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Problem modification as a tool for detecting cognitive flexibility in school children.

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Summary: This paper presents the results of an experiment in which fourth to sixth graders with above-average mathematical abilities modified a given problem. The experiment found evidence of links between problem posing and cognitive flexibility. Emerging from organizational theory, cognitive flexibility is conceptualized through three primary constructs: cognitive variety, cognitive novelty, and changes in cognitive framing. Among these components, changes in cognitive framing could be effectively detected in problem-posing situations, giving a relevant indication of students' creative potential. The students' capacity to generate coherent and consistent problems in the context of problem modification may indicate the existence of a strategy of functional type for generalizations, which seems to be specific to mathematical creativity.

Classification: C30 D50

Keywords: problem posing; cognitive flexibility; creativity; change in cognitive framing

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