

MAPPING GEOGRAPHICAL MISCONCEPTIONS AMONG HUNGARIAN SCHOOLCHILDREN

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Theoretical background

Research on scientific misconceptions has been one of the favored topics in science education literature for the last thirty years. The thorough research of misconceptions in the fields of physics, chemistry, biology, and even history has started in Hungary about a decade ago. However, geographical misconceptions have stayed out of the scope of these studies so far. Yet, numerous international studies have proved that a wide range of misconceptions exist in geography as well. Since misconceptions strongly discourage successful conceptual change in any subject taught in schools, their revealing is essential for teachers and students alike.

Study purpose

The present research study has three goals to achieve. First, uncovering misconceptions related to physical geography among Hungarian schoolchildren between the ages of 8 and 16, and third-year university undergraduates. Second, finding the reasons how and why students produce such misconceptions. Finally, offering solutions which promote teaching for conceptual change in physical geography.

Research questions

What specific misconceptions can be revealed concerning global warming and the inner structure of the Earth? What are the reasons for the emergence of these misconceptions? What shall be taught to promote teaching for conceptual change? How can it be achieved?

Method

Sample

Pilot testing the questionnaire with five different classes from a primary and a secondary grammar school took place in March, 2012. Respondents were 3rd, 5th, 7th, 9th, and 11th graders. Surveying the actual research participants in three different Hungarian towns is to be in April and May, 2012. In addition, two further groups of third-year university undergraduates are also to fill in a questionnaire. One of the groups is planned to be Geography major students, the other group majors in English. Teachers of geography are also going to be interviewed about their teaching methods. A small scale, longitudinal study in a 9th grade class is planned to be carried out in order to monitor how the students' geographic concepts change, if at all, in the formerly surveyed two areas, i. e. the inner structure of the Earth, and global warming.

Data Collection

The questionnaires consist of a word association test, an achievement test with open-ended questions, and an aptitude test. The tests presented to the 3rd and 5th graders contain less questions. The teachers are requested to fill in an aptitude test.

Analyses of Data

Due to the different testing methods, both quantitative and qualitative methods will be applied when analyzing the data.

Results and Conclusion

Preliminary results suggest that while culturally induced misconceptions are not present, popular media and movies influence student responses. Furthermore, mistakes in textbooks, flaws in teachers' explanations, and other factors may also also interfere in the emergence of geographical misconceptions.