ABSTRACT

This master thesis deals with middle school pupils and their comprehension of Part-whole theory within the area of Mathematics.

The theory section is divided into five parts. The first part presents sets of knowledge and skills of lower-secondary school pupils that are essential for completing a particular time period in selected thematic areas of mathematics at primary schools. In the second part, individual stages and mechanisms of cognitive processes needed in Mathematics are determined, and the third part focuses on teaching methods of Mathematics. Among the issues mentioned in this part are for example the difference between formal and informal knowledge or transmissive and constructivist way of teaching. Lastly, the fourth and fifth parts specify various expressions of wholes and their parts.

The research part of this paper provides an analysis of interviews with certain teachers that are employing different teaching methods, testing applied on their pupils and also an analysis of the textbooks that are being used by these teachers.

The other part of the thesis is the evaluation of the interviews with the selected teachers, what gives us the information about the relationship of the teachers to particular didactic approaches, and the evaluation of the tests taken by pupils including standard and nonstandard exercises focused on Part-whole theory.

The results confirm that the constructivist way of teaching has a positive impact on cognitive process of pupils in the topic of Part-whole theory.

KEY WORDS

Whole and its part, standard and nonstandard exercises in Mathematics, transmissive and constructivist way of teaching, formalism, Hejny method, cognitive process of a pupil