ABSTRAK

THERESIA MAGDALENA. Analisis Kesulitan Dalm Berpikir Kritis Dan Komunikasi Matematis Dalam Pembelajaran Berbasis Masalah. Tesis, Medan: Program Pascasarjana Universitas Negeri Medan, Juni 2019.

Penelitian ini bertujuan untuk menganalisis dan mengetahui: (1) tingkat kemampuan berpikir kritis matematis siswa dalam Pembelajaran Berbasis Masalah; (2) tingkat kemampuan komunikasi matematis siswa dalam Pembelajaran Berbasis Masalah; (3) Deskripsi proses jawaban kemampuan berpikir kritis matematis siswa dalam Pembelajaran Berbasis Masalah; (4) Deskripsi proses jawaban kemampuan komunikasi matematis siswa dalam Pembelajaran Berbasis Masalah; (5) Kesulitan proses berpikir kritis matematis siswa dalam pembelajaran berbasis masalah; (6) Kesulitan proses komunikasi matematis siswa dalam pembelajaran berbasis masalah. Penelitian ini merupakan penelitian kualitatif deskriptif. Subjek penelitian ini adalah siswa SMP Swasta Parulian 3 Medan Kelas VIII-2 yang berjumlah 30 orang, kemudian diangkat subjek wawancara berdasarkan tingkat kemampuan berpikir kritis dan komunikasi matematis, proses jawaban siswa berdasarkan indicator dan aspek kesalahan.

Adapun hasil penelitian sebagai berikut : (1) Hasil penelitian pada kemampuan berpikir kritis dengan interpretasi tingkat tinggi pada indikator menganalisis sebesar 96,43%, pada indikator mensintesis sebesar 89,3% , pada indikator mengenal dan memecahkan masalah sebesar 85,7% dan pada indikator menyimpulkan sebesar 83%. Pada interpretasi tingkat sedang indikator menganalisis sebesar 88,5%, indikator mensintesis sebesar 72,6%, indikator mengenal dan memecahkan masalah sebesar 65,9% dan indikator menyimpulkan sebesar 55,3%. Pada interpretasi tingkat rendah indikator menganalisis sebesar 55%, indikator mensintesis sebesar 41,9%, indikator menegenal dan memecahkan masalah sebesar 40% dan indikator menyimpulkan sebesar 32,5%. (2) Hasil penelitian pada kemampuan komunikasi matematis dengan interpretasi tingkat tinggi pada indikitor menulis sebesar 97%, pada indikator menggambar sebesar 90,6%, dan pada indikator ekspresi matematika sebesar 87,5%. Pada interpretasi sedang indikator menulis sebesar 73,2%, indikator menggambar sebesar 73,2%, dan indikator ekspresi matematika sebesar 66,5%. Pada interpretasi rendah indikator menulis sebesar 54,4%, indikator menggambar sebesar 40%, dan pada indikator ekspresi matematika 39,4%. (3) Kesulitan dalam berpikir kritis (a) pada kategori tinggi siswa tidak mengalami kesulitan; (b) pada kategori sedang siswa mengalami kesulitan memahami konsep dan mengoperasikan algoritma matematika; (c) pada kategori rendah siswa mengalami kesulitan mensintesiskan ide, siswa kesulitan memahami konsep dan siswa kesulitan prinsip dalam pemecahan masalah. (4) Kesulitan dalam komunikasi matematis (a) Pada kategori tinggi siswa tidak mengalami kesulitan; (b) pada kategori sedang siswa mengalami kesulitan mengoperasikan dan siswa sulit memahami prinsip algoritma matematika; (b) pada kategor rendah siswa mengalami kesulitan mengoperasikan masalah dan kesulitan memahami prinsip matematis.

Kata Kunci: Kemampuan Berpikir Kritis Matematis, Kemampuan Komunikasi Matematis, Model Pembelajaran Berbasis Masalah.

ABSTRACT

THERESIA MAGDALENA. Analysis of Difficulties in Critical Thinking and Mathematical Communication in Problem Based Learning. Thesis, Medan: Postgraduate Program, State University of Medan, June 2019.

This study aims to analyze and determine: (1) the level of students' mathematical critical thinking skills in Problem Based Learning; (2) the level of students' mathematical communication skills in Problem Based Learning; (3) Description of the answer process for students' mathematical critical thinking skills in problem-based learning; (4) Description of the answer process for students' mathematical communication skills in Problem Based Learning; (5) The difficulty of students' mathematical critical thinking processes in problem-based learning; (6) The difficulty of the students' mathematical communication process in problem-based learning. This research is a descriptive qualitative research. The subjects of this study were 30 students of SMP Private Parulian 3 Medan Class VIII-2, then the interview subjects were appointed based on the level of critical thinking skills and mathematical communication, student response processes based on indicators and aspects of errors.

The results of the research are as follows: (1) The results of the study on the ability to think critically with a high-level interpretation of the analyzing indicators are 96.43%, the synthesizing indicators are 89.3%, the indicators of recognizing and solving problems are 85.7% and at the indicator concluded at 83%. In the medium level interpretation, the analyzing indicator is 88.5%, the synthesizing indicator is 72.6%, the identifying and solving problem indicator is 65.9% and the conclusion indicator is 55.3%. At the low level interpretation, the analyzing indicator is 55%, the synthesizing indicator is 41.9%, the identifying and solving problem indicator is 40% and the conclusion is 32.5%. (2) The results of the research on mathematical communication skills with a high level of interpretation on the writing indicator were 97%, the drawing indicators were 90.6%, and the mathematical expression indicators were 87.5%. In moderate interpretation, the writing indicator is 73.2%, the drawing indicator is 73.2%, and the mathematical expression indicator is 66.5%. In the low interpretation the writing indicator is 54.4%, the drawing indicator is 40%, and the mathematical expression indicator is 39.4%. (3) Difficulty in critical thinking (a) in the high category students do not experience difficulties; (b) in the medium category students have difficulty understanding concepts and operating mathematical algorithms; (c) in the low category students have difficulty synthesizing ideas, students have difficulty understanding concepts and students have difficulty in problem solving principles. (4) Difficulty in mathematical communication (a) In the high category students do not experience difficulties; (b) in the medium category students have difficulty operating and students have difficulty understanding the principles of mathematical algorithms; (b) in the low category students have difficulty operating problems and difficulty understanding mathematical principles.

Keywords: Mathematical Critical Thinking Ability, Mathematical Communication Ability, Problem Based Learning Model.