

HABILITATION THESIS REVIEWER'S REPORT**Masaryk University****Applicant**

Mgr. Bc. Zdeněk Stachoň, Ph.D.

Habilitation thesis

Experimental Research in Cartographic Visualization

Reviewer

Assoc. Prof. Jan Daniel Bláha, Ph.D.

**Reviewer's home unit,
institution**Jan Evangelista Purkyně University in Ústí nad Labem,
Faculty of Science, Department of Geography; Czechia**Introduction**

The concept and topic of the submitted habilitation thesis is one of the contributions in the search for the current paradigm of the field of cartography, but not only of this field. The author presents, among others, a modified scheme of cartographic communication, which is the basis for the functioning of the map as an effective tool of the cartographer or mapmaker. Any attempt at *schematization is a generalization of reality*. As human knowledge grows (disciplinary innovations and spheres of influence of multidisciplinary knowledge) and new tools of exploring the world around us are applied in new contexts, it is necessary to refine the schemata of this world.

In this respect, the question arises, who is actually the mapmaker today? Is it the creator of the application (i.e. expert: cartographer, geographer, geomatician, etc.), or rather its user who, in an interactive environment, modifies the application environment according to his/her innermost requirements, which may largely abandon the original intention of the application's author? Who determines today which form of means of map representation is actually the optimal one? Shouldn't we rather teach society *visual and information literacy* so that people are able to adapt the offered environment to suit them as much as possible, i.e. so that the map as a communication channel works? Many questions that come up in the context of cartographic research that wants to be socially relevant.

If I may share my own experience, I have been active for a long time in several scientific fields. Thanks to this I can prove that their common feature is precisely the discovery of the influences on the quality of the outputs of each discipline, in the figurative sense of the *usability of the outputs*. Distinguishing what the creator of the output, in cartography i.e. the map, can influence and what cannot, is a basic precondition for success (usability) and the fulfilment of the actual meaning of the map. A map in the role of an unusable output is only a form of self-abuse of the author or author's collective. Unfortunately, the real aesthetic experience is often absent in such outputs.

The experimental study is all about setting up the design of the experiment so that it is possible to (1) identify what can and cannot be influenced, (2) correctly identify what causes the success/failure of the output, its users, etc. There are so many variables, and the author

of habilitation thesis demonstrates this through his work, that the future of experimental research will probably lie more in the ability of researchers to distinguish between the different spheres of influence.

Habilitation thesis and author

I have followed the author's work for many years and appreciate his engagement in a broadly conceived research intention that spans several academic disciplines. Therefore, I consider the habilitation thesis as a factual and formal confirmation of his long-term activity.

There is no doubt that the experimental research presented in this thesis has benefited significantly from its connection to the background of psychology, which has historically been largely built on experimentation. Moreover, psychology in principle helps to identify user characteristics that influence the quality of a communication scheme. Indeed, the key element of the CE Channon and W Weaver communication scheme remains the *receiver*, in the case of the map, its user, even after three quarters of a century.

The thesis is a summary of publication activities (2011–2022) that were created in teams of which the author was an important member. This is an example of an extremely robust longitudinal research intention which would deserve a (collectively) conceived work (monograph) of a larger scale with examples of practice that could prove the limits of the methods used. In cultural anthropology, for example, participant observation and work with informants and activators is used to a much greater extent. The background of such experiments thus reaches much more into the *social environment* of the community within the data collection itself. This breadth, however, can hardly be captured by a habilitation thesis.

Assessment of habilitation thesis

With regard to the nature of the work (an annotated set of publication results in major peer-reviewed journals), the reviewer assessed mainly the conceptual framework of the work itself, theoretical background, methods used, limits of the work, etc. Although it would be possible to have comments or suggestions for discussion on some of the presented concepts (e.g. in the context of semiology the more applicable concept of de Saussure in place of CS Peirce), I do not consider it necessary to discuss them in detail here.

Positively reviewed:

- a. The rich theoretical background with an effort to reflect and move forward the paradigm of cartographic science;
- b. The interdisciplinary approach to research, including the active participation of experts from different fields;
- c. Rich experience of teamwork on an international scale;
- d. Clearly stated methodology of mixed research design with emphasis on experimental methods;

- e. Clearly and comprehensibly presented positives and limitations of experimental research in cartography.

Potential weaknesses:

- a. Unfortunately, there is relatively limited representation of cultural anthropological background in cross-cultural research; in addition to psychological and linguistic anthropology (e.g., the cited Sapir-Whorf hypothesis / linguistic relativity), it would be useful to reflect in this part of the research design: concepts of visual anthropology, or other concepts that play a role in the visuality of culture;
- b. Greater reflection on the findings of learning theory and pedagogical background;
- c. Not fully clarified way of implementation of the acquired knowledge into practice, with possible categorization of impacts (in cartographic or geographical education, in networks of the cartographic community, etc.).

These aspects may be addressed by questions that I do not explicitly mention.

Reviewer's questions for the habilitation thesis defence

In a habilitation lecture, one can focus on the above problematic aspects and discuss ways to counter the potential risks and how to implement the acquired knowledge in geography / cartography education.

Other possible question:

What limits do you see as the most problematic in experimental research in cartography in the context of “remote” research without the physical presence of an expert? Which barriers do you think will have to be overcome for experimental research to become more widespread in the Global South?

Conclusion

The habilitation thesis entitled “Experimental Research in Cartographic Visualization” by Zdeněk Stachoň **fulfills** requirements expected of a habilitation thesis in the field of Cartography, Geoinformatics and Remote Sensing.

On Friday 13 January 2023

Jan D. Bláha, in own hand