

Topic: The Efficiency of Designing and Applying the Multimedia Study Materials in the Chemistry Instruction at Grammar schools (Transition Elements)

Abstract

Numerous researches prove, that the computer-supported learning content presentations are frequently applied within the process of instruction but the available results are general, global without focusing on respondents' age structure, detecting their interest in working with presentation programmes or correlation to teachers' computer literacy, i.e. using and designing their own computer-supported presentations of the learning content. These were the main reasons why the dissertation thesis focuses on the frequency of designing and using this type of presentations and multimedia objects according to the computer literacy level and the length of respondents' teaching practice in chemistry at grammar schools in the Czech Republic, mainly in the Moravian-Silesian region. The explorative methods were applied in the pedagogical research, i.e. the questionnaire method (traditional questionnaire and the questionnaire with assessment scales) and the Q-methodology. The research sample consists of 203 chemistry teachers in the traditional questionnaire and 99 ones in the questionnaire with assessment scales from all regions of the Czech Republic; the random choice of 9 teachers from the Moravian-Silesian region was used for the Q-methodology. The dissertation thesis also includes the multimedia study materials for the grammar school with topic „Copper Group Elements“, presented on the attached DVD.

The main objective of the dissertation thesis is to research the efficiency of designing and applying the multimedia study materials for the chemistry instruction at grammar schools from teachers' point of view. The author prepared a set of computer-supported presentations and multimedia objects as experimental learning materials for the "Copper Group Elements" topic for grammar school chemistry teachers so that they applied them within the process of instruction to support the clearness of explanations and joining the theory and practice. The research monitored teachers' interest and the level of their competences in the field of multimedia study materials in correlation to their computer literacy and the length of teaching practice.

The received results prove the information literacy directly influences the frequency of creating and applying the multimedia learning materials in the form of computer-supported presentations and multimedia objects while no influence of the length of teaching practice was discovered. We can conclude it depends on teachers' interest, motivation, creativeness and time conditions how they approach to the phenomenon of computer-supported presentations

and apply them within the instruction. The increase in the frequency of chemistry teachers' further education and pre-graduate preparation can be highly recommended in this field.

Key words: chemistry education, information and communication technologies, presentation of the learning content, MS PowerPoint; electronic learning material, multimedia objects, elements of the copper group.