

**THE DIFFERENCE OF STUDENTS' MATHEMATICAL REPRESENTATION
ABILITY BY USING INSTRUCTION OF PROBLEM BASED LEARNING
AND DIRECT INSTRUCTION IN GRADE X**

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ABSTRACT

This research is quasi-experiment. The purpose of this research is to know whether students' mathematical representation by using instruction of problem based learning classroom is higher than direct instruction classroom at SMA Swasta Panca Budi Medan. The population of this research is students of SMA Swasta Panca Budi Medan which consists of 14 classes, whereas the sample consists of 2 classes, namely, X-MS1 as experimental class consists of 32 students and X-MSA as control class consists of 30 students. Experimental class used Problem Based Learning and control class used Direct Instruction. Collecting data technique of this research is mathematical representation test given in the end of learning either in experimental class or control class. The type of this test is essay test. Before doing hypothesis test, the normality and the homogeneity test should be done. The result of those tests, sample was taken from normal distributed and homogeneous population. The data analysis of experimental class by using t-test with significance level $\alpha = 0.05$, it was obtained that $t_{\text{calculation}} > t_{\text{table}}$ then H_0 is rejected and H_a is accepted. It can be concluded that students' mathematical representation ability by using instruction of problem based learning is higher than direct instruction in grade X. The research that has been done, researcher suggested that Problem based learning can be as consideration to teachers in enhancing senior high school students' mathematical representation ability. Teacher intends to use problem based learning, needed preparation and used time effectively in its implementation. The result and instrument of this research can be used as consideration to implement problem based learning in a different class grades and subjects for the future researchers.