

## ABSTRAK

**Ilmi Fadila Harahap, NIM 4181111020 (2022). Penerapan Model Pembelajaran *Project Based Learning* Berbantuan Aplikasi Geogebra Untuk Meningkatkan Kemampuan Penalaran Matematis Siswa Di MTS Nurul Islam Indonesia Medan.**

Tujuan dari penelitian ini adalah untuk mengetahui peningkatan kemampuan penalaran matematis siswa dengan menerapkan model pembelajaran *Project Based Learning* berbantuan Geogebra di kelas VIII-1 MTs Nurul Islam Indonesia Medan tahun ajaran 2022/2023. Subjek dalam penelitian ini adalah siswa kelas VIII-1 MTs Nurul Islam Indonesia Medan yang berjumlah 20 orang. Teknik pengumpulan data yang dilakukan adalah lembar observasi guru, tes kemampuan penalaran matematis dan dokumentasi. Penelitian ini merupakan penelitian tindakan kelas (PTK) yang terdiri dari 2 siklus, masing-masing siklus terdiri dari 2 kali pertemuan. Sebelum melakukan tindakan, terlebih dahulu diberikan tes awal dan disetiap akhir siklus diberikan tes kemampuan penalaran matematis siswa. Hasil tes kemampuan penalaran masalah matematis siswa mengalami peningkatan dari tes awal, siklus I, dan siklus II. Pada tes awal secara klasikal diperoleh 4 siswa (20%) tuntas dan rata-rata kemampuan tes awal ialah 56,29 dengan tingkat kemampuan kategori sangat rendah. Pada tes siklus I secara klasikal diperoleh 4 siswa (20%) tuntas dan rata-rata tes kemampuan diperoleh 57,22 dengan tingkat kemampuan kategori sangat rendah. Kemudian pada tes siklus II mengalami peningkatan secara klasikal diperoleh 17 siswa (85%) tuntas dan rata-rata kemampuan diperoleh 89,44 dengan tingkat kemampuan kategori tinggi. Dengan demikian dapat disimpulkan bahwa penerapan model pembelajaran *project based learning* berbantuan aplikasi geogebra untuk meningkatkan kemampuan penalaran matematis siswa di MTs Nurul Islam Indonesia Medan.

**Kata kunci: *Project Based Learning*, Kemampuan Penalaran Matematis, Peningkatan Kemampuan Penalaran Matematis.**

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## ABSTRACT

**Ilmi Fadila Harahap, NIM 4181111020 (2022). Application of Project-Based Learning Learning Model Assisted by Geogebra Application to Improve Students' Mathematical Reasoning Ability at MTS Nurul Islam Indonesia Medan.**

The purpose of this study was to determine the improvement of students' mathematical reasoning abilities by applying the Geogebra-assisted Project Based Learning learning model in class VIII-1 MTs Nurul Islam Indonesia Medan in the 2022/2023 academic year. The subjects in this study were students of class VIII-1 MTs Nurul Islam Indonesia Medan, amounting to 20 people. The data collection techniques used were teacher observation sheets, tests of mathematical reasoning abilities and documentation. This research is a classroom action research (CAR) which consists of 2 cycles, each cycle consists of 2 meetings. Before taking the action, an initial test is given and at the end of each cycle a student's mathematical reasoning ability test is given. The results of the students' mathematical problem reasoning ability test increased from the initial test, cycle I, and cycle II. In the classical initial test, 4 students (20%) completed and the average initial test ability was 56.29 with a very low level of ability category. In the classical first cycle test, 4 students (20%) completed and the average ability test was 57.22 with a very low level of ability category. Then in the second cycle test, classically, 17 students (85%) completed and the average ability was 89.44 with a high level of ability. Thus, it can be concluded that the application of the project based learning model assisted by the geogebra application to improve students' mathematical reasoning abilities at MTs Nurul Islam Indonesia Medan.

**Keywords:** *Project Based Learning, Mathematical Reasoning Ability, Mathematical Reasoning Ability Improvement.*

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