

MATHEMATICAL METHOD FOR MEASURING THE SIMILARITIES OF HUNGARIAN MICROREGIONS

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Keywords: landscape modelling, landscapes

Abstract: It would be useful to know the grade of similarity of microregions for landscape classification, landscape potential determination and landscape analysis. Geography measures landscape similarity on the basis of landscape elements – e.g. relief difference, water supply, soil productivity, etc. – and land use data or built-up grades. Unfortunately, comparison of the discrete, nominal or interval data of such indicators is very difficult.

Our method is aimed for the more objective determination of the so called taxonomic distance described above. Nine indicators have been selected: average relative relief, productive layer thickness, PaDI drought index, built-up area ratio, forest covered area ratio, vineyard ratio, NDVI value of vegetation, effective mesh size index of the landscape structure and hemeroby level. Based on these indicators a data matrix was created for all of the 230 microregions of Hungary. Then the so called difference co-efficient was determined with which the Euclidean distance of the microregions according to all of the indicators was calculated. For measuring differences the Multidimensional Scaling (MDS) method, Kruskal stress measurements were used and Agglomerative Hierarchical Clustering (AHC) was performed.

Applying MDS and AHC methods the differences and similarities of microregions in Hungary can be measured more accurately than before. Microregions can be identified that require greater attention in the course of for example landscape planning because, based on the results, they belong to different clusters and are different from the neighbouring microregions at the same landscape hierarchy level.

P16 GEOGRAPHICAL EDUCATION

Organizers: *Péter Bagoly-Simó*, *Gergely Horváth*, *Mariann Makádi*

Location: Room K

SLOT1 TEXTBOOKS AND CURRICULA

Chair: *Péter Bagoly-Simó* Discussant: *Gergely Horváth*

Schedule: Wednesday, 2 September, 08:30–10:15

COMPARING THE GEOGRAPHICAL MISCONCEPTIONS OF HIGH SCHOOL STUDENTS AND UNIVERSITY UNDERGRADUATES

Authors: *Anett Kádár**, University of Szeged, Hungary; *Andrea Farsang*

Keywords: geographical education, geographical misconceptions, plate tectonics, science literacy

Abstract: The international research into the nature, emergence, and development of scientific misconceptions is substantial; however, Hungarian educational research lags behind in exploring this phenomenon in detail. The main goals of the present study are to compare the geographical knowledge structure and the misconceptions of two distinctive groups of students: one consisting of Year-9 Hungarian high school students, the other consisting of Hungarian university undergraduates majoring in Geography. The definition of misconception used in the present study is that of E. Korom's, who states that misconceptions are concepts, systems of concepts, models of certain environmental phenomena that are not in accordance with the generally accepted present-day scientific knowledge; also, misconceptions are deeply rooted in the cognitive structure of children and adults alike, they remain almost intact despite formal education, and, as a result, they are difficult to change (Korom 2002, 139). The survey was pilot tested, and necessary changes were made to improve the efficiency of the diagnostic tool used in the present study, which consists of a background information questionnaire, a word association test, an aptitude test with open-ended questions, and an achievement test. The theme investigated in the present paper is plate tectonics. As the nature of misconceptions is special, mainly qualitative, but also quantitative methods were used when evaluating the surveys. The evaluation process is based on triangulation: the fundamental theory applied is grounded theory. Preliminary results suggest that while culturally induced misconceptions are not present, layman's experience, mistakes in textbooks, flaws in teachers' explanations as well as extensive media coverage of certain topics, and informal learning interfere in the emergence of geographical misconceptions. Also, no major difference is found between the misconceptions of the two groups, despite one of them consisting of Geography BSc students.

POSSIBILITIES OF LEARNING GEOGRAPHY WITHOUT HANDBOOKS

Author: *Teresa Sadoń-Osowiecka**, University of Gdańsk, Poland

Keywords: educational transformation, knowledge production, PBL, practising society

Abstract: We heard everywhere about many sources of information in our contemporary world, about necessity of lifelong learning. Because of this the policy tries transforming educational systems. But for the best results it is necessary to give freedom of learning, particularly in geography learning. The world and our meanings of the world can change very fast in our times. Closed and rigorous controlled programmes of teaching geography are unadequated to this complexity world.

The author presents results of research in three Polish schools, where were undertaken attempts at a learning without handbooks. Students produce geographical knowledge themselves with using all materials from their everyday life: i.e. traditional atlases, books, GIS, Internet, news from newspapers, from the radio or from TV, observations etc. From these sources they produce their