

GENDER, DIFFICULTY, AND DOMAIN: ANALYSING STUDENT PERFORMANCE IN THE MATHEMATICAL KANGAROO COMPETITION

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ABSTRACT

One of the main aims of mathematics education has long been to make mathematics more accessible to students, present it as engaging and intriguing, and challenge the misconception that it consists solely of rules to be memorized. The Mathematical Kangaroo Competition directly serves this purpose: as the largest mathematics competition worldwide, it fosters a deep appreciation for mathematics among students, teachers, and the wider community, while encouraging logical thinking from an early age. This research examines students from Serbia competing in the Mathematical Kangaroo Competition, focusing on gender differences, task difficulty, and mathematical domain. Particular attention is given to answering strategies in the context of the competition's scoring structure: incorrect answers are penalized, unanswered questions receive no penalty, and problems span three difficulty levels. This makes the competition especially suitable for analyzing risk-taking behavior alongside performance differences across gender, difficulty levels, and mathematical domains. Results consistently show that boys outperformed girls at both school levels, with the performance gap more pronounced at the secondary school level and increasing with problem difficulty. Among the mathematical domains examined – algebra, geometry, logic, and numbers – boys outperformed girls in all areas, though the gap was smallest in geometry, which was also the only domain where girls occasionally achieved better results. These findings highlight the role of problem design and mathematical domain in shaping gender-related performance differences and may inform both competition design and classroom practice. At the same time, they call for further investigation into the instructional and motivational factors underlying these differences.