ABSTRAK

YULINAR LUMBAN GAOL. Analisis Kemampuan Berpikir Pola Matematis Siswa melalui Model Pembelajaran *Problem Based Learning* dengan Menggunakan *Software Geogebra*. Tesis. Pendidikan Matematika Program Pascasarjana Universitas Negeri Medan. 2023.

Penelitian ini bertujuan untuk mengetahui: (1) Tingkat kemampuan berpikir pola matematika siswa melalui model pembelajaran *problem based learning* dengan menggunakan *software* geogebra, (2) Proses lembar jawaban siswa dalam penyelesaian masalah berpikir pola melalui model pembelajaran *problem based learning* dengan menggunakan *software* geogebra, (3) Kesulitan dalam menyelesaikan masalah yang menuntut kemampuan berpikir pola dalam pembelajaran *problem based learning* dengan menggunakan *software* geogebra. Penelitian ini merupakan penelitian kualitatif dengan pendekatan dekriptif. Berdasarkan data hasil penelitian diperoleh bahwa: (1) Tingkat kemampuan berpikir pola matematis siswa melalui model pembelajaran *Problem Based Learning* dengan menggunakan *software geogebra* berada pada tingkat sedang. Dari 19 siswa sebanyak 4 siswa tingkat kemampuan berpikir pola matematisnya 'tinggi', 12 siswa tingkat kemampuan berpikir pola matematisnya 'sedang', dan 3 siswa tingkat kemampuan berpikir pola matematisnya 'rendah'. (2) Proses lembar jawaban siswa dalam penyelesaian masalah berpikir pola melalui model pembelajaran *problem based learning* dengan menggunakan *software* geogebra ditemukan kesalahan yang lebih sering muncul adalah kesalahan dalam membedakan konsep antara barisan dan deret aritmatika, (3) Kesulitan kemampuan berpikir pola dalam pembelajaran *problem based learning* dengan menggunakan *software* geogebra diantaranya kesulitan dalam mengeksplorasi dan mengidentifikasi, memperluas dan mereproduksi, membandingkan, merepresentasikan dan mendeskripsikan.

Kata Kunci: *Kemampuan Berpikir Pola Matematis, Problem Based Learning, Geogebra.*

ABSTRACT

YULINAR LUMBAN GAOL. Analysis of Students' Mathematical Pattern Thinking Ability through Learning Models *Problem Based Learning* by using *Software Geogebra*. Thesis. Postgraduate Program, State University of Medan. 2023.

This study aims to determine: (1) The level of students' ability to think mathematical patterns through learning models *problem based learning* by using *software* geogebra, (2) The process of student answer sheets in solving pattern thinking problems through learning models *problem based learning* by using *software* geogebra, (3) Difficulties in solving problems that require the ability to think patterns in learning *problem based learning* by using *software* geogebra. This research is a qualitative research with a descriptive approach. Based on the research data, it was found that: (1) The level of students' ability to think mathematical patterns through learning models *Problem Based Learning* by using *software geogebra* is at a moderate level. Of the 19 students, 4 students had a 'high' level of mathematical thinking ability, 12 students had a 'moderate' level of mathematical thinking ability, and 3 students had a 'low' level of mathematical thinking ability. (2) The process of student answer sheets in solving pattern thinking problems through learning models *problem based learning* by using *software* geogebra found that the errors that appear more often are errors in differentiating concepts between arithmetic sequences and series, (3) Difficulty in pattern thinking skills in learning *problem based learning* by using *software* geogebra including difficulties in exploring and identifying, extending and reproducing, comparing, representing and describing.

Keywords: *Mathematical Patterns Thinking Ability, Problem Based Learning, Geogebra.*