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The Influence of Working Memory Capacity on the Creative Reasoning of Prospective Mathematics Teacher

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Abstract.

This research aims to determine the effect of working memory capacity on the creative reasoning of prospective mathematics teacher students in solving geometry problems. The research uses quantitative research methods. The sample selection was carried out using a random sampling technique and 30 prospective mathematics teacher students were selected as the research sample. The operating range task was used in this study to measure working memory capasity. This test is computer based with automatic timing. Ospan test operations include addition, subtraction, multiplication and division. The creative reasoning test uses problem solving questions on geometry material. This test consists of 3 questions which provide freedom to reason creatively in solving. Assessment is carried out using indicators of novelty, logical reasoning and accuracy in the use of mathematical concepts. The analysis test was carried out using multiple linear regression. Based on the results of multiple regression, the level of cognitive independence of working memory capacity was found influence creative reasoning. The result that working memory capacity appears to have a positive impact on creative reasoning. Working memory capacity has a significant influence on the creative reasoning of prospective mathematics teachers in solving mathematical problems, although the influence is classified as low. There are 12% of creative reasoning of prospective mathematics teachers in problem solving is influenced by working memory capacity, while the rest is influenced by other factors.

Keywords: Working Memory Capacity, Creative Reasoning, Problem Solving