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Effect of Differentiated Learning Based on Lateral Thinking Techniques towards Mathematical Creativity

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Abstract

The challenge of learning mathematics in higher education today focuses on the need to enhance students' diverse creativity through the learning process. Lateral thinking technique was one of the best ways to develop it, but there is still no prototype design for its application in mathematics learning. This study aims to explored the effect of differentiated learning based on lateral thinking technique (D-LTT) on students' mathematical creativity (MC) in higher education. Using a pretest post-test quasi-experimental research design, data were gathered during the first term of the 2023–2024 school year. The participants consisted of 70 students in one of the private universities in Indonesia. The process of gathering data involved the use of two instruments. The first tool was a mathematical creativity exam that included pretest and post-test measuring indicators for fluency components. Semi-structured interview served as the second instrument. The data obtained were analysed by Mann-Whitney test after going through the assumption test of normality, and homogeneity. The results of the hypothesis test calculation obtained significance level which indicated that there was an effect of D-LTT on student mathematical creativity. Effect size test concluded that the use of D-LTT was effectively increasing students' mathematical creativity. The attention to individual differences helps student mastering problem solving skill, the phase of avoiding old ways stimulate variety of students' approaches and motivating new ideas contributed to the flexibility aspect during the problem-solving process so that the mathematical creativity of each individual also increases.

Keywords: differentiated learning, lateral thinking techniques, mathematical creativity