

ABSTRACT

This thesis *Pupils' problem solving strategies at lower and upper secondary level* brings a focus on the issue outlined by the name. At the same time, it focuses on pupils' strategies to solve problems that are closely related to information literacy.

At first I define basic terms for the area of word problems. Consecutively I focus on the theoretical knowledge from the area of problem solving strategies themselves.

The content of the experimental part of the thesis is the survey of pupils' solutions of eight selected tasks, by which I was looking for an answer of the three basic questions of this thesis.

My experiment is divided into two branches. The first branch of the experiment took place at the lower level of the multi-year grammar schools. The second branch of the experiment took place at the higher grade of the multi-year grammar schools and, to a small extent, at the secondary school.

The theoretical part contains views of various authors on issue of problems and word problems. I present and compare these individual approaches. The result is the demarcation of the terms needed for the experimental part of the work.

The main aim of the experimental part of the thesis is to find the answers of three basic questions of this thesis, where I was using data from lower and higher grades of multi-year grammar schools. I focused primarily on tasks involving data, dependencies and statistics, which is also closely related to the use of algebraic entries and mathematical functions.

I selected the tasks for the experimental part of the thesis from collections in which there are abundantly represented tasks focused on working with information, data, tables and diagrams.

In this thesis, I looked for answers of three basic questions:

Question 1: How does the chosen approach of solving a problem relate to the chance of success?

Question 2: How does the student's certificate mark relate to the chosen approach of solving a mathematical problem?

Question 3: Is the perception of the difficulty of the task always consistent with the real difficulty if I measure it through overall success rate?

The output of the experimental part is then the answer to the outlined questions, although due to the limited scope of the experiment, it is rather a summary of the sketched regularities.

In the first question, I noted the higher difficulty with solving the problems for pupils who rely heavily on learned algorithms. In the second question, I did not find any more significant connection between the certificate mark and the preferred strategy. In the third question, I observed the obvious correlation between the perceived and real difficulty of the tasks that occurred in seven out of the eight considered word problems.

Keywords

Problem, word problem, assignment, problem situation, strategy of solving, mistake, analysis of strategy of solving, success rate, solving problems.