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## Language and Mathematics: Bridging between Natural Language and Mathematical Language in Solving Problems in Mathematics

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### ABSTRACT

In the solution of mathematical word problems, problems that are accompanied by text, there is a need to bridge between mathematical language that requires an awareness of the mathematical components, and natural language that requires a literacy approach to the whole text. In this paper we present examples of mathematical word problems whose solutions depend on a transition between a linguistic situation on one side and abstract mathematical structure on the other. These examples demonstrate the need of treating word problems in a literacy approach. For this purpose, a model for teaching and learning is suggested. The model, which was tested successfully, presents an interactive multi-level process that enables deciphering of the mathematical text by means of decoding symbols and graphs. This leads to understanding of the revealed content and the linguistic situation, transfer to a mathematical model, and correspondence between the linguistic situation and the appropriate mathematical model. This model was tested as a case study. The participants were 3 students: a student in the sixth grade, a student in the ninth grade and a college student. All the students demonstrated an impressive improvement in their mathematical comprehension using this model.

### KEYWORDS

Mathematical Language, Word Problems

### Cite this paper

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