

**Title:** Interpretation of calculations in word problems – looking for a question

**Author:** Tereza Legová

**Department:** Department of Mathematics and Mathematical Education

**Supervisor:** prof. RNDr. Naďa Vondrová, Ph.D., Department of Mathematics and Mathematical Education

**Abstract:** This thesis deals with an exploratory study of the introduction of modified word problems into the teaching of mathematics. The modification of the classical word problem consists in setting the context of the word problem and calculation. The task of pupils is to find out what we get by the given calculation, what question the calculation answers and substantiate their claims. The aim of the thesis was to describe how pupils think in solving this type of problem. Specifically, it investigated what strategies pupils elect and what difficulties arise in solving. The theoretical part of the thesis is a search of literature on the topic of solving word problems and their possible implementation in teaching. The practical part is divided into two phases. A test consisting of three problem contexts was given to pupils. The aim was to determine the meaning of the three given calculations for the each context. Before solving the test, a sample problem was discussed with the pupils. In the first phase, interviews were conducted with six pupils over their solutions. In the second phase, the test of 86 pupils from 8th and 9th grades were analyzed. The most successful solution strategy in the first phase of the research was the experiment – verification – correction method. Pupils also used strategies of dividing the calculation into two parts and analogy with the sample problem. This type of word problem is very challenging for pupils. In a math class, I would therefore recommend working with fewer problems and focusing on group discussion.

**Keywords:** solving word problems, problem posing, ratio, direct proportion, creating questions about the given calculations