

SUMMARY

The use and educational effectiveness of digital multimedia in geographical education on the example of lower-secondary schools of the Kuyavian-Pomeranian Voivodeship

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The aim of the work is to evaluate the degree and the possibility of using digital multimedia and their educational effectiveness in education of physical geography. The research problems were formulated as follows:

- determining to what extent and in what form digital multimedia is used by lower-secondary school teachers from the Kuyavian-Pomeranian Voivodeship in geographic education;
- determining how the use of digital multimedia influences the educational effectiveness of the educational process in physical geography.

For a wider picture of the changes which occur in digital multimedia in geographic education, a number of research tasks have been set, for instance: the possibilities of using digital multimedia in the light of the core curriculum for the 3rd education stage were determined by analyzing the goals, methods of teaching, didactic tools, curricula and textbooks of physical geography; the features and structures of multimedia textbooks and multimedia didactic aids were defined from physical geography in lower-secondary schools and their didactic usefulness was assessed.

In order to check the degree of the use of digital multimedia as well as to identify the reasons for not using them and to determine the attitude of geography teachers from the Kuyavian-Pomeranian Voivodship to them, surveys were carried out. In the assessment of teachers' attitude towards the use digital multimedia, a five-point Likert scale and the distribution of results presented in the histogram were used. The obtained data allowed to compare the results of research from previous years.

In the research on the educational effectiveness of the use of digital multimedia a didactic experiment, regulating and modifying the course of the learning process, introducing digital multimedia resources in the experimental group was used. The obtained results were compared with the control group using tests (input, end, distance) to check the level of students' achievement of the learning objectives, which were based on the taxonomy of learning of B. Niemierko (memorizing, understanding, applying in typical and problem situations). The statistical significance test for the difference between two averages from two general populations was used, which allowed the verification of the research hypothesis that the digital multimedia used during the geography lessons contributes to a greater increase of knowledge.

The assessment of the impact of digital didactic tools on geographic education, including future teacher education programmes, curricula and textbooks, determines the current needs in this area. The questionnaire survey allowed to assess the actual degree of the use of modern didactic resources by teachers with a special attention paid to the advantages and disadvantages of their use. The results of the research on the multimedia learning effectiveness can form the basis to develop new education strategies in the field of physical geography. However, defining the advantages and disadvantages of the didactic multimedia aids will serve to create new didactic solutions, which – in combination with other methods and forms of work – will contribute to the increase of educational effectiveness.