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## **LET MAPS TELL THE STORY: USING PPGIS IN THE EVALUATION OF COMMUNITY-BASED INITIATIVES**

**Abstract:** Social service agencies are familiar with the need to measure outcomes and gauge progress. Unfortunately, written documents may impart little knowledge to the community members and families served. Maps have the advantage of reaching a non-technical audience by conveying a message simply and clearly. An evaluation project conducted in 2000-2001 blended PPGIS technology into an assessment of community groups' progress in improving neighborhood conditions and quality of life for residents. The Neighborhood Partners Initiative (NPI) of the Edna McConnell Clark Foundation in New York City commissioned Metis Associates, a New York-based consulting firm, to conduct neighborhood inventories in five New York City locations. The neighborhood inventories provide systematic documentation of

neighborhood physical characteristics on a block-by-block, parcel-by-parcel basis. Using an asset-based framework, neighborhood changes and trends were tracked over a three-year time period. The project provides an illustration to planners, evaluators, and assessors of how PPGIS can be used to incorporate local knowledge into evaluation procedures through community feedback mechanisms. By integrating data from surveys, inventories, and interviews with key informants evaluators mapped outcomes, indicators, and progress at the local level. The maps enabled assessors to analyze qualitative dimensions of community organizing that standard statistical approaches fail to capture. Using maps to “tell a story” increased community buy-in to the overall evaluation process. Community members praised the resulting report for its visual representations of complex data and said the maps enhanced the accuracy of the assessment. This presentation outlines the approach used to integrate PPGIS technology into traditional evaluation procedures. It discusses the strategies developed to facilitate community participation in the mapping process as well as the value PPGIS added to the evaluation reports. Finally the presentation concludes with suggestions for the design of future PPGIS projects within the evaluation and assessment context.

## INTRODUCTION

As geographic information systems (GIS) gain popularity with community groups, the technology is increasingly employed by agencies that work with them. Many of the benefits of GIS, including its appeal to non-technical audiences, have led to its use among evaluators. While evaluation and assessment may be a less traditional role for GIS technology, it has been adopted in varying degrees by agencies that offer evaluation services. This is especially true in the evaluation of community-based initiatives. The role of the evaluator includes analyzing the measurable outcomes and gauging progress towards specified goals. The assessment is most often commissioned by grant making institutions and used to rate the success of funded community projects and/or efforts. Unfortunately, the evaluation process is not always a pleasant or welcome experience for the community groups involved. Therefore, Metis Associates has continually looked for ways to increase community participation in the evaluation process in order to make the evaluation report a product that benefits the community as well as the funding organization. High levels of community participation make the evaluation process a more useful experience for community-based organizations, lead to a higher quality report, and generate a more valuable product for everyone involved.

Public participation GIS (PPGIS) has proved to be an effective means to increase community participation in the evaluation process. In the evaluation context, PPGIS is less concerned with software and skill development. Rather it is used as a communication tool that facilitates the sharing of knowledge in an accessible, visual format. Evaluators and community members collaborate on the type of data gathered, the presentation, and the analysis using maps as the medium. By involving community members in the evaluation process, maps help keep the evaluators ‘close’ to community priorities. As a

result, the evaluation report captures the progress made by community-based organizations as well as the challenges they face. The final product of the assessment is a more accurate representation of what is taking place at the community level. This provides funders with an assessment of community initiative outcomes that community members feel is a more just representation of their efforts.

Metis Associates chose to incorporate PPGIS (as opposed to GIS) into their evaluation procedures. While GIS has become a popular, almost necessary, component to reports that seek to document neighborhood conditions, a traditional approach leaves these efforts vulnerable to technological biases – meaning that GIS analysts have the final word on how the community is “mapped.” It has been well documented among scholars that traditional GIS methodologies often exacerbate the marginalization of community stakeholders who lack access to GIS technologies (Aitkin and Michel; Harris and Weiner 1996; Obermeyer 1998). In contrast, a PPGIS approach offers numerous benefits to evaluators. Public participation in the mapping analysis facilitates a fairer treatment of communities represented by the maps (Chrisman 1987). In general, PPGIS makes the evaluation report a better product and increases its value to the community. The following case study demonstrates how PPGIS methodologies can be blended with customary evaluation procedures and highlights the benefits of employing this approach.

### **CASE STUDY: MID-BRONX SENIOR CITIZENS COUNCIL**

The Neighborhood Partner’s Initiative (NPI) of the Edna McConnell Clark Foundation in New York City began in July 1996 and assists community-based organizations (CBOs) in building the capacity of the community to improve physical neighborhood conditions and the quality of life for residents. Five neighborhood sites in Harlem and the South Bronx were selected to participate in the initiative. The Mid-Bronx Senior Citizens Council was one of the CBOs selected to participate in the initiative. Founded in 1973, Mid-Bronx is one of the largest minority-controlled and operated CBOs in the Bronx. As a multi-service, community development corporation, Mid-Bronx serves residents in the Morrisania section of the Bronx. It provides an array of services in the areas of housing, education, economic development, childcare and elder care, and community revitalization. Its mission is to enhance overall quality of life for residents for the South Bronx by ensuring them the opportunity for economic and social well-being and encouraging residents to become vocal, active, and positive forces within their community.

Metis Associates, a New York-based consulting firm, was commissioned in 1999 to conduct a neighborhood inventory in these five New York City communities. The neighborhood inventories provide systematic documentation of neighborhood physical characteristics on a block-by-block, parcel-by-parcel basis. These assessments were conducted using a five-page rating questionnaire that collected data on occupied buildings, vacant buildings, and vacant lots. The purpose of the NPI evaluation conducted by Metis Associates was to document the development of strategies used by each NPI site and the changes that occurred in their neighborhood since the initiative began. The resulting Neighborhood Inventories Report describes the physical conditions in the Mid-

Bronx area as documented in the summer of 2000 and, where possible, compares the current state to conditions reported in the summer of 1997 by the Urban Technical Assistance Project (UTAP) at Columbia University. A large GIS component was included in the UTAP report. Metis Associates made extensive use of maps in our report, and chose to use a PPGIS model.

A traditional evaluation approach was used to conduct the evaluation— a neighborhood inventory questionnaire was developed, data collected, and results analyzed – but PPGIS techniques were blended in at every step. Community stakeholders were directly involved in the collection of the data, its representation, and its analysis. Although the GIS was built and maintained by a Metis Associates GIS analyst, community members substantially edited paper maps. The GIS analyst and Mid-Bronx staff meet regularly to discuss the mapped representation of data and accompanying analyses. Feedback from these sessions was then incorporated into the GIS.

### **Data Collection and Mapping**

Mid-Bronx staff worked with the evaluation team in customizing the neighborhood inventory questionnaire's design to ensure that it would focus on community goals. Neighborhood residents, CUNY graduate students, and Metis Associates staff served as raters, gathering information on the physical characteristics of the target area using the inventory questionnaires. Initial data collection took place during one week in July 2000. Follow-up data were collected in August 2000.

After the Mid-Bronx neighborhood inventories were completed, a CUNY graduate student conducted a walk-through of the neighborhood with the Mid-Bronx NPI Project Director, Margaret Johnson. The walk-through was used as an opportunity for the director to discuss changes that have occurred to individual properties and the area overall since the NPI project began.

The inventory questionnaires were coded and the data entered into a GIS. A series of indices were developed to measure the condition of properties, vacant lots, and community gardens in the area. Metis Associates mapped these indices as well as neighborhood land use. Other maps showed greenery and the presence of trash.

### **Feedback and Revisions**

Metis Associates solicited community participation at this stage of the evaluation using paper maps as the medium. Mid-Bronx staff reviewed paper copies of the maps and made substantial edits. Specifically, Mid-Bronx staff noted that the maps focused on physical characteristics of the neighborhood while community goals included a wider array of efforts. After the initial meeting, a map showing child safety measures was added to the report and several of the indices were revised to put more emphasis on community efforts. For example, trees planted by Mid-Bronx community members were distinguished on the greenery map.

After Metis Associates completed the first set of map revisions, the GIS analyst and Mid-Bronx staff met again. During this feedback session, community members expressed frustration with the boundaries being used for the assessment. For example, extensive building construction was underway in the Morrisania area for the Bronx Criminal Court Complex but the site was technically not in the Mid-Bronx ‘target area’ although it was across the street from buildings that were. Community members said that residents of the Mid-Bronx target area faced many challenges arising from the massive construction (e.g. noise and pollution) and that community efforts to mitigate these negative consequences should be captured in the evaluation. Metis Associates agreed to widen the neighborhood boundaries for some select maps and highlight the proximity of the target area to multiple construction sites.

Mid-Bronx community members also said they felt the assessment ignored the serious parking problem faced by the neighborhood. Given its proximity to the court buildings and businesses along Grand Concourse Plaza, demand for parking space in the Mid-Bronx target area is high. There are not enough legal parking spaces for residents and the people who commute into the neighborhood for their jobs. Illegal parking was common in the area and often blocked sidewalks and fire hydrants. This created a serious safety hazard and impeded overall transportation in the community, sometimes blocking buses from making designated stops along their routes. Metis Associates agreed to map streets where illegal parking was prevalent.

## CONCLUSIONS

The PPGIS approach provided numerous advantages to evaluation and assessment efforts in the Mid-Bronx community. Using maps to “tell a story” increased community buy-in to the overall evaluation process. Community members praised the resulting report for its visual representations of complex data and said the maps enhanced the accuracy of the assessment. Several of the main advantages are highlighted below.

- ?? Insight – Community input helped Metis Associates avoid some of the common problems associated with mapping marginalized communities. Involving community members in the mapping and analysis helped Metis Associates avoid focusing on the obvious scenarios and take a closer look at what was happening in the community.
- ?? The Qualitative Story - With their great personal knowledge of the area, community members were able to augment maps based on qualitative data with “stories” that helped explain what was taking place. A Metis GIS analyst mapped some of the qualitative data to highlight issues in the community that were not measured by any baseline indicator such as double parking and tree planting efforts. As a result, Metis Associates was able to present the qualitative side of the story as well as the quantitative.
- ?? Fostering Collaboration and Co-production - ‘Co-production’ calls for community involvement in the data gathering process and the creation of data

(Barndt 1998). Neighborhood residents were paired with members of the evaluation team and conducted the inventories and collected data. Metis Associates felt that the presentation and analysis of data could also benefit from the input of community members. The concept of ‘co-production’ was extended to include the way the data were represented on the maps.

As a result of the PPGIS, the evaluation results presented a more just assessment of community efforts and captured issues that were not captured by neighborhood indicators. Allowing community members the chance to edit maps rather than written text enabled a non-technical audience to visualize evaluation results and critique them. The simplicity of the approach combined with the magnitude of improvements brought to the evaluation shows that PPGIS can be a valuable element in the assessment of community-based initiatives.

In the future, Metis Associates hopes to design PPGIS evaluation and assessment projects that increase the capacity of community members to use the technology. Funding could be budgeted into proposals that allow for the sharing of access to PPGIS technology and imparting skills to community members. This would allow community stakeholders to increase the role they play in the mapping process. Ideally, GIS analysts at Metis Associates could work with community members to construct the GIS and create the maps. This could be done by housing analysts, hardware, and software in community group offices during the evaluation process or by collaborating via interactive web-based technology. The success of the Mid-Bronx/Metis Associates PPGIS collaboration demonstrated the value of such approaches. Hands-on community involvement in the GIS technology holds greater potential still.

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