

## Abstract

In the second decade of the 21<sup>st</sup> century, new technology plays an ever increasing role in our lives. The proposed study will contribute to the discussion about the effective use of modern information technology in cartographic creation, about its aesthetic and utilitarian value, about the possibility for a creative approach to production of cartographic works and about the relation between art and cartography. The study presents the author's activity over ten years in the area of human approaches to cartographic production, as well as numerous field studies among users of cartographic works, two research projects supported by the Charles University Grant Agency, and it is a continuation of his coursework and thesis.

The study's theoretical point of departure (Chapter 2) draws from inspirational sources that are virtually unknown in the field of cartography. Above all, this includes the development of the concept of "art" and its significance for cartography, using the work of the philosopher of hermeneutics Hans-Georg Gadamer, the cartographer Eduard Imhof, and the Czech cartographer Karel Kuchař. Among other topics, the study addresses the division between practical and aesthetic functions of a cartographic work. A second important pillar of the study is the metaphor of the cartographic work as an image of surrounding reality and all of the consequent relations: between the cartographic work and the user, between reality and the cartographic work, and among the cartographic works themselves. This section concludes by examining what may be regarded as beautiful in the map and thus may be subject to aesthetic evaluation. An analysis of early maps and of their graphic elements is presented by way of example.

The study's methodological section (beginning in Chapter 3) includes a proposed evaluation of cartographic works with respect to both aesthetics and usability, as well as a conceptual definition. Various methods and approaches to evaluating cartographic works, including evaluations employing multiple criteria, form a basis. Connecting the user to the process of evaluation is given particular emphasis. The study also considers the possibility of objective and quantitative evaluation from the point of view of aesthetics and usability (Chapter 4). Aside from evaluations employing multiple criteria and other mathematical methods, the study identifies additional possibilities in implementing "fuzzy" methods in evaluation. The study also presents previous efforts to quantify beauty in (not only) artistic works. Concluding the methodological section is a brief presentation of the software tool EvalMap, developed in cooperation with the Faculty of Mathematics and Physics at Charles University, which is expected to undergo testing in the near future.

The practical section (Chapters 5 and, in part, 6) presents, on the one hand, individual sub-field studies which have employed various of the above evaluative methods and, on the other, a creative-map project which seeks practical solutions for creativity in contemporary cartographic creation. This section is simultaneously a bridge to visions, discussions and conclusions (in part, Chapters 6 and Chapter 7) about the future of creativity in cartographic practice and of human approaches to cartographic theory, as well as the evaluation of cartographic production by the user.

*Key words:* aesthetic values of cartographic works, art and cartography, assessment of cartographic works, objectification, quantification, usability, user-friendliness