

# Good Map – Bad Map. Interdisciplinary Analysis of Collaborative Map-Making by Prosumers

Jana Moser, Tom Hoyer, Natalia Ipatow

Leibniz Institute for Regional Geography, Leipzig

## Extended Abstract

Cartographers experience at first hand the results of the ongoing process of the fast digital-technological development. “What is the quality of the maps that might be produced?” asked Kraak and Brown (2001, viii) speaking about Internet mapping by non-professional map makers.

From a cartographer’s point of view this question is important. Through our professional training we are used to think in categories like “effective map design”, “best communication” or “ideal transfer”. This corresponds with our cartographic concepts and elements used in form of semiotics and cartographic communication models among others.

But today map-making is no longer reserved to experts of cartography. GIS and especially the Internet provide many tools to produce maps by non-academics in terms of cartography, so-called prosumers. The term prosumer or prosumtion “involves both production and consumption rather than focusing on either one (production) or the other (consumption)” (Ritzer 2010:14). In the economy the concept of prosumtion has always been existent. With the developments in digital media, Internet and Web 2.0 it had come to “greater centrality” (Ritzer 2010:14).

Our research project “Democratisation of Expert Knowledge: The Production and Use of Maps in New Media Worlds” started in May 2014 and is funded by the competition fond of the German Leibniz Association. We are interested especially in maps that are generated in Web 2.0 contexts with a significant input by prosumers – in content and/or in design of the maps (participatory mapping). We do not analyse prosuming in the way of using e.g. atlas-platforms like [www.raumbeobachtung.de](http://www.raumbeobachtung.de) or <http://historical-maps.arcgis.com/usgs/>, where the user can manipulate existing data, change the design of a given representation and therefore also produces its own “new” map. Contrary to the common finding that digital media provide a

much broader set of cartographic presentation methods, our project begins with the assumption that map-making by non-professionals in the Internet is limited to only a few cartographic tools provided by monopolists like Google maps or Bing maps and some of its branches.

The project's approach is interdisciplinary and user-oriented. In cooperation with geographers, cartographers, communication and information scientists as well as cognitive psychologists it analyses the fundamental change in the relation between science and society that the development of new, digital media entails. Compared to other new means of communication like blogs and wikis, maps are a special and complex medium (e.g. MacEachren 1982). They represent imaginations of our surrounding and the world with a similar effect as photographs have. Over many decades maps and map-like illustrations served as a visual medium with a potentially exceedingly high information density. Because of their culturally accepted state of mediating the truth maps are powerful instruments of social communication – regardless of who's their author and regardless of where does the data comes from (e.g. Monmonier 1996, 2002, 2010; Pickles 1995; Wood/Fels 2008).

The current project can only be the first step to deal with the challenge of supposed objective representations vs. user generated content in Web 2.0. Basically we try to understand the prosumer's requirements in terms of the concepts and elements of maps and cartography. The research findings may help the discipline of cartography to meet these requirements.

From a cartographer's point of view it sometimes seems that prosumers use and produce maps without any considerations of the needs of map design and the power that maps have. From our point of view this goes along with the risk of a lack of reflection.

Coming back to the question above: Cartographers should know how to define the quality of maps and we believe to know how to improve map design. Currently there is also a lot improvement through the studies of map usability, in print and in digital media. Additionally there are more and more studies about web mapping and participatory mapping (e.g. Hoffmann 2014; Plantin 2014) But until now we know very little about the use cases where maps are produced or edited by non-academics, the processes of participatory mapping by prosumers, the aspects of critical analysing and understanding of maps by prosumers, and about the semiotics used with preference. Furthermore there is little impact on the development of cartographic concepts.

When we want to think prosumer-oriented, consequently our research questions are: Do we know what is important for a prosumer in map-making

and map-using? Do we know how a non-academic map maker is designing his or her map and why? Do we know if these forms of mapping will be understood by other prosumers? Furthermore, web mapping practices are celebrated by terms like “democratization”, but do we know who is using it and why or maybe much more interesting, who isn’t? Here we can take the challenge to look at questions of the digital divide – also in relation to the above mentioned assumption that non-professional map-makers use only a few web tools.

After a phase of searching for web maps and intensive literature studies we currently start to analyse our examples. We are especially interested in participatory maps, where prosumers contribute data instead of only changing and consuming given data. In terms of preparing a typology of functions and design we also look for “ordinary” mappings by single persons or institutions. Due to the fact that the Web and web mapping activities are fast moving, the examples are not exhaustive. The aim of the first analysis is a classification of web maps. Afterwards we go further with an empirical research phase with interviews and online-questionnaires.

What is a good map and what is a bad map? Maybe only a person with years of cartographic training and experience can ask this question while thinking about quality and communication effectiveness. A prosumer maybe like the idea of intuitive, creative interactive tools which are easy to use and easy to understand, independent if it fits to cartographic rules. In our project we are interested especially in the design, function and the social interaction with participative maps. But we are aware that there are further aspects to pay attention like critical cartography and critical GIS as well as economic and social consequences and legal aspects (e.g. Crampton/Krygier 2005; Elwood 2006; Dunn 2007; Dodge et al. 2009).

The results of the research are expected to contribute to a further development of cartographic concepts in new media and in terms of the needs of prosumers. In addition we want to suggest tools for mapping and for critical faculties concerning the medium map. In regard to the question of democratization we want to specify processes of exchange of competence between social and scientific modes of knowledge production.

**Keywords:** Web Mapping, Participatory mapping, Prosumer, User Studies

## References

- Abend, Pablo (2013): Geobrowsing. Google Earth und Co. - Nutzungspraktiken einer digitalen Erde. Bielefeld.
- Crampton, Jeremy W.; Krygier, John (2005): An Introduction to Critical Cartography. In: ACME - An International E-Journal for Critical Geographies, 4 (1).
- Dodge, Martin; McDerby, Mary; Turner, Martin (ed.) (2008): Geographic Visualization. Concepts, Tools and Applications. 2<sup>nd</sup> ed. Hoboken.
- Dodge, Martin; Kitchin, Rob; Perkins, Chris (ed.) (2009): Rethinking maps. New frontiers in cartographic theory. London.
- Dunn, Christine E. (2007): Participatory GIS – a people's GIS? In: Progress in Human Geography 31(5), pp. 616–637.
- Elwood, Sarah (2006): Critical Issues in Participatory GIS: Deconstructions, Reconstructions, and New Research Directions. In: Transactions in GIS, 10(5), pp. 693–708.
- Gartner, Georg (2009): Web mapping 2.0. In: Martin Dodge, Rob Kitchin und Chris Perkins (ed.): Rethinking maps. New frontiers in cartographic theory. London. pp. 68–82.
- Goodchild, Michael F. (2007): Citizens as Voluntary Sensors: Spatial Data Infrastructure in the World of Web 2.0. In: International Journal of Spatial Data Infrastructures Research (2), pp. 24–32.
- Hoffmann, Karsten (2014): Nutzergenerierte Karten im Web 2.0. Eine kartographische Konzeption auf Basis analytischer und empirischer Untersuchungen. Dissertation, Osnabrück.
- Kraak, Menno-Jan; Brown, Allan (ed.) (2001): Web cartography. Developments and prospects. New York.
- MacEachren, Alan M. (1982): Map Complexity: Comparison and Measurement. In: The American Cartographer (9)1, pp. 31–46.
- Monmonier, Mark (1996): How to lie with maps. 2<sup>nd</sup> ed. Chicago
- Monmonier, Mark (2002): Spying with maps. Surveillance technologies and the future of privacy. Chicago.
- Monmonier, Mark (2010): No dig, no fly, no go. How maps restrict and control. Chicago.
- Montello, Daniel R. (1998): Kartenverstehen. Die Sicht der Kognitionspsychologie. In: Zeitschrift für Semiotik (20)1/2, pp. 91–103.
- Peterson, Michael P. (ed.) (2012): Online Maps with APIs and WebServices. Berlin, Heidelberg (Lecture Notes in Geoinformation and Cartography).
- Pickles, John (1995): Ground truth. The social implications of geographic information systems. New York.

- Plantin, Jean-Christophe (2014): *Participatory mapping. New data, new cartography*. London, Hoboken.
- Ritzer, George; Jurgenson, Nathan (2010): Production, Consumption, Prosumption. The nature of capitalism in the age of the digital 'prosumer'. In: *Journal of Consumer Culture* (10)1, pp. 13–36.
- Wood, Denis; Fels, John (2008): *The natures of maps. Cartographic constructions of the natural world*. Chicago.