

ABSTRAK

Patricia Only Sabda, Maria. 2022. Pengaruh Model Prolem Based Learning Berbasis STEM terhadap Kemampuan Pemecahan Masalah Matematis Siswa SMA. Skripsi. Program Studi Pendidikan Matematika. Fakultas Sains dan Teknologi. Universitas PGRI Adi Buana Surabaya, Pembimbing: Ninik Mutianingsih, S.Pd., M.Si.

Kata Kunci: Problem Based Learning, STEM, Kemampuan Pemecahan Masalah Matematis.

Penelitian ini dilatarbelakangi oleh pentingnya kemampuan pemecahan masalah bagi siswa. Apalagi dalam matematika, kemampuan pemecahan masalah merupakan inti dalam pembelajaran. Oleh karena itu, kemampuan pemecahan masalah matematis sangat penting untuk dimiliki oleh Siswa.

Penelitian ini bertujuan untuk mengetahui pengaruh model Problem Based Learning berbasis STEM pada materi Translasi-Transformasi Geometri terhadap kemampuan pemecahan masalah matematis siswa kelas XI SMA Hang Tuah 4 Surabaya.

Metode penelitian yang digunakan dalam penelitian ini ialah penelitian kuantitatif, dengan jenis penelitian *quasi experiment*. Penelitian ini mengambil 2 kelas sebagai sampel. Pengumpulan data yang digunakan adalah *test*, dan dokumentasi. Instrumen penelitian yang digunakan ialah RPP dan LKPD, serta hasil *pretest* dan *posttest* siswa untuk mengetahui bagaimana kemampuan pemecahan masalah matematis siswa dengan model Problem Based Learning berbasis STEM yang diterapkan. Uji hipotesis dalam penelitian ini menggunakan uji *independent t test*.

Dari hasil analisis data *posttest* kedua kelas tersebut, dapat dilihat bahwa rata-rata kelas eksperimen lebih tinggi daripada kelas kontrol, yakni $83,03 > 69,69$. Selanjutnya, dari hasil uji hipotesis yang sudah dilakukan, didapati bahwa nilai *sig. 2 tailed* $< 0,05$ yakni $0,000 < 0,05$ sehingga H_0 ditolak dan H_1 diterima. Berdasarkan hasil uji tersebut, dapat dikatakan bahwa ada perbedaan rata-rata subjek

penelitian antar kelas kontrol dan eksperimen. Sehingga dapat ditarik kesimpulan menyeluruh bahwa model Problem Based Learning berbasis STEM berpengaruh terhadap kemampuan pemecahan masalah matematis siswa SMA dalam materi Translasi-Transformasi Geometri, serta model ini memberikan pengaruh yang lebih baik daripada model konvensional.

ABSTRACT

Patricia Only Sabda, Maria. 2022. The Effect of the STEM-Based Problem-Based Learning Model on High School Students' Mathematical Problem-Solving Ability. Essay. Mathematics Education Department. Faculty of Science and Technology. PGRI Adi Buana University Surabaya,. Advisor: Ninik Mutianingsih, S.Pd., M.Si.

Keywords: Problem Based Learning, STEM, Mathematical Problem Solving Ability.

This research is motivated by the importance of problem solving skills for students. Especially in mathematics, problem solving ability is the core of learning. Therefore, the ability to solve mathematical problems is very important for students to have.

This study aims to determine the effect of the STEM-based Problem Based Learning model on Geometry Translation-Transformation material on the mathematical problem solving abilities of class XI students at SMA Hang Tuah 4 Surabaya.

The research method used in this research is quantitative research, with the type of quasi-experimental research. This study took 2 classes as samples. The collection of data used is a test, and documentation. The research instruments used were lesson plans and worksheets, as well as the results of the students' pretest and posttest to find out how students' mathematical problem solving abilities with the STEM-based Problem Based Learning model were applied. Test the hypothesis in this study using the independent t test.

From the results of the posttest data analysis of the two classes, it can be seen that the average experimental class is higher than the control class, namely $83.03 > 69.69$. Furthermore, from the results of the hypothesis testing that has been done, it was found that the sig. 2 tailed < 0.05 , namely $0.000 < 0.05$ so that H_0 is rejected and H_1 is accepted. Based on the test results, it can be said that there is an average difference between research subjects between control and experimental classes. So that it can be drawn an overall conclusion that the STEM-based Problem Based Learning model has an effect on the mathematical problem solving abilities of high

school students in Geometry Translation-Transformation material, and this model has a better effect than conventional models.