

SARI

Suhandono, Sri. 2019. Pembelajaran *Project Based Learning* Berbasis Demonstrasi Terhadap Kemampuan Komunikasi Matematis Siswa SMP Pokok Bahasan Teorema *Pythagoras*. Universitas Islam Sultan Agung. Pembimbing I. Nila Ubaidah, M.Pd.. Pembimbing II. Hevy Risqi Maharani, M.Pd.

Kata Kunci : *Project Based Learning*, Demonstrasi, Kemampuan Komunikasi Matematis

Kemampuan komunikasi matematis merupakan salah satu kemampuan dasar yang penting untuk menyelesaikan soal kontekstual. Maka sudah selayaknya kemampuan tersebut dikembangkan dengan maksimal. Penelitian ini bertujuan untuk mengetahui Pembelajaran *Project Based Learning* berbasis demonstrasi efektif terhadap kemampuan komunikasi matematis siswa SMP pokok bahasan teorema *Pythagoras*. Kriteria penelitian ini adalah untuk mengetahui pencapaian dari kemampuan komunikasi matematis siswa dengan model pembelajaran *Project Based Learning* berbasis demonstrasi pada materi teorema *Pythagoras* mencapai ketuntasan sebesar 70, mengetahui rata-rata kemampuan komunikasi matematis siswa dengan metode pembelajaran *Project Based Learning* berbasis demonstrasi lebih baik dari rata-rata kemampuan komunikasi matematis siswa dengan menggunakan model ekspositori, dan mengetahui adanya aktivitas belajar siswa dengan model pembelajaran *Project Based Learning* berbasis demonstrasi berpengaruh positif terhadap kemampuan komunikasi matematis siswa

Penelitian ini merupakan penelitian kuantitatif, populasi dalam penelitian ini adalah siswa kelas VIII SMP Negeri 4 Demak tahun ajaran 2018/2019. Sampel dalam penelitian ini diambil secara *cluster random sampling*, didapat kelas VIII A sebagai kelas eksperimen dengan pembelajaran *Project Based Learning* berbasis demonstrasi dan kelas VIII B sebagai kelas kontrol dengan pembelajaran ekspositori. Kelas IX B sebagai kelas uji coba. Metode pengumpulan data yang digunakan adalah metode tes, observasi dan dokumentasi.

Data hasil penelitian dianalisis dengan uji normalitas, uji homogenitas, uji ketuntasan, uji independent sampel t-test, uji regresi linier sederhana. Hasil penelitian menunjukkan bahwa: (1) Rata-rata kemampuan komunikasi matematis siswa dengan pembelajaran *Project Based Learning* berbasis demonstrasi diperoleh *Mean* sebesar 84,11 dan nilai Sig. (2-tailed) = 0,000 < 0,05 yang berarti rata-rata kemampuan komunikasi matematis siswa mencapai ketuntasan yaitu 70. (2) Hasil uji banding menunjukkan rata-rata kemampuan komunikasi matematis siswa kelas eksperimen sebesar 84.11 lebih baik dari rata-rata kemampuan komunikasi matematis siswa kelas kontrol sebesar 67.07 dengan selisih sebesar 17,03; dan (3) hasil uji regresi linear sederhana menunjukkan adanya pengaruh nilai aktivitas siswa terhadap kemampuan komunikasi matematis yaitu sebesar 73% dan dapat disajikan dalam model persamaan regresi $\hat{Y} = 1.847 + 0.963X$. Dengan demikian, pembelajaran *Project based learning* berbasis demonstrasi efektif dalam meningkatkan kemampuan komunikasi matematis siswa.

ABSTRACT

Suhandono, Sri. 2019. Learning Project Based Learning Based on Demonstrations Against Mathematical Communication Capabilities Student SMP the subject of the Pythagorean Theorem. Universitas Islam Sultan Agung. The first advisor, Nila Ubaidah, M.Pd., the second advisor, Hevy Risqi Maharani, M.Pd.

Keywords: Project Based Learning, Demonstration, Mathematical Communication Ability

Mathematical communication skills are one of the basic abilities that are important for solving contextual questions. Then it is appropriate for this ability to be maximally developed. This study aims to determine Project Based Learning based on effective demonstrations of mathematical communication skills of Junior High School students on the subject of the Pythagorean theorem. The criteria of this study were to determine the achievement of students' mathematical communication skills with Project Based Learning models based on demonstrations in the Pythagorean theorem material to achieve learning completeness 70, knowing the average mathematical communication skills of students with based demonstration Project Based Learning methods is better than the average mathematical communication skills students use expository models, and knowing the existence of student learning activities with demonstration-based Project Based Learning models have a positive effect on students' mathematical communication ability.

This research is quantitative research, the population in this study is student class VIII Junior High School 4 Demak teachings year 2018/2019. The sample in this study was taken by cluster random sampling, there is a class VIII A as an experimental class with Project Based Learning demonstration and class based VIII B as a control class with expository learning. Class IX B as a trial class. Data collection methods used are test, observation and documentation methods. The data of the research results were analyzed by the normality test, completeness test, independent sample t-test, simple linear regression test. The results of the study show that: (1) The average mathematical communication skills of students with demonstration-based Project Based Learning obtained a mean of 84,11 and value Sig. (2-tailed) = 0,000 < 0,05 which means that the average mathematical communication ability of students reaches completeness namely 70. (2) The results of the comparative test show the average mathematical communication skills of the experimental class students of 84.11 better than the average mathematical communication ability of the control class students of 67.07 with a difference of 17,03; and (3) the results of a simple linear regression test show the influence of the value of student activity on mathematical communication skills that is equal to 73% and can be presented in the regression equation model $Y = 1.847 + 0.963X$. Therefore, learning Project based learning demonstration-based is effective in improving students' mathematical communication skills.