



Chapter IX

An Experimental Study Using SDS Tools for a Participatory Approach to Local Land Use Planning

Piotr Jankowski, San Diego State University, USA
Milosz Stasik, Environmental Systems Research Institute (ESRI) Inc., USA

Abstract

Participatory geographic information systems (PGIS) have been touted as a technology to democratize local decision making. The promise of PGIS has been largely pinned on the assumption that maps as tools of communication are rich in informational content, and capable of fostering shared understanding and analytical thinking. Whether maps alone can indeed be the medium for supporting shared understanding and analytical thinking in participatory decision making is still an open question. Much of our knowledge in this area is still anecdotal, and there is a need for empirical work to supply the evidence. In an attempt to test the applicability of maps, decision models, and Internet-based communication tools for PGIS, software called spatial understanding and decision support system

(SUDSS) was built using asynchronous spatiotemporal environment, and tested in a realistic setting representing public land-use planning debate. This chapter provides a description of the software and the experiment, followed by the discussion of its results and their significance for the future development of similar public participation spatial-decision support tools.

Introduction

Much of the work on PGIS or public participation GIS (PPGIS) has been focused on “community integrated GIS,” with the premise that public access to GIS data and maps might lead to changes of social paradigms including empowerment of traditionally marginalized groups within the society, and democratization of local decision making (Craig, Harris, & Weiner, 2002; Tulloch, 1999). Despite the criticism of GIS data and maps as representing “privileged” knowledge of experts and institutions, GIS technology still holds the allure of creating an exchange platform for synthesizing expert knowledge with lay participant experiences, and thus allowing communities to better address social concerns, educate, and raise awareness, as well as incorporate local knowledge into data and decisions.

One area where PPGIS research activities converge concentrates on community-oriented mapping and decision-support tools developed with GIS technology. Such maps and tools are aimed at helping to create, analyze, and deliberate information about spatial decision problems. They are also aimed at creating shared understanding of constraints and possibilities at solving such problems. The mobilization of public interest combined with inputs from different areas of expertise (including stakeholders, involved community members, politicians, and experts) may lead to solutions shared by broader groups in the society and thus, become an alternative to public apathy or resistance towards land-use planning and environmental decision making. (Couclelis, 2003; Golay & Nyerges, 1994; Jankowski, Nyerges, Smith, Moore, & Horvath, 1997).

While participation and problem understanding are crucial for the success of public collaborative decision making, various traditional models of participatory democracy have largely failed to attract the interest of citizens. Public meetings/hearings, meant to allow community members to voice their concerns, are in reality ineffective, due to citizens’ inability to attend a meeting held at a fixed time and location and their lack of confidence in free expression during such meetings. Moreover, planners and decision makers frequently lack experience and ability to convey their plans to the public in a lucid and engaging manner. Both citizens and decision makers regard public meetings as necessary and potentially useful,

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