

Abstract

Nowadays, information is increasingly presented in the form of various graphic materials. One of the key means of information visualisation is a map. Maps are complex representations and it is necessary to comprehend several cartographic concepts and to acquire skills and strategies for their efficient use. For this reason, it is important to give maps sufficient attention in the course of education. For the education to be of high quality, it is fundamental to understand the process of the map use and factors affecting this process and its successfulness.

Therefore, the general purpose of the dissertation thesis is to develop this understanding. Specifically, the thesis has four main aims. One of them is to identify a map skill level of Czech students while using thematic maps since the popularity of thematic maps is increasing together with the number of cartographic insufficiencies they contain. These insufficiencies can inter alia cause a formation of misconceptions both about the maps and phenomena and regions they display. The second main aim is to identify and describe strategies that students choose to solve tasks which require the use of a thematic map. Additionally, the sub-aim is to understand the influence of chosen factors on the level of map skills as well as on choice and efficiency of the strategies.

Concerning the two main aims of the empirical research, the preceding theoretical-methodological part of the thesis set as its third main aim to synthesise state-of-art in the field of interest. Therefore, the research subjects – map skills, map-using strategies, and factors influencing them – are defined and closely described in this part. The fourth main aim of the theoretical-methodological part is to present theories that contribute to the understanding of map use process. Thus, they can be used as a theoretical background of empirical studies and as a basis for the interpretation of their results. In addition to employed theories, the thesis aims to present the selected methods of data collection, which form a diverse set of both qualitative and quantitative methods.

The theoretical-methodological part is followed by the empirical part consisting of six peer-reviewed articles, in which the conducted research is presented. Firstly, the content of the articles is summarised. Secondly, their full-texts are attached to the thesis. The results of these empirical studies show, among other things, that the Czech students generally have insufficiently developed skills of thematic map analysis and interpretation. The students also frequently have misconceptions related to the thematic maps, especially choropleth and diagram maps. The improper understanding and low level of map skills can be caused by the prevailing Czech teachers' concepts of map-skill development. Given that, the teachers emphasise cognitively-least-complex skills despite considering map use as an important part of their lessons. The author's subsequent empirical studies have identified many drawbacks in students' strategies for thematic map analysis as well. Notwithstanding, their strategies are very diverse in general, differ based on specific task demands, and can become more efficient relatively quickly.

The conclusion of the thesis summarises the theoretical, methodological, and empirical findings. Moreover, the research focus of future studies is suggested. Specifically, these suggestions can be beneficial to experts in the fields of map skills, map-using strategies, and misconceptions related to the process of map use and its successfulness.

KEYWORDS: *thematic map, map skill, map analysis, strategy, misconception, eye-tracking, educational cartography, geographic education*