

PENGARUH MODEL PEMBELAJARAN POE (*PREDICT, OBSERVE, EXPLAIN*) BERBANTUAN MEDIA GEOGEBRA TERHADAP KEMAMPUAN PEMAHAMAN KONSEP MATEMATIKA SISWA SMP

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ABSTRAK

Penelitian ini dilatarbelakangi oleh rendahnya kemampuan pemahaman konsep matematika siswa di Indonesia. Salah satu faktor penyebabnya adalah dominasi pembelajaran konvensional yang kurang melibatkan siswa secara aktif dalam proses membangun pengetahuan. Penelitian ini bertujuan untuk mengetahui pengaruh penerapan model pembelajaran Predict, Observe, Explain (POE) berbantuan media GeoGebra terhadap kemampuan pemahaman konsep matematika siswa. Penelitian ini menggunakan pendekatan kuantitatif dengan metode eksperimen semu (*quasi experiment*) melalui desain *post-test only control group design*. Populasi penelitian mencakup seluruh siswa kelas IX SMP Negeri 5 Singaraja tahun ajaran 2025/2026 yang berjumlah 299 siswa. Sampel penelitian ditentukan menggunakan teknik *cluster random sampling*, sehingga diperoleh kelas IX E sebagai kelas eksperimen yang dibelajarkan dengan model POE berbantuan GeoGebra dan kelas IX C sebagai kelas kontrol yang dibelajarkan dengan pembelajaran konvensional. Masing-masing kelas terdiri atas 30 siswa. Instrumen penelitian berupa tes kemampuan pemahaman konsep matematika yang meliputi indikator menyatakan ulang konsep, mengklasifikasikan objek, mengaplikasikan konsep, serta merepresentasikan konsep dalam berbagai situasi. Data dianalisis menggunakan uji-t satu ekor (*independent samples t-test*) dengan taraf signifikansi 5%. Hasil analisis menunjukkan bahwa nilai signifikansi sebesar $0,001 < 0,05$, sehingga H_1 diterima. Rata-rata nilai *post-test* siswa kelas eksperimen sebesar 80,67 sedangkan kelas kontrol sebesar 57. Hal ini menunjukkan bahwa penerapan model pembelajaran POE berbantuan media GeoGebra berpengaruh secara signifikan terhadap kemampuan pemahaman konsep matematika siswa. Dengan demikian, dapat disimpulkan bahwa kemampuan pemahaman konsep matematika siswa yang dibelajarkan dengan model POE berbantuan GeoGebra lebih tinggi dibandingkan dengan siswa yang dibelajarkan menggunakan pembelajaran konvensional.

Kata kunci: POE, GeoGebra, Pemahaman Konsep Matematika

***THE EFFECT OF THE POE (PREDICT, OBSERVE, EXPLAIN) LEARNING
MODEL ASSISTED BY GEOGEBRA MEDIA ON JUNIOR HIGH SCHOOL
STUDENTS' MATHEMATICAL CONCEPTUAL UNDERSTANDING***

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ABSTRACT

This study was motivated by the low level of students' mathematical conceptual understanding in Indonesia. One of the contributing factors is the dominance of conventional learning, which provides limited opportunities for students to actively engage in the process of knowledge construction. This study aimed to examine the effect of implementing the Predict, Observe, Explain (POE) learning model assisted by GeoGebra media on junior high school students' mathematical conceptual understanding. The study employed a quantitative approach using a quasi-experimental method with a post-test only control group design. The research population consisted of all ninth-grade students of SMP Negeri 5 Singaraja in the 2025/2026 academic year, totaling 299 students. The sample was selected using cluster random sampling, resulting in class IX E as the experimental group taught using the POE model assisted by GeoGebra and class IX C as the control group taught using conventional learning. Each class consisted of 30 students. The research instrument was a mathematical conceptual understanding test covering several indicators, including restating concepts, classifying objects, applying concepts, and representing concepts in various situations. The data were analyzed using a one-tailed independent samples t-test at a 5% significance level. The results showed that the significance value was 0.001 (< 0.05), indicating that H_1 was accepted. The mean post-test score of the experimental group was 80.67, while that of the control group was 57. These results indicate that the implementation of the POE learning model assisted by GeoGebra media has a significant effect on students' mathematical conceptual understanding. Therefore, it can be concluded that students taught using the POE model assisted by GeoGebra demonstrate higher mathematical conceptual understanding than those taught through conventional learning.

Keywords: POE, GeoGebra, Mathematical Conceptual Understanding