



“Siloing” Impact: Exploring academic and practitioner perspectives on impact in digital participatory mapping

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ABSTRACT

Digital participatory mapping is a growing field of research and practice which engages non-experts in recording their local place-based knowledge, allowing them to advocate for change and influence policy. Using semi-structured interviews, we draw on the experiences of some of the most highly cited academics and most relevant practitioners in the field of participatory mapping, we critically examine how they understand and apply the concept of impact in their work, aiming to identify any convergences, divergences, and siloing occurring in the field. We find that there is no consensus as to which projects are most “impactful”, and that understandings of impact are influenced by and influence the geospatial tools and technologies used in digital participatory mapping. We propose that this siloing and the ensuing siloed subcultures built around geospatial tools and technologies is in part responsible for disparate views on what impact means and how it should be measured in the field of participatory mapping.

1. Introduction

Participatory mapping is a broad field of research and practice, which engages non-expert community members, as well as researchers, community groups, governments, and organizations in an inclusive map-making process that renders local place-based knowledge visible (Chambers, 2006). It has been used in many ways, from increasing the democracy of urban and conservation planning (e.g., Brown, 2012), to recording the voices of marginalized people and giving them the resources to advocate for social/environmental justice and influence policy and decision-making (Corbett & Keller, 2005). As an umbrella term, there are many different “types” of participatory mapping, such as PPGIS/PGIS, VGI, Participatory 3-D Mapping (P3DM), counter mapping, Indigenous mapping, and more. In this article, we are focusing on digital participatory mapping, including GIS-based mapping tools and what Sieber et al. (2016) call the participatory geospatial web. For the simplicity of explanation, in this article we refer to these approaches as simply “participatory mapping”. We understand that the general idea of “digital” participatory mapping conflates tools, technologies, and the geoweb,

all of which are distinct. The differentiation of these particular aspects and their relation to impact should be treated in a separate paper.

In their recent systematic review of participatory mapping literature, Denwood et al. (2022) found that there is a lack of critical reflection on impact in participatory mapping studies, not only in those using digital methods, but writ large. Impact is a difficult concept to gauge, especially in community ecosystems where “cause and effect” are not easily associated and “less tangible”, but key impacts, such as capacity building and social cohesion, are not easily measured. The authors continue by stating that in the participatory mapping literature, scholars often do not disclose whether the project objectives were achieved. We add that many participatory mapping projects have been exploratory in nature, and that demonstrating impact has not necessarily been the focus of their work. Thus, what we know about the impact of participatory mapping remains largely anecdotal. Despite the clear need and calls made by academics in the field to understand the ways that impact is across various types of participatory mapping (Elwood, 2002; Reyes-Garcia et al., 2012; Haklay, 2013; Brown, & Kytta, 2014; Kahila-Tani et al., 2019; Jankowski et al., 2021; McCall, 2021), there is limited research to date that addresses the issue.

This research seeks to examine how academics and practitioners involved in participatory mapping understand and apply the concept of impact in their work. Our aim is to compare the perspectives of academics and practitioners, and to identify areas of convergence, divergence, and siloing in perspectives. The research is guided by the following research questions: How do scholars, practitioners, and other stakeholders understand, recognize, and articulate the impact of participatory mapping projects? How do these understandings differ and what influences these differences?

2. Methods

Given that “impact” is understood in academic and practitioner communities, and beyond, in diverse ways, this research is grounded in the theory of “situated knowledge”. This theory rejects the notion of objective and value-free knowledge production, positing instead that all knowledge is situated socially, politically, physically, based on the positionality of the “knower” (Harding, 1986). This means that understanding something (e.g., the idea of “impact” in this research) requires a plurality of perspectives, and that the most important perspectives will come from those whose daily lives are directly affected by the knowledge (Butterfield, 2008). Although “situated knowledge” was an epistemological concept developed in feminist studies, it is a useful epistemological approach impact in participatory mapping, given the contested nature of impact and the relevance of the knower’s positionality in determining what counts as impact.

In this research, we employed semi-structured interviews with some of the mostly highly cited academics and important practitioners (including those who identify as “scholar-practitioners”) in the field of participatory mapping, to explore how they understand, recognize, and articulate impact in the work that they do. These interviews lasted between 40 minutes to 2 hours and took place between 2021-2022. During the interviews, we asked participants the following questions: What are the most significant influences on your participatory mapping research/practice?; Do you consider your work to be research or practice? (academics); Does research inform your practice; and if so, how? (practitioners); Reflecting on your work, and the research/practice that you’ve been influenced by, how do you

recognize, evaluate and articulate different forms of impact related to participatory mapping? What are the 3 most impactful participatory mapping projects that you know of, and why? The following sections explore how participants were recruited, and the data were collected and analyze for both the first round of interviews (academic group) and the second round (practitioner group).

2.1 Round One: Interviews with Academics

To identify some of the most highly cited academics in the field of participatory mapping, we compiled a list of common participatory mapping keyword categories, and used them in searches using dimensions.ai, an online database for scholarly publications. These keyword categories included: GIS, Participatory, Community, Counter, and Indigenous. We completed 2 searches and identified: (1) the top 10 authors based on citation count for each keyword, which allowed for authors from the “counter” and “Indigenous” categories to be included, even if individual citations were fewer; (2) the top researchers published between 2015-2020, allowing for greater visibility of early-career researchers who have not had as much time to accumulate citations. The top 30 academics from both searches were selected to be contacted for interviews. We interviewed a total of 12 academics during this round of interviews.

2.2 Phase Two: Interviews with Practitioners

We used a snowball sampling method to identify some of the most significant practitioners working in participatory mapping. We use categories of geography (e.g., Global North and South), temporal relevance (e.g., when they were most active in practice), and practical affiliations (e.g., government, intergovernmental, NGO, community leader, consultant/independent practitioner, corporate practice, and research-practitioner) to minimize the chance that the snowball sampling would lead us to a homogenous stream of practitioners who know and work together. This aligns with the idea of situated knowledge, as pluralism, or multiple and often disparate perspectives on a common phenomenon (e.g., impact), facilitate robust knowledge production (Longino, 2002). We interviewed 17 practitioners. Each of these individuals represented a broad range of geographies, temporal relevancies, and practical affiliations. Most participating practitioners identified as “hyphenates”, filling and having filled two or more practical affiliations during their careers.

2.3 Data Analysis

We coded the interview data using NVivo software, a qualitative data analysis software commonly used to identify themes in research. We used inductive coding, a method of letting the codes emerge (Creswell & Creswell, 2018) to identify themes related to how academics and practitioners qualify impact.

3. Results

After asking all the academics and practitioners to suggest 3 projects that exemplify impact, we found that there was no overlap in terms of “exemplary” projects, and a wide array of understandings of what counted as “impactful”. For instance, for academics, impact is often connected to the metric-driven system of academic institutions and funding agencies. As Brett Neilsen (academic) explains, metrics of impact (e.g., quantifiable proxies such as citation count or website hits) are often used in academic contexts to audit, rate, and demonstrate the impact of projects. These metrics might be indicative of how impactful a project is, in terms of its influence on academic thought in the field, can have an important personal influence on

academic career development, and may help to provide “hard” evidence to “justify tax payers’ dollars” (Michael McCall, academic). However, they fail to capture what some of the participants understand to be the best, albeit difficult to measure, indicators of impact: capacity building, creating dialogue and improving community cohesion, empowering local voices and representing local knowledge, and creating social transformations and instigating positive action in communities. The lack of consensus in understanding impact led us to consider what was driving fragmentation, and to identify various silos, or subcultures with reduced connectivity with other subcultures engaging in similar research/practice, which might have a profound influence on how we understand and measure impact in our work. The key silos that we identified include: silos based on researcher versus practitioner positionalities, temporal-geographic silos, and geospatial tool and technology silos. The later, geospatial tool and technological silos, will be discussed in this paper.

As Kyem (2021) suggests, “PGIS applications rarely occur in a social vacuum. The applications, therefore, affect and are therefore affected by broader political, economic, and cultural spheres of society” (p.187). In this research, we found that the ways that impact is conceived by participatory mapping academics and practitioners is also affected by contextual forces: it is both influenced by and influences the tools and technologies that participatory mapping academics and practitioners choose and use. Participants in this study suggested that their social networks, affiliations, and the tools and technologies that are embedded in those communities of practice, have influenced their understandings of impact, as well as their choice of tools. Rudo Kemper, a practitioner participant, laments that while he wishes the field was tool-agnostic, he sees the emergence of tool and technology-based subcultures and the ways in which these subcultures are creating narrow framings of best practices for planning and conducting impactful projects, based on the capabilities and limitations of the tool. As he reflects,

“If you're using Mapeo to do participatory mapping, [the first thing you're going to be looking for] is what are the other Mapeo projects that have been taking place that have been used for participatory mapping, right? Because part of what you're trying to figure out is, like, how you can use the tool most effectively. And so, that then predisposes you to only know about those projects as case studies, as opposed to other ones that are tied the different technologies and different ecosystems... I think [technology silos are] very real because somebody as influential as Giacomo [Rambaldi], who I got to know only by being part of the Participatory Mapping Network, just never circulated in my world before that, because the difference in technology, because of the different tools that were being used. So, it's a weird kind of international formation of cultures, of users that are tied to specific tools.”

Additionally, Renee Sieber explains how some of these subcultures come to be. She references Everett Rogers’ diffusion of innovatory theory and how “...the more that you learn the language of the innovation [e.g., the more you invest in understanding and using a tool/technology subculture], the less connected that you are with others in your unit, and we could extend that to the public at large”. Thus, narrowing the silos of geospatial tools and technologies, makes it more difficult for “outsiders” to the subculture to understand and engage with the project. Thus, when an area of research/practice becomes overly siloed, it may lead to potentially irreconcilable views and mutually unintelligible language to describe similar methods or

phenomena. In turn, this may hamper knowledge sharing, mobilization, and the potential reach of the project.

Geospatial tools are inevitably tied to the other silos identified in this research, such as position, and geographic factors. Beginning with position, in alignment with the idea of situated knowledge, the choice of which tool or technological subculture is chosen is likely influenced by the values of organizing individuals and their affiliations. For instance, tool development can be guided by the values of funders, institutions, and certain organizations, rather than community need. This means that tools are often being developed within institutional and funder framings of impact, which, as Brett Neilsen (academic) explains, rely heavily on quantifiable proxies that can be audited and rated, rather than community-orientated understandings centered around capacity building, social cohesion, and other less quantifiable indicators. The choice of tools and technologies is also often influenced by the proven and measured “success” in other communities (Michael Maron, practitioner). However, as Jirka Panek (academic) explains, this increases the risk of choosing the wrong approach for the community and their context, potentially causing unintended (or even negative) impacts as a result. Indeed, it appears as though the social, economic, political, and geographic “situatedness” of academics and practitioners appears to drive them towards certain silos, or subcultures, that are accessible and/or align with their personal experience, values, and goals. This fragmentation, in turn, may be at least partially responsible for differences in understandings of impact.

While the popularity of GIS-based participatory mapping tools has given rise to new ways of engaging communities and recording their spatial knowledge, some academics and practitioners expressed concern over the dominance of GIS, and an interest in understanding how GIS-based tools might influence how we understand participation and engage communities. As Muki Haklay (academic) asserts, “I’m very much concerned about this kind of whole aspect of participation in decision making, noticing very early on about the dominance of GIS in environmental issues and starting to ask myself questions about the role of technology and the role of technology in society...”. This “GIS dominance” is supported by what other participants see as an implicit technology hierarchy, where GIS-based work being done in the Global North is seen to be superior or more “advanced” than work that uses other tools and methods, particularly in the Global South (Alison Olivierre; Kitty Currier; Maeve Lydon; Renee Sieber; Rudo Kemper; Wendy Brawer). Despite the opportunities afforded by GIS technologies, the academics and practitioners who participated in this research highlighted “exemplary” projects that used a range of tools and technologies, not only GIS-based ones. Thus, it should not be assumed that the use of GIS in participatory mapping projects is a good indicator of impact.

The Global North/South technology silo noted by many participants be winnowing, however, with the development of geospatial tools with low technology and expertise requirements (in contrast to capital and knowledge intensive tools, such as Arc-GIS). Michael Goodchild (academic) points to Ushahidi, as an important tool in the Global South that allows users with a flip phone to collect, compile, and integrate their data, while Deogratius Kiggudde (practitioner) notes that OpenStreetMap has similarly been an important tool with low technology requirements and open-access data, which allows for sharing and better access to spatial data. That said, as Charla Burnett (practitioner) notes, GIS-based approaches in the North still tend to receive much more attention at conferences, creating missed opportunities to hear and learn from what is being done in non-democratic countries, where participatory mapping is often used as “practical and radical solution” to address different issues, such as

corruption and authoritarianism. Technological and tool-based subcultures and the perceived superiority of GIS-based approaches may be creating tensions in the field, where the values of democratic engagement associated with many GIS-based approaches come into potential conflict with the values of other approaches such as counter and community-mapping approaches, which aim to establish equity and a voice for the marginalized.

4. Conclusion

We conclude that impact is a contested term and that there is no consensus among academics and/or practitioners as to the most exemplary and impactful participatory mapping projects. While we desire heterogeneous answers to what impact is, the fact is that “impact” is much too complex and understood differentially based on who is involved. Community is a heterogeneous entity, and so we can neither expect this community of research and practice, nor the communities that we work with, to understand impact in the same way. Further, we propose that part of the reason why we do not agree on what impact is and which projects are most impactful is because of the siloing occurring within the field. We do not claim that this siloing is “good” or “bad”, but rather would like to point out that it warrants further study. In the results section of this paper, we discussed how understandings of impact are influenced by and influence the geospatial tools and technologies used in participatory mapping projects. We pointed to the ways in which tool and technology-based subcultures may impede knowledge transferal and/or create tensions and competition between subcultures with incompatible visions of what impact is and what participatory mapping should be used for. Thus, we propose that the specific geospatial tools and technologies that we use, and the siloing of these subcultures, may be contributing to our inability to agree on what “impact” really means in participatory mapping. We propose further research where we will explore the influence of geospatial tools and technologies on how we plan for, understand, and measure impact in participatory mapping.

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