'Aspirational maps' and indigenous communities
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Abstract

The power of maps have been widely depicted in the literature. The emergence of critical cartography was to rethink and challenge the relationships between power and construction of knowledge (J. Crampton and Krygier, 2005). However, indigenous peoples' relationships with the land and non-Cartesian methods of representing space challenge computerized mapping technologies and pose difficulties both epistemologically and ontologically (Nadasdy, 1999; Rundstrom, 1995; Turnbull, 2007). In an attempt to bridge the gap between critiques and conventional computerized mapping technologies, a number of approaches have been developed. The notions of third space and hybridization are often used in the contexts of blurring dualities. My research aims at creating a third space by mapping future aspirations of the Cree Nation of Wemindji in Northern Quebec. Future aspirations are defined in this research based on the concept of imagined landscape, rather than on the practice of predicting scenarios.
After defining concepts, I will present ontological and epistemological challenges of *aspirational maps* in indigenous communities. I conclude with an opening on possibilities that mapping future aspiration could provide.

Background and Relevance

In his book *The Power of Maps*, Denis Wood (2007; 1992) places an emphasis on the need to think critically about map making and map using. He insists on the necessity to better understand the ways in which maps are constructed and function in terms of social interests. The field of critical cartography calls attention to how maps were used as a means of control and played an important role in the contexts of colonialism, property ownership, national identity, race, military power, bureaucracy and gender (Casti, 2001; Harley, 1988; Peluso, 1995; Pickles, 2004). In indigenous communities, 'counter-mapping' projects aim to deconstruct western notions of geography and to encourage the (re)emergence of traditional mapping practices (Chambers, et al., 2004; Dunn, 2007; Hirt, 2009; Johnson, et al., 2006). However, Indigenous peoples' relationships to the land and non-Cartesian methods of representing space consist in a major challenge to computerized mapping technologies (Chambers, et al., 2004). Robert A. Rundstrom (1995) excoriates GIS for distorting indigenous epistemologies. Related technologies like GPS, have similar negative impacts on indigenous knowledge (Aporta, 2003).

The newest form of GIS, the Geospatial Web 2.0 (Geoweb), brings new possibilities. Studies have shown that the Geoweb has substantial impacts on the decision-making processes (S. Elwood, 2010; McCall and Dunn, 2012). The Geoweb is capable of continuously gathering user-generated content (UGC) and it has the potential of incorporating qualitative data and multimedia that cannot be added to static maps (Haklay, et al., 2008). Multimedia and qualitative data are particularly important when mapping "complex indigenous spatiality" imbedded in life experience and the human-environment interactions (Roth, 2009).

However, the Geoweb is a recent phenomenon even called 'the beast' in the literature (Boulton, 2010; Schuurman, 2009). New content and character of digital data are associated with social, political and disciplinary shifts (S. Elwood, 2010). Scholars argue whether new geospatial technologies are allowing other representations than Western or are merely perpetuating a new kind of assimilation (J. W. Crampton, 2011; Gerlach, 2010). Furthermore, the ideologies of Web 2.0, extreme openness, neoliberalism and sharing, and disdain for experts (elders), might be incompatible with how indigenous knowledge is traditionally kept and transferred.

Future aspirations as a 'third space' and imagined landscape

In an approach to counter balance the duality between local knowledge and scientific knowledge, geographers call for the creation of a third space (Turnbull, 2007). This notion was first introduced by Edward W. Soja as "a product of a 'thirding' of the spatial imagination, the creation of another mode of thinking about space that draws upon material and mental spaces of the traditional dualism but extends well beyond them in scope, substance and meaning" (Soja, 1996, p. 11). In GIScience similar notions are used. Daniel Sui writes about a third culture as " the synergy and crossfertilization of creative ideas from both arts and sciences" (Sui, 2004, p. 68). Mei-Po Kwan suggests the notions of hybridity and gives three types of boundary projects. The first type focus on the use quantitative or GIS methods to address issues informed by critical geographies. The second type includes projects that "cross the boundary between geospatial technologies (GIS and GPS) and a qualitative understanding of the lived experiences of individuals in various cultural contexts" (Kwan, 2004, p. 758). The third type is on projects that focus their efforts to integrate critical social theory and spatial analytical methods. Sébastien Caquard (2013) similarly show that "hybridization is emerging between cartography and creative disciplines; between the grid map and the story map; between fiction and reality; between the map and the territory" (Caquard, 2013, p. 140). *Aspirational maps* are inscribed in an attempt to draw bridges between indigenous ontologies and conventional geospatial ontologies; between the landscape, the imagined landscape, and the digital landscape; between fixed maps and the dynamics of imagination.

The concept of imagined landscape is central to the creation of a third space and to define future aspirations. This conceptualization differs from how future studies, planners, decision-maker and government agencies view the future where different scenarios are predicted and where temporal objectives and steps to attain them are fixed. Contrastingly, the anthropologist Tim Ingold explains that the imagined landscape and the work of imagination is not about inventing a fictional future. The author shows that: "The imagination (...) 'roam[s]', and in so doing, opens up paths in and through the world, rather than fixing end-points in advance. (...) An imagined landscape, then, is a landscape not of being but of becoming; a composition not of objects and surfaces but of movements and stillness, not there to be surveyed but cast in the current of time. It is in this regard closer to music than painting" (Ingold, 2012, p. 10). The ideas of music and path recalls the notion of *performativity* described by Turnbull (2007), where knowledge is a form of narrative which is performed, based on embodied practices, and on travelling through space, cognitively and physically. Here future aspirations as imagined landscape become dynamic. Performance, trails and embodied knowledge resonates with traditional Northern American maps (Woodward and Lewis, 1998). For example, David H. Pentland (Pentland, 1975) explains that Northern Algonquians often draw sketch maps in the dirt, during the gathering season, as a mean to share experiences and trips made during the year.

Implications of mapping future aspirations

Mapping future aspirations conceptualized as a third space and imagined landscape poses ontological and epistemological challenges. Ontologically, the research needs to address the differences between how community members categorize and conceptualize future aspirations and the traditional ways of organizing geographical entities. A recent approach called 'ethnophysiography' concerns the analysis of the meaning and organization of a cultures' landscape using geospatial ontology and linguistic methods (Mark and Turk, 2003). In the domain of information science, studies with indigenous communities emphasize the need to develop 'fluid ontologies' (Becvar and Srinivasan, 2009; R. Srinivasan, 2007; Ramesh Srinivasan and Huang, 2005) by engaging communities as "producers and classifiers rather than simply as technology consumers" (Boast, et al., 2007, p. 399).

The ontology of future aspirations needs to consider the conceptualization of time as well as the meaning of the past and the present. In the introduction of the book *Imagining Landscapes : Past, Present and Future*, Tim Ingold (2012) describes different perceptions of the future based of three ways of envisioning the past. First, in the materializing mode: the past is envisioned as an object of memory that is displayed as heritage. The future is thus materialized in heritage from the past, fixed but without guarantee of the continuity. Second, in the gestural mode, "memories are forged in the process of redrawing lines and pathways of the ancestral activities " (p.8). The future is being imagined in the process of testing it out, drawn out in skilled practices acquired from the past. Third, in the quotidian mode, 'what remains from the past provides a basis for carrying on. The past sinks into the everyday and the future is already underway.

Furthermore, different perspectives and ways of naming places or categorizing landscape are expected to occur depending on generation and territory use, as was shown in previous studies in the case study of the Cree community of Wemindji, James Bay, Quebec (Eades, 2010; Wellen and Sieber, 2013). Different conceptualization might also be found depending on gender, roles, activities, socio-economic status, and life path (e.g., education, where they lived).

Geospatial ontology research demonstrates the challenge of defining and formalizing in a computational logic language imprecise, vague, fuzzy, ambiguous spatial or temporal references often used in natural language (Agarwal, 2005; Smith and Mark, 1998; Varzi, 2001). Future aspirations are particularly susceptible to ambiguity because of their imaginative nature. Different methods have been developed to ontologically or semantically disambiguate concepts. For example, the use and development of broader and richer metadata frameworks and methods, natural–language based spatial query, mathematical representations of imprecise linguistic variables, fuzzy set or neuro-fuzzy modeling, and new methods of visualization (Schuurman and Leszczynski, 2006; Sieber, 2004; Yao and Jiang, 2005; Yao and Thill, 2006; Yao and Thill, 2007).

On another point of view, questions arise about the use of geospatial technologies with an indigenous community. What are the perceptions of Geoweb technologies? Differences of perceptions between generations are expected to be found. Marc Prensky (2001) illustrates the divide between digital natives born in the 80's and after with the internet technologies, and the digital immigrants who learn the tools and adapted their ways of learning and knowing. Perceptions concern the values associated with the reluctance or the motivations to contribute information about future aspirations on open access platforms. For example, sharing cultural information could be viewed as inappropriate or dangerous but it might also be viewed as an opportunity to preserve culture. The issue of privacy, discussed in the context of new geospatial technology, has been defined as 'socially-mediated expectations about acceptable practices with respect to access to geographically-indexed information, its disclosure, and its content and medium of its representation when released' (Sarah Elwood and Leszczynski, 2011, p. 11). The

research needs to assure that information about future aspiration would not unduly serve government or corporate interests. Furthermore, the literature points to the need to investigate how geospatial technologies are affecting roles of knowledge transfer and impacting community structure and hierarchy (Chambers, et al., 2004; Harris and Weiner, 1998).

Furthermore, the epistemological question of who can talk about the future arises. Reluctance to talk about the future might be found during this research. Richard Preston (2002) studied the concept of Mistabeo in the Eastern Cree culture. He explains that Cree describe the Mistabeo as 'an other-than-human-person' with spiritual quality (rather than corporeal). A Mistabeo manifests himself in the world with his influences on events or by providing knowledge, including predicting the future. Although Preston argues that the concept of Mistabeo is less present in the culture today, the 'future' might be seen as a domain in which humans are not knowledgeable, or only certain specific persons are. Furthermore, David H. Pentland (1975) shows that on traditional maps of the Northern Algonquians, there is no place for imagination. The importance is put on routes and contains details of obstacles along a river for example. The areas that are unknown to the map maker and features of no practical use are completely omitted.

In the process of mapping future aspirations, it is critical to address the issue of information loss. What information can be mapped and what can't? Paul Nadasdy talks about the distillation of traditional ecological knowledge when a certain kind of information is used and other kinds are ignored by scientists (1999). Ontology research in GIScience is concerned with the boundary between conceptualization and computation (Fonseca, et al., 2003; Schuurman, 2006). Representing different conceptual categories and spatial features into database models and codes is a major challenge notably concerning loss of information (Fonseca, et al., 2003). Agnieszka Leszczynski (2009a; 2009b) calls for a recognition that GIS data structures are inevitably a reduction of knowledge. The binary code cannot and will never completely do justice to the complexity of emotions, sacredness and ethical judgments related to places (Leszczynski, 2009a and 2009b). The challenge of mapping future aspirations is to do justice to the complexity of imagined places, of debates about the future and of multiple points of view.

Conclusions

Future aspirations can be conceptualized based on the notion of third space as a bridge between existing dualities: between traditional geospatial ontology and multiple fluid ontologies, between traditional ways of envisioning the land and digital landscape, as well as between map and imagination. In this context, future aspirations are defined using the notion of imagined landscape, where the future is imagined through dynamics based on the past and present.

In spite of great ontological and epistemological challenges, mapping future aspirations offers possibilities to the community involved. For Arjun Appadurai (2004), strengthening the 'capacity to aspire' among the poor would facilitate the development and their capacity to find resources to compete. This argument has been applied in Asian cities where local organizations work in urban poor environments with authorities to better shape community and city development (Appadurai, 2004; Bunnell and Goh, 2012).

In addition, mapping future aspirations encourages community planning and enhances possible self-determination – the indigenous people's right to cultural, political, territorial, and economic development where the state is allotted limited control (Niezen, 2003). The literature has shown that emotions and stories conveyed in maps allow for the understanding of sense of place and mobilize for actions (Caquard, 2013). Imagining, discussing and mapping the future aspirations

within the community is a step towards building a collective vision and a 'life project' that could stand in the way of development, globalization and unwanted or unnecessary changes (Blaser, et al., 2004; Feit, 2004).

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