

ABSTRAK

Angga Dinata, Nim. 4193111082 (2023), Perbedaan Peningkatan Kemampuan Representasi Matematis Siswa antara Model Pembelajaran *Problem Based Learning* Berbantuan Aplikasi *Geogebra* dengan Model Pembelajaran *Discovery Learning* Di Kelas X SMAS Tamansiswa Singosari.

Penelitian ini bertujuan untuk mengetahui bagaimana peningkatan kemampuan representasi matematis siswa yang diajarkan menggunakan model *problem based learning* (PBL) berbantuan aplikasi *Geogebra* dan yang diajarkan dengan model *discovery learning* di kelas X SMAS Tamansiswa Singosari berdasarkan hasil tes kemampuan representasi matematis selain itu juga bertujuan untuk mengetahui proses jawaban siswa pada kelas *problem based learning* berbantuan aplikasi *Geogebra* dan kelas *discovery learning* berdasarkan indikator kemampuan representasi matematis serta bertujuan untuk mengetahui apakah terdapat perbedaan peningkatan kemampuan representasi matematis siswa yang diajarkan menggunakan model *problem based learning* (PBL) berbantuan aplikasi *Geogebra* dengan peningkatan kemampuan representasi matematis yang diajarkan menggunakan model *discovery learning* di kelas X SMAS Tamansiswa Singosari. Penelitian ini menggunakan jenis penelitian *quasi eksperimental* atau eksperimen semu dengan teknik *purposive sampling* serta menggunakan desain penelitian *nonequivalent control group design*. Sampel dalam penelitian ini terdiri atas 18 siswa kelas eksperimen dan 20 siswa kelas kontrol. kelas eksperimen adalah kelas yang diberikan model pembelajaran *problem based learning* (pbl) berbantuan aplikasi *geogebra* sebaliknya kelas kontrol diberikan model *discovery learning*. Data yang dikumpulkan merupakan data hasil tes kemampuan representasi matematis siswa dengan hasil penelitian diantaranya yakni; Berdasarkan hasil nilai *N-Gain* kelas eksperimen memiliki rata-rata peningkatan sebesar 0,42 dengan kategori sedang. Sedangkan Kelas kontrol memiliki rata-rata peningkatan sebesar 0,35 dengan kategori sedang; Berdasarkan proses jawaban siswa dapat diketahui bahwa secara umum proses jawaban kelas eksperimen lebih baik daripada kelas kontrol; Berdasarkan hasil perhitungan dapat diketahui bahwa seluruh data berdistribusi normal dan homogen sehingga pengujian menggunakan uji-t. Sehingga diketahui bahwa $t_{hitung} > t_{tabel}$ yakni $4,71 > 2,03$. Disimpulkan bahwa menolak H_0 dan menerima H_1 yang berarti terdapat perbedaan peningkatan kemampuan representasi matematis siswa kelas X SMAS Tamansiswa Singosari antara siswa yang diajarkan menggunakan model PBL berbantuan aplikasi *Geogebra* dengan model *discovery learning*.

Kata Kunci : *Problem Based Learning* (PBL) berbantuan aplikasi *Geogebra*, *Discovery Learning*, Representasi Matematis.

ABSTRACT

Angga Dinata, Nim. 4193111082 (2023), Differences in Increasing Students' Mathematical Representation Ability between the Problem Based Learning Learning Model Assisted by the Geogebra Application and the Discovery Learning Learning Model in Class X SMAS Tamansiswa Singosari.

This research aims to find out how to improve the mathematical representation ability of students who are taught using the problem based learning (PBL) model assisted by the Geogebra application and who are taught with the discovery learning model in class students' answers in the problem based learning class assisted by the Geogebra application and the discovery learning class based on indicators of mathematical representation ability and aimed to find out whether there was a difference in increasing the mathematical representation ability of students who were taught using the problem based learning (PBL) model assisted by the Geogebra application with an increase in mathematical representation ability. taught using the discovery learning model in class X SMAS Tamansiswa Singosari. This research uses a quasi-experimental or quasi-experimental type of research with a purposive sampling technique and uses a nonequivalent control group design research design. The sample in this study consisted of 18 experimental class students and 20 control class students. The experimental class is a class that is given a problem based learning (PBL) learning model assisted by the Geogebra application, whereas the control class is given a discovery learning model. The data collected is data from tests on students' mathematical representation abilities with research results including; Based on the results of the N-Gain value, the experimental class had an average increase of 0.42 in the medium category. Meanwhile, the control class had an average increase of 0.35 in the medium category; Based on the students' answer process, it can be seen that in general the experimental class answer process is better than the control class; Based on the calculation results, it can be seen that all data is normally distributed and homogeneous so that the test uses the t-test. So it is known that $t_{count} > t_{table}$ is $4.71 > 2.03$. It was concluded that rejecting H_0 and accepting H_1 meant that there was a difference in the increase in mathematical representation abilities of class X SMAS Tamansiswa Singosari students between students taught using the PBL model assisted by the Geogebra application and the discovery learning model.

Keywords: Problem Based Learning (PBL) assisted by the Geogebra application, Discovery Learning, Mathematical Representation.