Geothink 2014:

Putting ourselves on the map: exploring under-represented groups use of the Geoweb as a deliberative tool to address wicked problems

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Abstract

Research in Geographic Information Studies has played an important role in supporting public participation in planning processes. Community cartography, participatory geographic information systems and now the participatory geoweb, have all been used with varying levels of success. This paper will discuss the dichotomy between the expectations we have of the participatory geoweb and its ability to deliver. It will frame this discussion around Rittel and Weber's (1973) conceptualization of wicked problems. The paper will draw on the empirical research being conducted through the development, deployment and ongoing scaling up of one particular example of the participatory geoweb. This example is Geolive, a participatory web-mapping application conceived, coded and maintained at the University of British Columbia, Canada. Geolive is currently being used in a number of participatory mapping projects. Despite the differences between Geolive projects, key themes have emerged which shape our understanding of the ability and inability of the geoweb to influence participatory processes. These include: (1) Addressing preconceived, and at times unrealistic, understandings of the extent of the geoweb's ability; (2) Overcoming the inability to create functional templates that can be carried between projects; (3) Understanding our (in)ability to finish projects; and (4) Tempering how we speak about the outcomes and impacts of participatory geoweb research and practice. The paper concludes that there dwells an inherent wickedness in most forms of participatory mapping project, and that we as practitioners and researchers need to be acutely aware of this, and must, as a result, take on a stronger sense of responsibility in our research and practice.

Background and Relevance

In this short paper, I will briefly discussing participatory mapping. I will then draw on the empirical research being conducted through the development and application of Geolive, a participatory web-mapping application conceived, coded and maintained at the University of British Columbia, Canada. I will examine Geolive, and thus more broadly research in the participatory geoweb, using Horst Rittel and Melvin Webber's (1973) conceptualization of wicked problems. A wicked problem is defined as a difficult or impossible problem to solve because of complex, poorly defined, contradictory, and difficult to agree on sets of issues.

I posit that Rittel and Weber's paper does not present researchers of the participatory geoweb a challenge to overcome, in other words to tame the wickedness inherent to many participatory mapping projects - rather it helps us to firstly, better contextualize and understand the limitations of the geoweb to solve complex, ill-defined, real world problems, secondly to more effectively strategize and move toward improving our own practice, and thirdly to identify and report, both honestly and realistically, on the impacts of our work.

Participatory Mapping

Research in Geography, and specifically Geographic Information Studies, has played an important role in supporting public participation in a range of socially focused processes. Participatory mapping, collaborative cartography, counter mapping, participatory geographic information systems and now the participatory geoweb, have all been employed with varying levels of success.

Central to the praxis of participatory mapping is an understanding, well articulated by Crampton and Krygier (2006) that "maps are no longer imparted to us by a trained cadre of experts, but along with most other information, we create them as needed ourselves." In other words, participatory mapping is a map-making process in which local communities themselves make maps of their own connections to their (often immediate) surroundings. These maps represent a socially or culturally distinct understanding of landscape and include information that is often excluded from conventional maps that more often represent the views of the dominant sectors of society. It is the stated hope of many participatory mapping projects that "from engaging in the process of creation through to their application and use, they have the capacity to impact social institutions within the community as well as wider relationships on a social, cultural as well as political level" (Corbett and Rambaldi 2009). Often central to their use is the desire to address a bounded set of issues and to support an active social change agenda. Good.

A broad and growing number of participatory mapping tools are available and the choice of which one to use will be determined both by the way in which the map will be employed as well as to maximize the intended impact on the target audience. These tools range from low cost, low resource-input activities (such as maps drawn by memory) through to high cost and high resource-input programs (such as developing and deploying Participatory Geographic Information Systems). Presently, the challenge is to bring the principles of participatory mapping to the internet, and more specifically the geospatial web (or geoweb). Furthermore, there is a growing need to leverage new social media and mobile technologies to support marginalized communities to share their geosocial data in a way that addresses the challenges that they face as well as acts as a catalyst to bring about positive social change.

Geolive

Geolive is a web-based participatory mapping application conceived, coded and maintained at the University of British Columbia, Canada. Geolive allows registered users to crowd source their geosocial (spatially located text, pictures, video and audio) information. The application then makes this content selectively available to different types of user, based on whether they are registered, unregistered or hold some other status. It is robust, designed to be straightforward to use and manage, and it is developing continuously. It provides a flexible and extendable framework to facilitate communities' ability to capture, manage and communicate spatial data.

Geolive is currently being used in a number of collaborative participatory mapping projects. Most of these projects have involved working with marginalized communities, including First Nations, local food producers, processers and distributors, people with developmental diversabilities and a number of advocacy groups. In other words, the focus on the implementation of the application is to both address and redress social issues. To use Rittel and Webber's conceptualization, almost all these projects are addressing classic examples of wicked problems – problems that are complex, poorly defined, contradictory, and difficult (or impossible) to solve.

Results

So to return to this paper's original conjecture, I posit that Rittel and Webber's paper does not present researchers with a challenge to overcome, but rather it helps us to understand that oftentimes the geoweb is the wrong tool to address complex social issues. This is partially because "the search for scientific bases for confronting problems of social policy is bound

to fail, because of the nature of these problems. They are ‘wicked’ problems, whereas science has developed to deal with ‘tame’ problems” (1973). The participatory geoweb and the people developing and deploying the tools are intrinsically embedded in scientific process; they are often employed by universities and hold advanced degrees in computer science, planning or geography. As a result participatory geoweb solutions are, by force of circumstance, designed to deal with singular, linear and tame problems and not wicked problems, which frame the majority of the issues that participatory mapping projects seek to address.

The preceding paragraph is not to say that the objectives of the participatory geoweb are unimportant nor worthless, but as specialists and academics working in this field we need to understand the limitations of our own practice, research, analysis and reporting. I believe that Rittel and Webber’s conceptualization of wicked problems helps us to do that. In the next four subsections I will use Rittel and Webber’s theory to frame some of the challenges and limitations that we have seen in the development and application of Geolive. I understand that Geolive does not encompass all iterations and applications of the participatory geoweb, but it does provide a relevant and tested example of a web-based participatory mapping tool.

Articulating the problem

Rittel and Webber note that wicked problems have no definitive formulation. This is partially because every wicked problem is actually a series of interconnected problems. This makes them oftentimes impossible to describe with precision. This results in the inability of an individual to fully grasp the extent and complexity of the issue(s). Yet, as practitioners and academics there is a danger that we deploy participatory geoweb solutions, and in particular I speak from our own experience with Geolive, as a singular, and at times naive solution to complex, interconnected and poorly understood problems. Maslow’s Law of the Instrument is particularly resonant in these contexts, “if all you have is a hammer, everything looks like a nail.” This is because as practitioners and software developers, we have preconceived and inflated understandings of the extent of the geoweb’s ability, while lacking a complete set of information or experiences required to comprehend the complexity of the problems that the tools are trying to address.

There is another point here that clearly delineates the participatory geoweb from other forms of participatory mapping. In the past participatory mapping was more clearly situated within not just space, but also place. With the geoweb, this direct relationship between the participants and place is eroding. Our problems have transformed from being less physically proximal - to being more distant. This greatly increases the potentially to

engage users (and indeed in a number of mapping geoweb projects we invite everyone to participate to the extent that the immediacy of place becomes diluted), yet in doing so we dramatically compound the wickedness of the issue, because we attempt to engage with more individuals with different realities, perspectives and experiences - all increasingly problematized by geography.

The restriction of templates

As Rittel and Webber also identify, every wicked problem is unique. This consequently means that there is no template to follow when attempting to tackle a wicked problem, although history and experience may provide a guide. One of the restrictions of working with Geolive, and indeed I would imagine the development of any web-based mapping application, is that we tend to gravitate towards cookie cutter type solutions. This is a purely pragmatic decision, we need to create economies of scale and reduce the requirement for idiosyncratic iterations of the application. In other words, we need to develop a software application that is sufficiently standardized so that it can be used to address a broad range of different issues. In doing so we can implement it quickly and cheaply, we can be assured that the software is robust, we can begin to generate revenue and the application can become sustainable. Yet, when working on wicked problems with marginalized communities every project that we have worked on to date has unique needs. Furthermore, the more wicked the problems, the greater the need for unique solutions.

We recognize and embrace that it is important to craft projects and modify the implementation of Geolive to suit a very specific set of needs. But from a pragmatic perspective it also means that the development of a final release of a participatory geoweb application is very difficult because every iteration of Geolive is a ‘one shot’ design effort and the crafting of a stable ‘cookie cutter’ release remains elusive.

When are we going to get there?

Rittel and Webber note that there is no idealized end state to arrive at when attempting to solve wicked problems, and so approaches to engaging with them should incorporate meaningful and obvious outcomes to *improve* a situation rather than try to *solve* it. For participatory geoweb practitioners and developers, when we start a geoweb project, we need to firstly question our ability to be able to finish it. We can only achieve this if we very carefully articulate the goals at the outset of the project, and the goals often represent only a very small subset of the wicked problem being addressed.

From our experience with the development and implementation of Geolive, we find ourselves asking what does a finished project even look like? Because from our experiences Geolive (as a broad research development program) is like a snowball rolling down a hill. We continue to gather new projects, while being unable to shed the old. This is partially because we never reach an end goal. Solutions remain unattainable. This is because they are wicked problems. They confound solutions, because they are unsolvable. This has a potentially profound impact on our long-term sustainability of Geolive as we are bound to continue to support, manage and maintain iterations of our existing projects into the unforeseeable future.

Claiming success

Directly related to the previous point, we need to ask how the inability to finish Geolive projects impacts our ability to speak meaningfully about the outcomes and impacts of our work? Rittel and Webber clearly state that it is hard, maybe impossible, to measure or claim success with wicked problems, I would argue the same with evaluating the impacts of our work with the participatory geoweb.

On all our projects we use quantitative tools, such as Google Analytics, to try to understand how effective our projects are. We use metrics such as the number of site visits, user return rates, unique visits and referral processes to somehow understand success. Yet they present a very superficial understanding of accomplishment. Often the number of hits (especially when working with marginalized communities) should not be conflated with value.

I would go on to argue that the impacts and outcomes of more traditional forms of participatory mapping could be more clearly articulated or defined. But with the participatory geoweb it is very difficult right now to articulate what success and value look like, furthermore it remains virtually impossible to recognize explicit, exclusive or causal relationships of impact and social change to our specific projects. Undoubtedly, this remains an important area of study. We need more nuanced, agile and mixed research methods to even begin to understand the implications of the participatory geoweb to address wicked problems and for that matter all problems that express a social change agenda.

Conclusions

At the beginning of the paper I posited that Rittel and Webber's paper does not present researchers and practitioners of the participatory geoweb with

a challenge to overcome; rather, it helps us to firstly better contextualize and understand the limitations of the geoweb to solve complex, ill-defined, real world problems, secondly to effectively strategize and move toward improving our own practice, and thirdly to identify (honestly and realistically) the tangible (dare I say it transformative) impacts of our work.

I also feel that the final point made by Rittel and Webber should not be underestimated, particularly within the contexts of research and the academy. They note that through attempting to address a wicked problem we, as practitioners must take full responsibility for our actions. This requires that we be guided by a clear set of ethical considerations and principles, and we need to be honest and clear to the communities with whom we work in the design and implementation of participatory geoweb projects. We need to invest considerable thought into developing the tools to enable practitioners to do this. This remains an ongoing challenge in the praxis of the participatory geoweb.

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