10th International Conference on Research in TEACHING and EDUCATION

RTECONF

Paris, France

14 - 16 August 2025

Classifying Problems in Elementary Mathematics Textbooks: Routine and Non-Routine Tasks in Türkiye

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Abstract

The aim of this study is to examine the extent to which primary school mathematics textbooks provide opportunities for teaching problem-solving skills. A review of the literature on the classification of problem types reveals that one of the most common distinctions is between routine and non-routine problems. Although drawing a strict line between these two types can be challenging, they differ in several key characteristics. While routine problems follow standard procedures, non-routine problems require higher-order thinking skills such as organizing data, recognizing patterns, and engaging in logical reasoning. Non-routine problems, by allowing multiple solution strategies, contribute to the development of students' mathematical strategic flexibility. Previous research conducted in various countries has shown that non-routine problem-solving tasks are scarcely included in textbooks. This study aims to evaluate whether there has been any improvement in this regard by analyzing current primary school mathematics textbooks used in Türkiye. In this context, fourth-grade mathematics textbooks from different regions of the country were examined. The study is based on a qualitative research design. Since the themes were predetermined, the data were analyzed using thematic analysis. The findings revealed that the fourth-grade mathematics textbooks published by different publishers predominantly included routine problems, while non-routine problems were found to be limited. This suggests that current textbooks may not offer sufficient diversity to foster students' higher-order thinking and strategic flexibility.

Keywords: mathematics education; non-routine problems; problem solving; problem types; textbook analysis