

This diploma thesis builds on results of national and international surveys of mathematical and natural science literacy of pupils. A collection of newly conceived experimental and laboratory tasks has been proposed. The chosen approach consists on heuristic exploration of physical patterns and rules in a virtual environment. In the theoretical part, the problems of using electronic media in education are discussed and several views on the motivation of pupils which affects it are summarized. The learning process and also participation of sensory perception on this are described. In the practical part, the pupils' opinions on the using of ICT in physics learning are surveyed and the selected virtual environment and methodology for the creating of worksheets are described. Further on, the analysis of a case study of the pilot verification of problems has been carried out. The final evaluation of the study has also been performed.