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Developing a model to support students in solving subtraction.

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Summary: Subtraction has two meanings and each meaning leads to the different strategies. The meaning of “taking away something” suggests a direct subtraction, while the meaning of “determining the difference between two numbers” is more likely to be modeled as indirect addition. Many prior researches found that the second meaning and second strategy rarely appeared in the mathematical textbooks and teacher explanations, including in Indonesia. Therefore, this study was conducted to contribute to the development of a local instruction theory for subtraction by designing instructional activities that can facilitate first grade of primary school students to develop a model in solving two digit numbers subtraction. Consequently, design research was chosen as an appropriate approach for achieving the research aim and realistic mathematics education (RME) was used as a guide to design the lesson. This study involved 6 students in the pilot experiment, 31 students in the teaching experiment, and a first grade teacher of SDN 179 Palembang. The result of this study shows that the beads string could bridge students from the contextual problems (taking ginger candies and making grains bracelets) to the use of the empty number line. It also shows that the empty number line could promote students to use different strategies (direct subtraction, indirect addition, and indirect subtraction) in solving subtraction problems. Based on these findings, it is recommended to apply RME in the teaching learning process to make it more meaningful for students.

Classification: F32 D42

Keywords: subtraction; design research; realistic mathematics education; beads string; empty number line