

Summary

Information and communications technology (ICT) have brought a significant change into the educational process at all levels of education, from pre-school to university. ICT changed traditional methods of curriculum access, the system of teachers' work, communication between the teacher and the students and so on. At the same time, within the five years the natural science education in our school system came across the number of modifications in contents, name variations of science subjects, as well as the changes in curriculum and time schedule dedicated to various natural science subjects. The science education at the primary level is concretized by the subject of natural science, in which pupils of younger age acquire knowledge about natural environment and the phenomena related to it. Acquired knowledge form the knowledge base on which a teacher of biology, physics, or chemistry at lower secondary level of education can build on. This aspect explains how important is science as a subject for the development of science cognition and forming a positive relationship of pupils to nature as well as education.

Implementation of ICT into the educational process is influenced by a set of factors; a support from the state, schools, legislative conditions, suitable and accessible computing technology, available educational IT programs respecting an age range of the pupils, a teacher with adequate competencies, a selection of appropriate topics of the curriculum and the like.

The main idea presented by the authors in this monograph is the merge of ICT and natural science at the primary level of education.

In academic literature the discussions regarding the efficiency of ICT impact on education process are lead. The popularity of computer using among younger pupils (confirmed by the results of our survey) should contribute not only to the growth of an attractiveness of education, but also to develop the cognitive sphere of the pupils. In accessible academic sources, it was not possible to find the survey results analyzing natural science education at the primary education level considering the impact of ICT on effectiveness in educational process. This monograph, at least partially, tried to fill in missing domain.

The main goal of this monograph was to provide more complex view on natural science education at the primary level in relation to information and communications technology.

The critical intention of the research was to detect advantages, as well as potential disadvantages of the implementation of ICT to the educational process of natural science at the primary level of education. Analysis and the results of presented surveys and experimental studies confirmed the substantiation of the use of ICT in primary science education. The surveys showed the effectiveness of ICT implementation in developing pupils' knowledge, also affirmed pupils' interest in this concept of learning and their changing attitude towards the subject and education using modern technologies, and the affection of teachers to accept this way of teaching.

Nevertheless, the application of ICT in natural science learning process is not suitable for every lesson, every topic. ICT is certainly not applicable when recognizing the plant species that grow in school area. However, for human 'autopsy', learning about universe or different physical, technical and biological phenomena which are difficult to illustrate differently, it is a great source of demonstration.

The learning process using ICT should not replace the traditional learning process, yet they should make an unity in increasing the intelligibility for pupils at the primary level of education, especially when revising and practicing the obtained scientific knowledge.

To a large extent the use of ICT in science educational process depends on the teachers themselves. The wide range of visualization and the intelligibility enables, do not shunt, a decisive role of the teacher. However, one cannot expect from teacher to create all teaching devices (e.g teaching programs) by himself/herself.

In spite of all the questions that the ICT at the primary level of education might bring, new ways of education pupils at the primary level using ICT are regarded as perspective. If they are applied correctly, respecting all pedagogical principles and considering the age of pupils, they can significantly contribute to the improvement of educational process.

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