

ABSTRAK

ROSALINDA PASARIBU. Analisis Kesulitan Berpikir Pola Dan Keterampilan Algoritma Matematis Siswa Dalam Pemecahan Masalah Matematika Dengan Penerapan Model Problem Based Learning. Tesis, Medan: Program Pascasarjana Universitas Negeri Medan, Juli 2023.

Tujuan dari penelitian ini adalah menganalisis berpikir pola dan keterampilan algoritma matematis siswa dalam pemecahan masalah matematika dengan menggunakan model problem based learning di kelas VIII MTs Negeri 2 Medan. Model pembelajaran berbasis masalah diterapkan pada kelas penelitian disebabkan sekolah masih menggunakan model pembelajaran konvensional. Penelitian ini juga dilakukan dengan menggunakan instrumen penelitian yang valid, reliabel, terdapat daya pembeda dan tingkat kesukaran berdasarkan validasi ahli maupun empiris. Tes kemampuan berpikir pola dan keterampilan algoritma matematis siswa diikuti oleh 31 siswa yang telah mengikuti pembelajaran menggunakan model problem based learning. Analisis data hasil tes kemampuan berpikir pola dan berpikir algoritma matematis siswa dan hasil wawancara, dilakukan dengan langkah-langkah analisis data menurut Sugiyono. Reduksi data pada penelitian ini yaitu menyederhanakan hasil wawancara kedalam susunan yang baik dan membuang beberapa hal yang tidak perlu. Hasil penelitian menunjukkan: (1) Kemampuan penalaran matematis siswa setelah diterapkan model pembelajaran berbasis masalah didapat bahwa dari 31 siswa terdapat 5 siswa yang memiliki kemampuan berpikir pola matematis kategori tinggi, 13 siswa yang memiliki kategori sedang, dan 13 siswa yang memiliki kategori rendah. Untuk setiap indikator, siswa memiliki rata-rata penilaian indikator (1) menganalisis masalah yaitu kategori tinggi; indikator (2) melakukan manipulasi matematika yaitu kategori tinggi; (3) menarik kesimpulan yaitu kategori sedang dan (4) membuat generalisasi yaitu kategori rendah. (2) Keterampilan algoritma siswa setelah diterapkan model pembelajaran berbasis masalah didapat bahwa dari 31 siswa terdapat 4 siswa yang memiliki kemampuan berpikir algoritma matematis kategori tinggi, 13 siswa yang memiliki kategori sedang, dan 14 siswa yang memiliki kategori rendah. Untuk setiap indikator, siswa memiliki rata-rata penilaian indikator menguraikan masalah yaitu kategori sedang; indikator mengetahui pola jawaban dari masalah yang ada yaitu kategori sedang; indikator menentukan urutan awal pemecahan masalah yaitu kategori rendah dan menerapkan keterampilan algoritma matematis yaitu kategori rendah.

Kata kunci : Analisis, Berfikir Pola, Keterampilan Algoritma Matematis, Kesulitan Siswa, Problem Based Learning

ABSTRACT

Rosalinda Pasaribu. Analysis of Pattern Thinking Difficulties and Students' Mathematical Algorithmic Skills in Solving Mathematical Problems with the Application of Problem Based Learning Models. Thesis, Medan: Postgraduate Program, State University of Medan, July 2023.

The purpose of this research is to analyze students' thinking patterns and mathematical algorithm skills in solving mathematical problems using a problem-based learning model in class VIII MTs Negeri 2 Medan. The problem-based learning model is applied to research classes because schools still use conventional learning models. This research was also carried out using research instruments that were valid, reliable, had differentiating power and difficulty levels based on expert and empirical validation. The pattern thinking ability test and students' mathematical algorithm skills were followed by 31 students who had participated in learning using the problem based learning model. Data analysis on the results of the students' pattern thinking ability and mathematical algorithm thinking tests and interview results was carried out using data analysis steps according to Sugiyono. Data reduction in this study is to simplify the interview results into a good arrangement and remove unnecessary things. The results showed: (1) Students' mathematical reasoning abilities after the problem-based learning model was applied, it was found that out of 31 students there were 5 students who had the ability to think mathematical patterns in the high category, 13 students who had the medium category, and 13 students who had the low category. For each indicator, students have an average rating of indicators (1) analyzing the problem, namely the high category; indicators (2) perform mathematical manipulation, namely the high category; (3) draw conclusions, namely the medium category and (4) make generalizations, namely the low category. (2) After applying the problem-based learning model to the students' algorithmic skills, it was found that out of 31 students, there were 4 students who had the ability to think mathematical algorithms in the high category, 13 students who had the medium category, and 14 students who had the low category. For each indicator, students have an average assessment of the indicators outlining the problem, namely the moderate category; the indicator knows the pattern of answers to existing problems, namely the moderate category; the indicator determines the initial sequence of problem solving, namely the low category and applying mathematical algorithm skills, namely the low category.

Key words : Analysis, Pattern Thinking, Mathematical Algorithm Skills, Student Difficulties, Problem Based Learning