

UC Berkeley

International Conference on GIScience Short Paper Proceedings

Title

Scalability in Participatory Planning: A comparison of online PPGIS methods with faceto- face meetings

Permalink

<https://escholarship.org/uc/item/8nh5943s>

Journal

International Conference on GIScience Short Paper Proceedings, 1(1)

Authors

Jankowski, Piotr
Czepkiewicz, Michał
Młodkowski, Marek
et al.

Publication Date

2016

DOI

10.21433/B3118nh5943s

Peer reviewed

Scalability in Participatory Planning: A comparison of online PPGIS methods with face-to-face meetings

Piotr Jankowski^{1,2}, Michał Czepkiewicz², Marek Młodkowski² Michał Wójcicki² Zbigniew Zwoliński²

¹San Diego State University, Department of
Geography San Diego, CA 92182-4493
Email: pjankows@mail.sdsu.edu

²Institute of Geoecology and Geoinformation
Adam Mickiewicz University in Poznań, Poznań, Poland

1. Introduction

A traditional approach to participatory planning involves face-to-face engagement of interested public in the tradition of town-hall meetings. A limitation of this approach has been its inability to scale public participation out to involve more people and up to involve participants from a wider geographical area (Nyerges and Aguirre 2011, Innes and Booher 2004). Although online Public Participation GIS (PPGIS) methods are not a panacea for scaling public participation, they offer a potential for collecting views and preferences of some residents who typically do not participate in open planning processes. The questions of who participates and whose views are represented have been at the heart of theorizing about PPGIS (Schlossberg and Shufford 2005, Sieber 2006), and were highlighted as core research questions in a recent review (Brown and Kytta, 2014).

This paper contributes to the literature by comparing online PPGIS and face-to-face methods in two aspects of scalability: number of participants (scaling out) and spatial extent (scaling up). Additionally, the demographic representation across the methods is also assessed. The evaluation is based on an empirical study involving four participatory planning processes, which took place between May 2014 and July 2015 in the City of Poznań (pop. 554 thousand), Poland. The processes were focused on local land use plan for a centrally located, multi-functional area in the City of Poznań, including a park, recreational facilities, allotment gardens, single- and multi-family housing, and a public school. Two of the four processes were traditional town-hall meetings (May 2014 and June 2015) whereas the other two (October 2014 and July 2015) employed online PPGIS applications. The dichotomy between the two modes of participatory planning (same-place/same-time and distributed) affords a unique opportunity to compare demographic and spatial scalability of face-to-face meetings with online PPGIS methods.

2. Methods

Both of traditional, town-hall style meetings were organized by the municipal planning office in Poznań. The purpose of the first meeting (May 2014) was to familiarize participants with the planning procedure and to facilitate a discussion, during which participants had an opportunity to voice their concerns, opinions, and expectations regarding the planning process. During the

second meeting (June 2015) the participants were presented with a draft project of land use plan, and commented on land use designations and functions. Information about the participants including their age and address were collected by researchers through a questionnaire given to the participants during both meetings.

The two online PPGIS Web applications involved a geo-questionnaire (October 2014) and a geo-discussion (July 2015). Geo-questionnaire is an online questionnaire coupled with an interactive map facilitating data collection of two types: object descriptions linked to geographical features, and descriptions without an explicit spatial reference (Jankowski et al. 2016). In geo-questionnaire the geographical features are sketched by participants or selected from an interactive map. Depending on the geo-questionnaire design, sketching or selecting a geographical feature may trigger one or more questions pertinent to feature's location.

Geo-discussion is a Web application tool developed by the authors, consisting of an online structured discussion forum coupled with an interactive map with rich geographical context. The tool allows participants to annotate map objects with discussion contributions. The discussion forum has several standard functions, such as adding new threads on a map, commenting on threads added by other participants, subscribing to posts and threads, adding "like" and "dislike" reactions, adding attachments, and sorting and searching posts. The map module allows participants to measure distances and surfaces, search by address, toggle between map layers, filter objects from a selected area, and retrieve attribute information about land use plan.

The geo-questionnaire was used to collect the preferences of Poznań residents in regard to the plan area and its future land use organization. The details describing the geo-questionnaire recruitment process, response rate, content, and data concerning public preferences have been reported in Jankowski et al. (2016). The geo-discussion was carried out to collect comments and ideas from Poznań residents about the project of local land use plan for the park including land use designations and functions.

3. Results

Table 1 provides the comparison of face-to-face and online modes of participation by participant number, age, gender, and college education attainment. The differences are clear in the number of participants and their mean age. The online mode attracted on average between five (geo-discussion) and 40 times (geo-questionnaire) more participants than the face-to-face meeting mode. The online participants were on average 7 to 10 years younger than the meeting participants. There is no or very little difference in gender breakdown and percentage of college educated participants.

Table 1. Comparison of traditional with online participation mode.

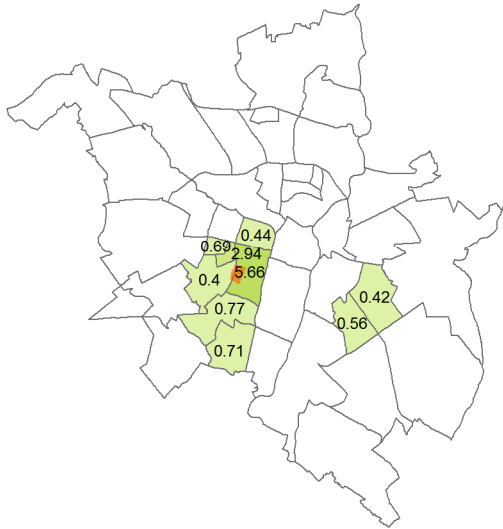
Participation method		No. of participants	Mean age of participants	Percent women	Percent with higher education
Public meetings	1st meeting	32	45.4	37.5	90.6
	2nd meeting	23	42.5	47.8	76.2
Geo-questionnaire		1087	35,8	47.7	74.5
Geo-discussion		128	35,3	46.9	79.5

Spatial extent and the distribution of participation rates are presented in Figure 1. Three main differences in the distribution and the overall spatial extent of participation are noteworthy: 1) the rates of participation in the online modes were on average four times higher than for the face-to-face mode, 2) residents from 37 out of 42 city neighborhoods participated in the online mode in comparison to residents from 10 neighborhoods in the face-to-face mode, and 3) the online participation mode tracks better the city population by neighborhood than the face-to-face mode. In all methods, there is a disproportionally higher participation from the neighborhood where the plan area is located and from the adjacent neighborhoods. A preliminary spatial analysis of participant distribution based on Average Nearest Neighbor Index shows statistically significant clustered patterns with higher clustering of participants observed in the online mode (Table 2). This obviates two things; first, that participation in a local planning problem is also local - regardless of the mode of participatory process. Second, surprisingly the online mode did not produce a geographically dispersed pattern of participation despite a geographically wider (than the face-to-face mode) participation extent. This suggests that participants self-selected for the survey based on their interest in the area covered by the plan.

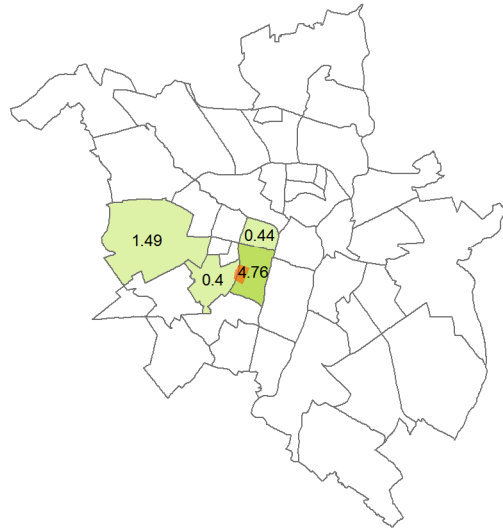
Table 2. Average Nearest Neighbor Index of participant distribution for the Poznań area.

Method	Observed mean distance [m]	Expected mean distance [m]	Nearest Neighbor Index	N	Z-score	p-value
First meeting	627.85	1907.25	0.329	18	-5.445	0.000
Second meeting	565.05	1962.55	0.288	17	-5.617	0.000
Geo-discussion	395.55	872.56	0.453	86	-9.699	0.000
Geo-questionnaire	238.14	425.30	0.560	362	-16.017	0.000

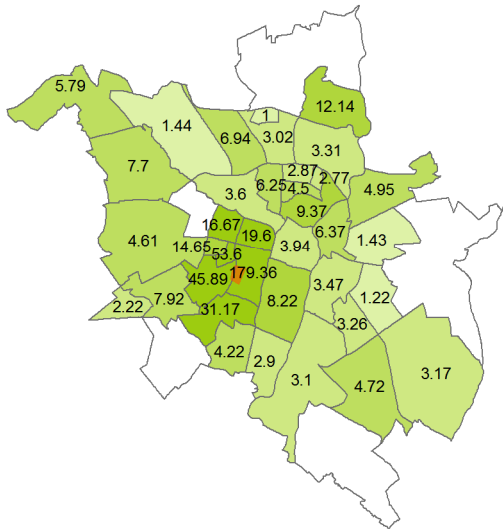
First meeting



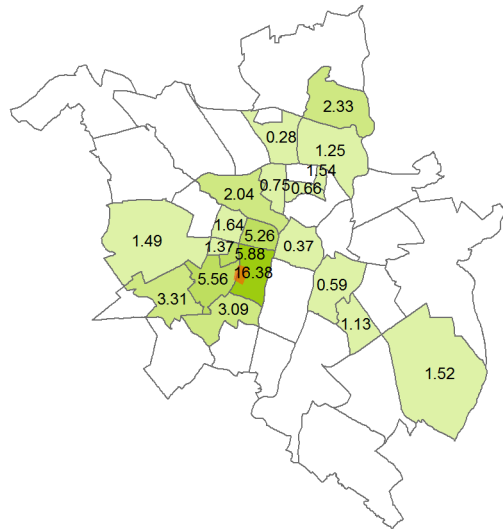
Second meeting



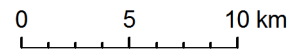
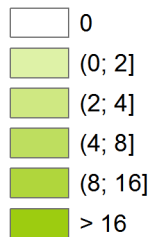
Geo-questionnaire



Geo-discussion



Participants per 10,000 neighborhood residents



Plan boundary

Figure 1. Spatial distribution of participation rates by city neighborhoods

The comparison of demographic distribution shows the overrepresentation of online participants in younger age groups (15-19 and 20-24), and underrepresentation in middle- and older-age groups (50 and older) (Figure 2). The overrepresentation among the younger participants is largely due to the Internet use patterns in Poland, and prevalence of learning about online participatory processes from social media, which was by far the most effective recruitment tool for both the geo-questionnaire and the geo-discussion (Jankowski et al., 2016).

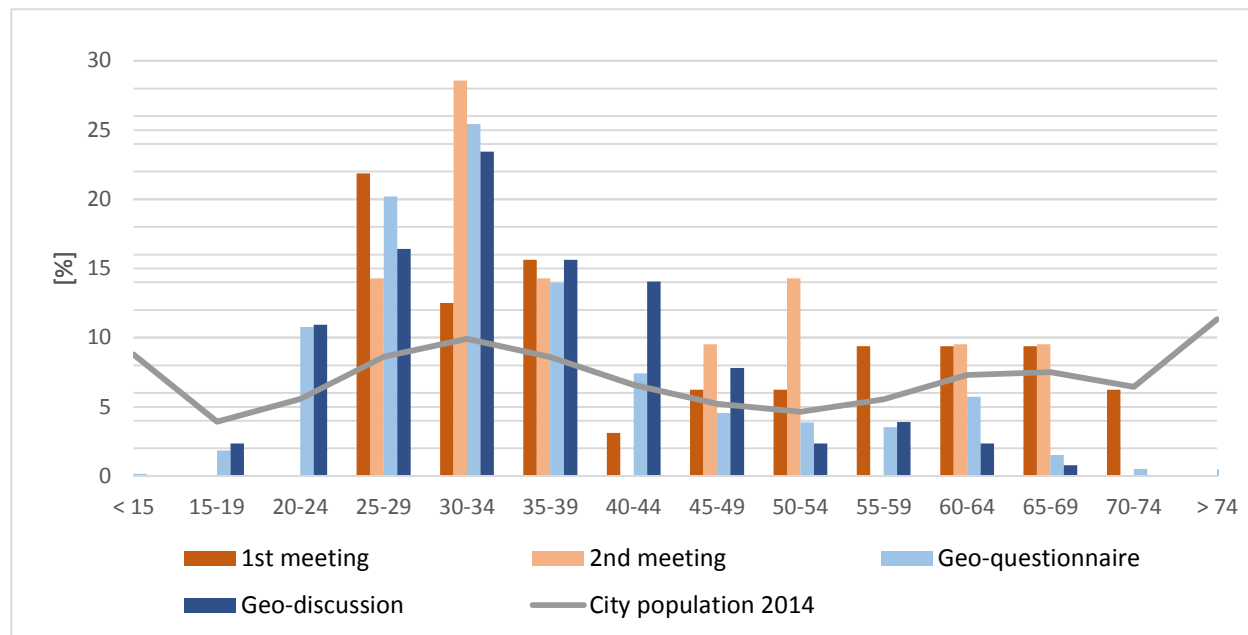


Figure 2. Demographic distribution by mode of participation compared to the city age structure

4. Conclusion

The results show that online PPGIS methods, in particular geo-questionnaire and geo-discussion do scale out and up in comparison with face-to-face meetings employed as a traditional mode of public participation in land use planning processes. Scalability of public participation methods, however, is confounded by the demographic representativeness of those who participate. The reported results provide an argument for combining online mode with face-to-face mode in order to improve the representation across the age groups. They also demonstrate no difference between the modes in respect to social-educational status of those who participate. Hence, the issue of scaling public participation across social groups remains a challenge. Involving underrepresented social groups may require using sampling approaches directed specifically at them in both online and offline settings.

References

Brown, G., and Kytta, M. (2014) Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research. *Applied Geography*, 46: 122-136.

- Innes J.E., and Booher D.I. (2004) Reframing Public Participation: Strategies for the 21st Century. *Planning Theory & Practice* 5 (4): 419–36.
- Jankowski, P., Czepkiewicz, M., Młodkowski, M., Zwolinski, Z. 2016. Geo-questionnaire: A Method and Tool for Public Preference Elicitation in Land Use Planning. *Transactions in GIS*, in press DOI: 10.1111/tgis.12191
- Nyerges, T., and Aguirre, R.W. (2011) Public participation in analytic-deliberative decision making: Evaluation a large-group online field experiment. *Annals of the Association of American Geographers*, 101(3): 561-586.
- Schlossberg, M. A., and Shuford, E. (2005) Delineating “public” and “participation” in PPGIS. *Urban and Regional Information Systems Association (URISA) Journal*, 16(2): 15–26.
- Sieber, R. (2006) Public participation geographic information systems: A literature review and framework. *Annals of the American Association of Geography*, 96(3): 491–507.