

ABSTRACT

The dissertation thesis deals with mathematical problem-solving at lower secondary level, as viewed from the perspective of heuristic strategies. The aim of the thesis is to comprehensibly summarize the results of research which began in 2012 and runs until now.

The results concern both with theoretical and empirical parts of our research. This research study was conducted in fifteen lower secondary and upper secondary classes. Three dimensional classification of use of heuristic strategies and the structure of heuristic strategies' characteristics were developed by the author, and these constructs are presented in this work. The theory of mathematical problem and mathematical problem solving method is an integral part of this thesis too. Furthermore, the author presents a summary of all strategies used in the experiments; each strategy is fully described and illustrated by an appropriate example.

The results of several short-term research studies (three months) and a longitudinal research study (sixteen months) are analysed in the empirical part of the thesis. This part also strives to find answers to several research questions, e.g.: „Could certain strategies be taught in a short-term period (three months)?“, „Which strategies are suitable for an average pupil?“ or „Are the pupils able to spontaneously discover certain strategies?“

KEYWORDS

Mathematical problem, methods of mathematical problem solving, heuristic strategy, culture of problem solving by pupil.