chicago's Pilsen neighborhood. The GIS provided community leaders, planners, architects, and designers with spatial analysis, a comprehensive set of images of the existing neighborhood, and prototypes of appropriate designs. The artist, on the other hand, translated neighborhood residents' ideas into quick sketches, merging them into a shared vision for the community. Both of these elements — the GIS and the artist — helped residents to visualize past, present, and future neighborhood conditions, better enabling them to direct the work of the planners and designers. Our findings reinforce the view that a clearly articulated vision for the future is a key component in public participation, one that can be greatly enhanced through combining traditional and computerized visualization tools.

Introduction

This paper describes the beginning stages of a participatory planning process involving the University of Illinois at Chicago (UIC) and the neighboring community of Pilsen. The participants found that utilizing a combination of artistry and interactive computer technology created a uniquely effective visualization environment that unleashed community expertise and local knowledge. The core of the project was a high-tech Geographic Information System (GIS) that could be used during community workshops to immediately and interactively access data and images related to the neighborhood. Incorporating a skilled artist who immediately sketched participant ideas and translated them into images on a screen enhanced the visualization environment. This

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joining of powerful technology with the ability of the artist to instantly concretize participants' ideas proved to be a promising solution to the often challenging planning problem of gaining genuine citizen participation. Despite long-held feelings of distrust in the community toward the University, this technique not only allowed community members to truly participate in designing revitalization projects in their neighborhood, but also gave them confidence that the University would be an equal partner, rather than a unilateral decision maker, in the process. These design tools facilitated a process in which the role of "the expert" constantly shifted back and forth between community members and professional planners and designers.

This paper will recount the background of the University and the community, describe the tools employed in the process, evaluate the costs and benefits of developing these visualization tools and suggest some areas in which additional research is needed.

Background: The University and The Community

The University of Illinois at Chicago is located near the heart of the Pilsen community. The shared history of UIC and its neighbors includes not only displacement of homes and businesses to accommodate University's need for expansion, but also large, well-publicized, and eventually discontinued community service programs. These issues have created a nearly universal distrust of the University. In recent years, UIC has been working to rebuild trust with its neighbors through collaborative community planning and design. Funding from the Community Outreach Partnership Center (COPC) program of the U.S. Department of Housing and Urban Development has augmented this effort. COPC is designed to assist universities develop programs to involve faculty and students in applied projects that benefit neighborhoods and communities. For UIC, the COPC program and funding has reinforced institutional priorities to strengthen the quality of life in urban neighborhoods such as Pilsen through collaborative programs involving university faculty, community organizations, local government, and corporations (Wiewel and Lieber, 1998).

Pilsen is a largely Mexican-American and Mexican immigrant community of nearly 50,000 people. Leaders in the Pilsen community expressed an interest in a participatory, collaborative approach to the planning and design of their neighborhood. A particular focus was 18th Street, the neighborhood's main commercial district. Leaders wanted to promote commercial tourism along this business corridor, and at the same time address area problems such as urban blight and decay, vacancies and crime.

A planning team was formed that included 25 community residents, including representatives of the 18th Street Development Commission, two architects, two planners, and one artist.

The University team's objectives included creating a mutually respectful partnership with neighborhood residents, preserving neighborhood history, providing a broader understanding and context of urban issues, and exploring effective visual communication methods. In light of the community's suspicion of all University activities, building trust was the highest priority in the planning process. Trust arises from consistently meeting expectations and creating outcomes that all partners perceive as beneficial. One of the first lessons that the University team would learn was that effective visualization was a key to engaging residents and building trust.

After an initial interaction with the community where slides were shown to present images of the neighborhood, University design professionals realized that the presentation and visualization techniques at their disposal were inadequate because they lacked interactive capabilities. It became clear that in order for community residents to participate as co-planners and co-designers, they needed access to the same tools as planners and designers, and these tools had to be developed for use in a public setting. The UIC team began searching for a visualization environment, such as a GIS, that could effectively connect proposed design alternatives and their physical context.

The High Tech Component: An Interactive GIS is Developed

Until recently, Geographic Information Systems have been used exclusively by trained experts in the field. Now, however, there is a movement to increase the accessibility of these systems so that they are available to lay professionals and even to the general public (Innes and Simpson, 1993). Nancy Obermyer (1998) writes about the use of Geographic Information Systems in public participation. She describes a new group called Public Participation Geographic Information Systems (PPGIS). This group, which springs out of academic institutions, centers on how to make use of the powerful and expensive GIS technology in a democracy. The goal is to harness for community participation GIS's capacity. It aims at employing this technology in community participation because GIS is able to translate complex spatial information into a simple visual language that everyone can understand. Michael Barndt and William Craig (1994) explain that community-based nonprofit groups offer one of the best hopes to make cities livable; to fulfill

that promise, such groups must adopt nontraditional analytical and visualization techniques, (i.e., GIS).

In the Pilsen planning process, UIC planners and designers began creating an interactive GIS image database. The system needed to illustrate the neighborhood's context — its geography, cultural and architectural history, as well as present conditions, including neighborhood strengths, weaknesses, opportunities and threats. The system also needed to provide design prototypes to stimulate discussion about how the neighborhood might look in five, ten and 20 years.

First, an historical database was compiled, consisting of maps, images, tabular data, and textual information about the Pilsen neighborhood. Thematic layers were created for plat maps, land use maps, zoning maps, base maps, historic maps, and current aerial photographs. Historic images illustrating neighborhood characteristics in various time periods were collected and hot-linked respectively to historic maps. Second, the database had to show existing conditions of the neighborhood, particularly the 18th Street Corridor. A digital camera systematically documented the present condition of the neighborhood, and images were hot linked to their geographic locations. Finally, a library of environmental design prototypes was incorporated into the database. It consisted of photographs of key developments in Chicago's neighborhoods, particularly those adjacent to the UIC campus.

The Low-Tech Component: An Artist is Employed

The GIS provided critical contextual information, such as maps, demographics, and images. But this technology needed to be supplemented with human drawing capability that could quickly transform ideas into realistic drawings. The UIC artist was trained to draw urban scenes including streets, parks, plazas and retail areas, as well as landscape and detail elements such as shrubs, street signs, benches and chairs. She also depicted human activities in her sketches to bring a human scale to the drawings. With a few lines, this artist could capture the salient features of an image. She used an electronic sketchboard — an easily erasable drawing board, from which sketches can be saved as electronic files in a graphic format, such as a TIFF or JPEG, to a zip drive.

Implementation of Visualization Tools at Community Workshops

Equipment for the workshops included a computer, the electronic sketchboard, two projectors, and two large screens. The

sketches were projected on a screen using a multi-media projector while, beside it, another screen was used to display the GIS images. The images on the large computer screen showed the existing condition, or the "before" scenario. The other large screen showed the artist's sketches, or the "after" scenario. The side-by-side positioning helped keep the artist and the residents in check with reality, to ensure that the emerging drawings were practical and relevant.

In many cases, participants would become so involved in the discussion that they would walk up to the electronic sketchboard and draw their ideas. The artist was then able to take their ideas and build upon them. The GIS and the artist working in tandem had the effect of "leveling the playing field" between university planners and designers and the community. Residents became co-planners and co-designers in the process.

This design process is in many ways counter to conventional practice. It is common for architects and planners to prepare a master plan and then proceed to address details (King, 1998). Often, the first communication with the public is the presentation of the final plan. In this workshop process, however, residents and other key stakeholders were actively involved in the development of the design plans.

Two examples illustrate how technical expertise and local knowledge were both critical to the planning process. At one point in the workshop, a heated discussion arose about the lack of sidewalks in Pilsen. Some residents said new sidewalks were definitely needed, while others said sidewalks were not a priority. The UIC team used the GIS to display streets in Pilsen with and without functional sidewalks. The data indicated that approximately half of the streets did not have functional sidewalks, highlighting them in bright yellow. Interestingly, the cluster of yellow matched the location of pedestrian/automobile accidents that appeared on a separate GIS layer.

To further examine the issue, the UIC team browsed images of streets. One picture showed children walking to school on busy streets alongside automobiles. Another picture showed how some sidewalks were too small in busy retail areas. These sidewalks were jammed with people, and pedestrians were encroaching on the right-of-way. Other pictures illustrated the deteriorated condition of the existing sidewalks, which led to pedestrians avoiding use of those sidewalks. Instead, they used the right-of-way. The images also showed that the elderly and disabled had a difficult time getting around the neighborhood. These processes led to the

collective agreement that sidewalks must be a top priority. The method helped identify important issues and build consensus. In this example, the technical expertise of the planners and the visualization tools they developed helped residents reach an informed decision about an important safety issue.

The second example arises from a discussion about streetscape design. In sketching a major thoroughfare, 18th Street, the artist added tall trees. One resident objected, saying that it is impossible to plant trees because of the hollow vaults under Pilsen's streets. Due to an elevation problem, the original sewer system was built on the ground, and streets were built on top of the sewer lines in a vaulted structure. The community participants suggested shrubs and small plants along the streets instead of tall trees. In this instance, community residents' knowledge of the area's history and safety issues led to effective urban design solutions. Planners and designers who did not live in the neighborhood would not necessarily have known about these issues and could have made uninformed decisions.

The above examples illustrate how technical and community expertise reinforced and complemented each other. These examples also show how the GIS and the artist aided in this process, providing the visualization tool necessary to engage participants in the process and make sound decisions. The constant reference to the image database — including maps, existing buildings and lots — made the discussion contextual and more realistic for everyone involved.

Conclusions of the Pilsen Design Workshop Process

The use of GIS technology and the artist's input had both positive and negative outcomes. The following lessons were learned:

1. The technique promoted strong community involvement in the planning process, which was an objective of both the community and the University. As one Pilsen resident stated, "as we saw ideas begin to take shape before our eyes we could feel excitement rise. The pulse begins to beat a bit faster!" The combination of basic sketching and projection techniques (low-tech), joined with the advanced GIS database of images and data (high-tech), created an optimal visualization environment. The artist, by immediately translating participants' ideas into sketches that all could relate to, gave participants a sense that their opinions were taken seriously and mattered in the final design solutions. The GIS provided

a common language and context so that community members could look at images of the community and interact with the data, rather than simply having the information reported to them. During the workshops, participants effectively functioned as co-planners and co-designers, which resulted in a democratic decision-making process.

2. Community expertise was equally important as technical expertise in developing effective, relevant strategies and designs. Technical expertise alone proved to be inadequate in solving community design problems. The two-pronged visualization method enabled community members to identify issues and concerns that the technical experts weren't aware of, as in the example of the vaulted sidewalk elevations. It also helped residents make designers aware of the cultural issues that were important to them in the architecture of the new projects. With joint access to all relevant information, the role of "the expert" shifted between community member and University team member during this planning process.

3. The workshops and the visualization tools helped build a relationship of trust between the University and the community, which was the most important outcome in the view of University participants. The GIS and the artist helped empower residents to plan and design for the future of their own community. The designs that were ultimately created reflected the community's wishes and input and respected its cultural heritage. As they watched their own ideas take shape in front of their eyes, the community felt that the University's purpose was not to destroy their lifestyle but rather to assist in the revitalization of their community.

4. The costs of developing the GIS system were substantial. Building the GIS database was a tremendous undertaking, requiring more than three months. University planners and designers exceeded the budget for this project due to the labor-intensive activities required in gathering and assembling the images, maps and historical data. However, the benefits of this system for UIC and the neighborhood far outweighed the cost. The visual context provided by the GIS image database was critical to the success of the project and it continues to play a key role in UIC's ongoing projects with the Pilsen community. The cost of this project is also

justified because this project was viewed as a "test" of the effectiveness of visualization tools in public settings.

Implications for Planning and Design Visualization in a Public Context

Over the past few decades, methods of community participation have been documented in a variety of resources from small manuals on visioning and participation (Bredouw and McClelland, 1991) to more comprehensive descriptions of techniques (Sanoff, 1990 and 1991; Smith, 1993; Nelessen, 1994). This paper explained how a combination of traditional and computerized visualization techniques was employed to foster public participation in neighborhood planning.

While we found this method to be highly effective in accomplishing its goal of increasing citizen involvement in the planning process, there are areas that need improvement. Technical glitches were a frequent part of the process. The computer was often slow in processing information such as loading images and overlaying thematic layers. These delays often prolonged the planning process and interrupted the steady flow of ideas. The organization of data in the GIS system could be improved to provide better and faster query capabilities. It is also possible to customize the GIS/Arcview program used in this project to facilitate customized functions, (i.e., functions that answer common questions in public participation.) Research is needed to enhance the methods involving organizing and indexing images according to themes in the GIS. Also, as stated above, in order for this method to be replicated, a strong financial commitment is required. Further investigation into ways to make the development of the system less labor-intensive is needed.

In describing the workshop experience and some of its outcomes, this paper aims at reinforcing the work of others in the field of public participation. The premise is that the accumulation of these experiences will have a dramatic and significant effect on the way designers and planners are educated and on their role in society. Our experience supports Wates' notion that for effective design and planning, the role of the architect and the planner has to shift from "*provider*" to "*enabler and facilitator*." Professionals and educators in the planning and design fields need to develop and teach new skills that promote participatory planning and design. Clearly, the development of methods and skills in community design are in their infancy, still at the exploratory and discovery

stage. This paper is a step in the development of such skills — progressing toward the art of designing with people.

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