

“Application of Problem-Based Learning with Metaphorical Thinking Approach to Improve Ability of Mathematical Problem Solving and Self-Regulated Learning of High School Students”

ABSTRACT

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The ability of students to formulate and plan in solving a problem is still lacking, this causes students' mathematical problem-solving ability is still low. There needs to be a thorough attitude, tenacity, curiosity and confidence in solving a problem. This attitude improves mathematical problem-solving skills. The attitude in question is self-regulated learning. This study aims to: 1) find out improvement mathematical problem-solving ability students who get a problem-based learning model with metaphorical thinking approach that is higher than students who get problem-based learning model, 2) find out self-regulated learning students who get problem-based learning model. with metaphorical thinking approach is better than students who get problem-based learning model, 3) find out correlation between mathematical problem-solving abilities and self-regulated learning students who get problem-based learning model with metaphorical thinking approach. Research method is quasi-experimental. Research design used was pretest-posttest control group design. Population in this study was students of class XI SMAN 25 Bandung and the samples were XI IPS 5 as experimental group and XI IPS 7 as control group which were chosen with technique purposive sampling. Instrument used is test of description mathematical problem-solving abilities and non-test form self-regulated learning questionnaire. The attitude scale used is Likert scale. Based analysis of the test results, test and non-test instruments are feasible to use. Data analysis was performed using a t-test through the SPSS 25.0 for Windows program. The results showed that improvement of mathematical problem-solving ability and self-regulated learning students who received a problem-based learning model with metaphorical thinking approach was better than students who received a problem-based learning model. In addition, there is a significant positive correlation between mathematical problem-solving ability and student self-regulated learning. Therefore, problem-based learning model with metaphorical thinking approach can be used as an alternative in implementing mathematics learning.

Keywords: *Ability of Mathematical Problem Solving, Self-Regulated Learning, Problem-Based Learning, Metaphorical Thinking*