

The system of cartographic didactic aids for the Czech lower secondary education and its implementation into geographical teaching

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Abstract:

A deteriorating level of map skills, i.e. the ability to use a map as a specific tool for visual representation of the reality, can be observed in connection with the spread of modern information technologies, including mobile devices. Unfortunately, many research studies conducted among students have proven that this applies at all levels of cognitive difficulty, i.e. from reading, analysing and interpreting maps to their creation. This undesirable situation creates a distinctively motivational environment for challenges of the 21st century, in particular for challenges in geographical teaching.

The so-called Pupil's Atlas (2019) was published in cooperation with a Czech cartographic publishing house (the company Kartografie Praha) and Jan Evangelista Purkyně University in Ústí nad Labem to support the development of map skills already at the stage of lower secondary education of children aged 11 to 15 years (ISCED 2). Results of prior research studies revealing poor usability of the standard school atlas based on a 2004 concept, which built on the traditional Czech atlas publication from the second half of the 20th century, were one of the key motivating factors for the creation of this atlas. The concept of the school atlas is more suitable for higher secondary education, i.e. high schools. Selected results of these research studies were presented at ICC 2017 in Washington (Bláha, Trahorsch & Kučerová 2017).

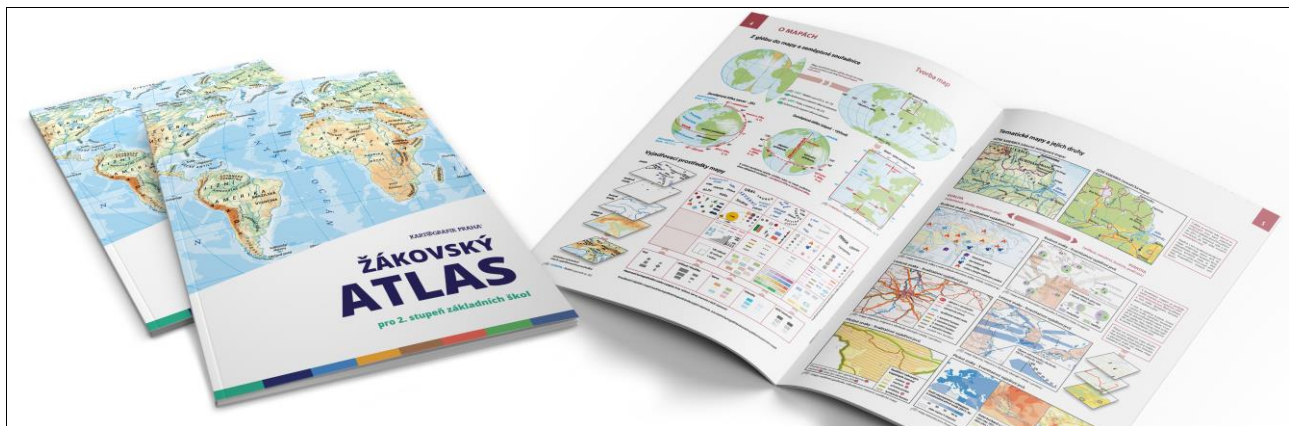


Figure 1. Pupil's Atlas newly used in lower secondary education in Czechia.

While the effort to structure school cartographic aids according to age categories could be observed in certain countries with more extensive cartographic production for schools, a special cartographic didactic aid for lower secondary education has not been available in Czechia until recently. In addition, the risk of problematic implementation of the Pupil's Atlas and the related aids in the current school practice was obvious from the start. The low proportion of fully qualified geography teachers in Czechia (approx. 30%) may also have a negative impact on the implementation. This has been proven in the results of specialised didactic survey research (in Řezníčková 2015). A teacher's handbook for working with the atlas, which is also absent from the current Czech educational environment, may be one of the key tools for geography teachers at the ISCED2 level in future.

This brings us to the objectives set forth for the applied research presented herein, which are currently being pursued:

- (1) to discuss, through a platform of teachers, publishers, cartographers and other authors of school cartographic aids, the possibilities of expanding innovation in the form of a special school atlas for this age category;
- (2) to test the newly created Pupil's Atlas and didactic aids connected to it in school practice, especially the workbook;
- (3) to design and implement another teaching aid, i.e. Teacher's Handbook; and
- (4) to test this unique system of three teaching aids in school practice and evaluate its other possibilities and benefits.

These objectives are designed to jointly lead to the effective implementation of cartographic didactic aids into geographical teaching.

The research study is implemented within the classes of the second stage of primary schools and lower grades of a multi-year grammar school (ISCED 2) in view of the current structure of the Czech geographical education. In addition, a joint workshop platform of teachers, publishers, cartographers and other authors of school cartographic aids has been organised and its conclusions were taken into account in the preparation of the teacher's handbook, the revised atlas and the workbook. The basic applied research methods were

- (1) coordinated focus groups under the platform referred to above;
- (2) conventional and online dialogues with teachers who use the Pupil's Atlas in geographical education;
- (3) analysis of the teaching process using the atlas and the workbook; and
- (4) analysis of the didactic aids for developing map skills available to date.

Owing to the ongoing COVID-19 pandemic and the consequent restrictions (which included distance/online teaching in the target age groups of students), some of the methods listed above are greatly limited and modified with the aim to produce relevant research for innovation of didactic aids.

The aim of the contribution is to present the results derived from the applied research to date, and to introduce the basic structure of the teacher's handbook, which is to be implemented in the next stage of the research.

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