

## ABSTRAK

### **Sri Wahyuni, Nim 4172111019 (2021). Penerapan Model Pembelajaran Berbasis Masalah Berbantuan Geogebra Untuk Meningkatkan Kemampuan Komunikasi Matematika Siswa Pada Materi Bangun Ruang Sisi Datar**

Penelitian ini bertujuan untuk mengetahui bagaimana penerapan model pembelajaran berbasis masalah berbantuan *geogebra* dan peningkatan kemampuan komunikasi matematika siswa setelah diterapkannya model pembelajaran berbasis masalah berbantuan *geogebra* pada materi bangun ruang sisi datar. Subjek penelitian yaitu siswa kelas VIII MTs Al Wasliyah Gunting Saga yang berjumlah 16 orang. Jenis penelitian ini adalah penelitian tindakan kelas yang dilaksanakan dalam 2 siklus yang masing-masing siklus dilaksanakan dalam 2 pertemuan. Instrumen penelitian yaitu lembar observasi guru dan siswa, tes kemampuan komunikasi, serta pedoman wawancara. Hasil penelitian menunjukkan : (1) Penerapan model pembelajaran berbasis masalah berbantuan *geogebra* pada siklus I diawali dengan memberikan masalah kontekstual pada LKPD, membentuk kelompok diskusi berdasarkan tes awal, membimbing penyelesaian masalah matematis dalam LKPD dengan bantuan *geogebra* melalui *handphone* masing-masing siswa, menyajikan hasil diskusi serta mengevaluasi hasil diskusi siswa. Pada siklus II diawali dengan memberikan masalah kontekstual pada LKPD, membentuk kelompok berdasarkan TKKM 1 dan memilih ketua kelompok serta menekankan hanya 1 *handphone* terinstal *geogebra* selama diskusi, kemudian membimbing penyelesaian masalah matematis dalam LKPD dan menambahkan bahan ajar berupa duplikat materi dari buku guru, menyajikan serta mengevaluasi hasil diskusi siswa. (2) Peningkatan kemampuan komunikasi matematika siswa yang diajarkan dengan menerapkan model pembelajaran berbasis masalah berbantuan *geogebra* berada pada kategori sedang dengan nilai rata-rata N-Gainnya adalah 0,37. Berdasarkan hasil TKKM I siklus I diperoleh 10 siswa (62,5%) dari 16 siswa memiliki kemampuan minimal cukup. Dilihat dari indikator kemampuan komunikasi matematika, sebanyak 12 siswa (75%) mampu menulis matematika, 13 siswa (81,25%) mampu menggambar matematika, dan 5 siswa (31,25%) mampu ekspresi matematika. Pada siklus II berdasarkan hasil TKKM II diperoleh 14 siswa (87,5%) dari 16 siswa memiliki kemampuan minimal cukup. Dilihat dari indikator kemampuan komunikasi matematika, sebanyak 14 siswa (87,5%) mampu menulis matematika, 15 siswa (93,75%) mampu menggambar matematika, dan 14 siswa (87,5%) mampu ekspresi matematika. Berdasarkan uraian-uraian diatas disimpulkan bahwa komunikasi matematika siswa meningkat dengan menerapkan model pembelajaran berbasis masalah berbantuan *geogebra* pada materi bangun ruang sisi datar di kelas VIII MTs Al Wasliyah Gunting Saga.

Kata Kunci : Kemampuan Komunikasi Matematika, Model Pembelajaran Berbasis masalah, *Geogebra*, Bangun Ruang Sisi Datar.

## ABSTRACT

### **Sri Wahyuni, Nim 4172111019 (2021). Application Of Geogebra Assisted Problem Based Learning Models To Improve Student's Mathematical Communication Skills On Flat Side Geometry**

This study aims to determine how the application of the geogebra assisted problem based learning model and the improvement of students' mathematical communication skills after the geogebra-assisted problem-based learning model is applied to the flat-sided geometry material. The subjects of this study were students of class VIII MTs Al Wasliyah Gunting Saga, totaling 16 people. This type of research is classroom action research which is carried out in 2 cycles, each cycle is carried out in 2 meetings. The research instruments were teacher and student observation sheets, communication skills tests, and interview guidelines. The results showed: (1) The application of the geogebra assisted problem based learning model in the first cycle was started by giving contextual problems to the LKPD, forming a discussion group based on the initial test, guiding the solving of mathematical problems in the LKPD with the help of geogebra through each student's cellphone, presenting the results discuss and evaluate the results of student discussions. In cycle II, it begins by giving contextual problems to the LKPD, forming groups based on TKKM 1 and choosing a group leader and emphasizing that only 1 mobile phone is installed Geogebra during the discussion, then guiding the solving of math problems in the LKPD and adding teaching materials in the form of duplicate materials from the teacher's book, presenting and evaluate the results of student discussions. (2) The improvement of stunden's mathematical communication skills taught by applying the geogebra assisted problem based learning model is the medium category with an average N-gain value of 0,37. In the first cycle, based on the results of TKKM I, 10 students (62.5%) out of 16 students had sufficient minimum ability. Judging from the indicators of mathematical communication skills, as many as 12 students (75%) were able to write mathematics, 13 students (81,25%) were able to draw mathematics, and 5 students (31,25%) were able to express mathematics. In the second cycle, based on the results of TKKM II, 14 students (87.5%) out of 16 students had sufficient minimum ability. Judging from the indicators of mathematical communication skills, as many as 14 students (87.5%) were able to write mathematics, 15 students (93.75%) were able to draw mathematics, and 14 students (87.5%) were able to express mathematics. Based on the description above, it can be concluded that students' mathematical communication is improved by applying the geogebra-assisted problem based learning model on flat-sided geometry in class VIII MTs Al Wasliyah Gunting Saga.

Keywords : Mathematical Communication Skills, Problem Based Learning, Geogebra, Flat Side Geometry