

New Approach to Experimental Testing in Cartography

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Extended Abstract

In recent years, cartographic research has placed increasing emphasis on the study and evaluation of the process of communication of information between the map and the user. Increasingly, cartographers deeply consider the practical usability of their products, the target group of users, and possibly the methods by which these aspects can be monitored and evaluated. This interest in the professional cartographic community has been also emphasized thanks to numerous activities of the International Cartographic Association, which established aspects of user research in cartography as one of its action goals.

One of the specific aspects of user studies in cartography is its interdisciplinary nature, which uses a large number of methods and techniques known, for example, from psychology, and the relatively young field of cognitive psychology. This contribution summarizes selected topics related to experimental testing of cartographic visualizations. In addition to selected methodological aspects of experimental research in cartography, it outlines possibilities of using knowledge and research practices in cognitive psychology, which can help in interpreting the evaluation of some aspects of cartographic products' usability.

The methodological part of the contribution deals with theoretical aspects of the evaluation of cartographic products. Existing evaluation approaches of cartographic products are briefly described, from strictly subjective evaluation methods (e.g. Martin 2007, Hartson & Pyla 2012, Johansen 1991 etc.) to objective methods (e.g. Konečný et al. 2011, Štěrbá & Šašínska 2012

etc.) focusing on the applicability of the cartographic visualizations. The emphasis is put on psychological aspects, which can have a significant effect on the communication of information between the map and the user (Koláčný, 1977). The phenomenon of cognitive style is described, which brings the possibility of studying individual differences among users of cartographic products. Options for testing cognitive styles among users are then presented in this sense.

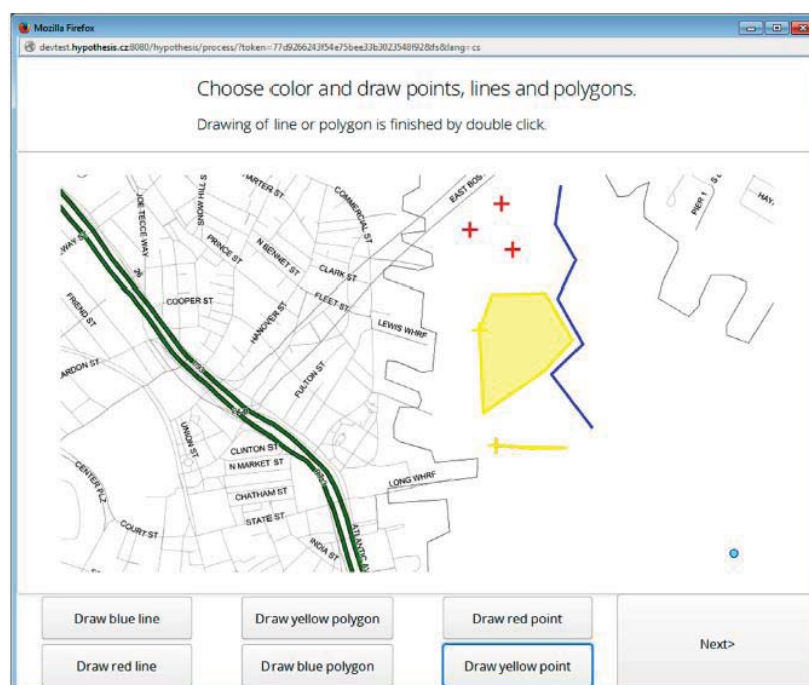


Figure 1. An example of slide from Hypothesis software designed for testing of drawing points, lines, and polygons into the map (Štěrbá et al., 2015).

The final part of this contribution is focused on the practical use of newly developed interactive testing software Hypothesis, which was used in experimental research in cartography. Simple examples (*Figure 1*) present the rich functionality of this tool, which enables the implementation of objective and subjective evaluation methods and testing the user's performance on the map, according to the requirements of the specific research project. Finally the summarizing publication (Štěrbá et al., 2015) will be introduced.

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