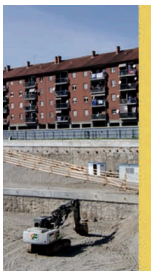

NUL - New Urban Languages
Conference Proceedings
Milan, 19-21 June 2013

Planum. The Journal of Urbanism, n.27, vol.2/2013
www.planum.net | ISSN 1723-0993
Proceedings published in October 2013

Merging different languages in urban cartography

A critical methodological introduction

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Keywords: alternative cartography, urban representations, local actors

1. Introduction

In the framework of my PhD research, this paper describes some considerations I developed before and during my fieldwork (which is still in underway).
In my thesis I use a wide range of cartographic products (official cartography and mental maps) as sources to investigate the recent changes of the concept of neighbourhood. I work with different local actors, which I classify as *institutional* and *non-institutional*, who play a role in the contemporary definition of this concept, both in official urban projects and unofficial ones (e.g. of neighbourhood associations). Investigating their representation of this complex notion through cartography, my aim is to create a synthetic cartographic collection based on these different sources, using the different tools of thematic qualitative cartography. This methodology, in my opinion, takes advantage of the great potential of cartographic visualisation and map analysis for understanding urban spaces, projects and scenarios. As King states (King, S., Conley, M., Latimer, B., Ferrari, D., 1989), visualisation is "the key to effective public participation because it is the only common language to which all participants technical and non-technical can relate" (p. 53).
I try to integrate different kinds of representations, in order to apprehend the wide range of actors and opinions through the potential of the cartographic image, as well as to explore the potentialities of different cartographic languages to contain and communicate varied agendas. In this exercise I have faced several challenges which are related not only to methodology, in the strict sense, but also to the wider field of ethics in geographic research. In particular, I am interested in the researcher's role and potential influence in this process, provoking deeper considerations.
This paper seeks to follow my line of reasoning in constructing my methodology: from identifying the tools I wanted to experiment with, to the reasons for my choices, to the analysis of their consequences for knowledge construction. I will start with some considerations about the use of cartography. Then I will analyse the sources-maps and the options for output-maps, as well as some ethical issues.

2. Visualization

As Debarbieux (Debarbieux, B., Lardon, S., 2003) argues "[…] if the resources of territorial iconography are not essential for the exercise of a project and [*territorial*] *prospective* – as exceptions show –, in most cases they are exploited because of their capacity to satisfy a wide range of cognitive needs (visualisation, intelligibility, temporal projection), as well as institutional and social needs (communication)." (my translation. French original reads as follows: "[…] si les ressources de l'iconographie territoriale ne sont pas indispensables à un exercice de projet et de prospective [territoriale] – les exceptions en attestent –, elles sont, dans une très grande majorité des cas, exploitées en raison de leur capacité à satisfaire un ensemble très hétérogène de besoins cognitifs (la visualisation, l'intelligibilité, la projection temporelle), institutionnels et sociaux (la communication)." p. 16). Urban projects are great sources of many kind of images. If the use of cartography in planning has always been a standard, since the early urbanism (among other reasons because of its close relationship with architecture) the great turn from the plan to the project has definitively accentuated its role, highlighting mostly the communicational aspect: *planning products* are no longer just for *professionals*, but they have to face the public. This trend, indeed rather recent, asks for a deep consideration of the nature of technical cartography and of the demands of critical cartography and counter-mapping.

The development of participatory processes and the growing interest in local identities and local knowledge encouraged studies and applied research on participatory cartography and the collective production of maps. In the last decades collective map-making has been used with the aim of embedding local ecological knowledge (McKenna, J., Quinn, R., Donnelly, D., Cooper, J., 2008), the human sense of landscape[1], local identities (Soini, K.,2001; Perkins, C., 2007) or practices (Balletti, F., 2007) within several studies or projects (Debarbieux, B., Lardon, S., 2003 ; Debarbieux, B., Lardon, S., 2002) . Many cartographic tools have been tested and many methodologies have been developed. with the result that any urban project, today, produces a great diversity of cartographic objects.

In my thesis, the great potentiality of a cartography-based methodology consists in using institutional representations as primary sources, on the same level of non-institutional ones. Merging technical and local knowledge through cartographic tools can provoke a deep critical reflection about the role that different kinds of cartography can play in urban projects and about how they can be integrated.

Moreover, the complex issue of the collective or non-collective nature of the representations I want to realize entails taking into account the wide range of research about participatory cartography and cartography in participatory processes.

3. From inputs...

In defining my methodology, the first consideration I had to do was about the sources: which kind of cartographic representations is the most suitable for my research? As from the beginning the main aim have been to investigate both institutional and non-institutional representations, I decided to use a wide range of cartographic product. Basically, as *institutional*, I mean representation expressed by municipalities and planning departments in official urban projects. For their analysis I collect thematic maps coming out of Geographic Information Systems at various degrees of complexity (project plans, maps in information materials for participatory processes, maps for publicity materials). These documents refer to cartographic materials previously produced by professional planners, which responds to the rules of technical cartographic language. As non-institutional representations, I mean representations of local actors who are not directly involved in the design process, but also individual representation of institutional actors (e.g. members of the municipal council or of the planning department) that I decided to analyse through mental maps.

[1] Gueben-Venière, S. (2011), En quoi les cartes mentales, appliquées à l'environnement littoral, aident-elles au recueil et à l'analyse des représentations spatiales? EchoGéo; http://echogeo.revues.org/12625.

If many studies have been carried out on integrating local knowledge in official research or planning, I would like to highlight the question of how this process can be realized. One of the bigger challenges (and potentialities) is identified in integrating participatory processes (or just local knowledge) in the development of GISs. Moreover, the development of web-based interfaces are designed explicitly to enhance communication and to expand public outreach. In a way, GISs lend legitimacy to cartographic knowledge, for institutional planners trying to make a project accepted by local stakeholders, as well as for non-institutional actors trying to validate a specific vision (Jackson, S., 2008) . As Sieber (Sieber, R., 2006) states, "the use of GIS has been furthered by members of the public and private sectors who believe that access to computer tools and digital data forms an essential part of an informationally enabled democracy." (p. 491) and this is one of the reasons for the extensive development of Geographic Information Systems and Public Participation Geographic Information Systems by NGOs or CBOs. Such a wide use of this technologic tools is not always appreciated. On the one hand, "cultures can vary their acceptance of PPGIS on the basis of their tolerance of expert solutions, their sense of collective control, and their level of individualism." (p. 495). Moreover, Sieber highlights also that the integration of technology can create problems with non-professionals users: "The corollary is how much GIS must be learned by individual stakeholders and what technologies can be supported by available resources." (p. 499). On the other hand, as Turnbull (Turnbull, D., 2000) argues, "[…] if the full power of the knowledge is to be recognised it is not enough for it to be valued in its own right, it must also to be understood in a comparative context." (p. 132).
The controversial relationship, as well as the controversial comparison between scientific official knowledge (what I call here "institutional") and the unofficial local one (that I call "non-institutional") are the reasons why I don't want to force both the sources in the language of technical cartography: I argue that the use of different tools for each kind of representation helps to keep the idea of comparison, instead of the idea of integrating one representation into the other.
Mental maps respond, in my opinion, to this demand for non-institutional representations. Moreover, pencil sketching limits the lack of non-professionals' cartographic (and just graphic) competence which is geographically uneven (Debarbieux, B., Lardon, S., 2003; Crampton, J.W., Krygier, J., 2006). Debarbieux (Debarbieux, B., Lardon, S., 2003) argues also that avoiding obligation of topographical precision makes mobilising this competence easier (p.22), because as Soini (Soini, K., 2001) states, drawing can "represent a natural way of communicating spatial issues and values related to them." (p. 235). I would also add that pencil sketching can be a good solution for non-professionals who do not want to learn how to use more technical tools. Especially in academic research not directly linked to planning there could be a lack of motivation or time to learn technical cartographic language

4. ...to outputs

After collecting the range of sources I outlined above, the question of the synthetic representation arises. Within the studies carried out on collective or participatory cartography two main trends can be identified. The first approach tries to integrate non-institutional representations in GISs or technical official cartographies (Gueben-Venière, S., 2011; Jackson, S., 2008; Sieber, R., 2006; Al-Kodmany, K., 1999; Rinner, C., Bird M., 2009). The second one includes community or identity maps research (Debarbieux, B., Lardon, S., 2003; Balletti, F., 2007). They both privilege one of the two languages I identified for my sources.
On the one hand, GIS is a standard in planning cartographies and it responds to the necessities outlined above for iconographical representations of territories (visualisation, intelligibility, temporal projection, communication) (Debarbieux, B., Lardon, S., 2003; Sieber, R., 2006). Mental mapping is often integrated in GISs as a useful tool for investigating representations of non-professional actors. Nevertheless, GISs and mental maps come out from different ontologies and epistemologies [3] and translating the second language in the first one entails that something will get necessarily lost. As Sieber (Sieber, R., 2006) states, "[...] not all traditional or local information should be reduced to fit GIS standards [...]" (p. 499). In a critical cartography perspective, Crapton (Crampton, J.W., Krygier, J., 2006) argues that "critiques of

Euclidean space which point to its ideosyncracies, localness or its contingent nature show that not all knowledge can be "scientized." (p. 18).
On the other hand, community or identity maps are usually based on mental or qualitative mapping tools. In general, they focus on non-institutional representations that they intend to formalize for a further utilisation in the planning process. In these cases, usually, the comparison between institutional and non-institutional representation doesn't entail iconographical tools.
As highlighted above, I decided to compare these two kinds of representations on the same level, "as varieties of such knowledge systems" (Turnbull, D., 2000 p. 20). For this reason, in my opinion, a third language should be used. In my thesis I aim to experiment tools of not GIS-based qualitative cartography as a way to merge technical cartography of institutional representations and mental maps of non-institutional ones. As Crampton (Crampton, J.W., Krygier, J., 2006) states "[...] maps are active; they actively construct knowledge, they exercise power and they can be a powerful means of promoting social change." (p. 15). In the wake of critical cartography, I try to experiment with an iconography that seeks to integrate scientific accuracy and accessibility to non-professionals, data from quantitative analysis and qualitative local knowledge.

5. The authorship

An other question arises about the attempt to merge different representations and it is the problem of the authorship of the map. When local knowledge is integrated in mapping, studies often talk about participatory and collective mapping, or participatory GIS (when web-based interfaces are developed for data input). I think that a first distinction should be done between participatory processes in municipal-led or NGOs-led long term projects and academic research.
In public participatory processes, in my opinion, the problem can be put in terms of which part of the public can be involved in depth in the final map-making in order to define it participatory or collective. In NGOs' projects, for instance, the search for legitimation, can be a great motivation for seizing cartographic tools (Sieber, R., 2006). For official municipal project, on the contrary, the degree of public direct utilisation of cartographic tools can influence, both quantitatively and qualitatively, the public involved (Debarbieux, B., Lardon, S., 2003; Sieber, R., 2006).
My thesis, on the contrary, is a medium-term academic research: I can go back to actors I interviewed and discuss representations with them, but I cannot provide in-depth cartographic training for all of the participants.
They are authors of their own mental maps, but any synthetic representation entails my interference as cartographer. As Harley (Harley, J., 1990) argues, as mapmakers we are ethically responsible for maps. Assuming that the final maps will not be collective is a way to underline that I am a third actor among institutional and non-institutional ones.

6. Conclusions

This paper aims to be a critical intermediate reflection about the methodology I use in my thesis research. My fieldwork is still in underway, so the main limit of this text is the lack of distance from a topic that I am still developing.
The wide diversity of urban iconographies makes the challenge of experimenting new urban cartographies even more exciting and important. In particular, critical cartography is a means of opening up to deeper considerations about the construction of cartographic knowledge as well as about the practice of mapping. Integrating local knowledge in technical cartography is a great challenge and a very discussed topic. My personal perspective seeks to consider technical cartography as the language to express one kind of the representations I want to analyse; as well as mental mapping is the language used for the other one.
The goal of a third language for the synthetic maps is taking into account the role of the researcher. Identifying the different nature of this iconography and the cartographer's position in the dynamic of

mapping face of both the categories of actors, is the personal answer I try to give to this long-standing question.

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