

Solving strategies of word problems depending on the context topicality

ABSTRACT

The thesis deals with word problems solvable by linear equations. The aim of the work is to show if the context, on which the word problem depends, influences how pupils participating in the research solve it and verify if word problem phrasing and modern language usage help pupils solve the word problem. It is accomplished by assigning pupils a set of varied word problems and assessing their solutions. More results were gained by assessing questionnaires related to the context of the word problems being calculated. The second aim of the thesis is to explain various definitions of word problems, putting the term into the context of school mathematics and a brief summary of the historical development of mathematics focusing on word problems.

The work consists of three parts. In the first part, problems and word problems are defined and it is shown how word problems are included in the Framework educational programme. Word problems are put into historical context.

The second part shows the conception of motion word problems, word problems on joint work and word problems on dividing a whole into parts in the present-day mathematical textbooks in the second stage of elementary schools and in the lower classes of secondary grammar schools (gymnázia).

The third part of the work comprises a set of word problems included in the questionnaire survey and their model solutions, the description of the course of the experiment and its evaluation.

The results of the survey imply that word problem phrasing and modern language usage do not help pupils solve the word problem. They confirm that historical word problems are interesting and surely useful for enlivening the lesson, yet they are useful only partially for the individual solution because of their difficulty (especially in the language level).

KEY WORDS

Word problems, solutions using linear equations, historical connections, the context of a word problem, textbook research, current and historical word problems.