

## ABSTRAK

**SITI MAYSARAH. Peningkatan Kemampuan Komunikasi Matematik dan Kemampuan Kreativitas Matematik Siswa Melalui Model *Project Based Learning* Berbantuan *Ms.Excel*. Tesis. Medan: Program Studi Pendidikan Matematika Pascasarjana Universitas Negeri Medan. 2015.**

Kata Kunci: Model *Project Based Learning*, *Ms.Excel*, Kemampuan Komunikasi Matematik dan Kemampuan Kreativitas Matematik

Tujuan dari penelitian ini adalah untuk mengetahui: (1) Apakah peningkatan kemampuan komunikasi matematik siswa yang memperoleh model *Project Based Learning* berbantuan *Ms.Excel* lebih tinggi daripada kemampuan komunikasi matematik siswa yang memperoleh pembelajaran biasa. (2) Apakah peningkatan kemampuan kreativitas matematik siswa yang memperoleh model *Project Based Learning* berbantuan *Ms.Excel* lebih tinggi daripada kemampuan kreativitas matematik siswa yang memperoleh pembelajaran biasa. (3) Apakah terdapat interaksi antara pembelajaran dengan kemampuan awal matematika siswa terhadap peningkatan kemampuan komunikasi matematik siswa. (4) Apakah terdapat interaksi antara pembelajaran dengan kemampuan awal matematik siswa terhadap peningkatan kemampuan kreativitas matematik siswa. (5) Bagaimana proses penyelesaian jawaban siswa terkait dengan permasalahan kemampuan komunikasi matematik dan kemampuan kreativitas matematik pada pembelajaran yang menggunakan model *Project Based Learning* berbantuan *Ms.Excel* dan pembelajaran biasa.

Jenis penelitian ini merupakan penelitian *quasi experiment*. Populasi penelitian ini adalah seluruh siswa SMA Asy-Syafi'iyah Internasional Medan. Kemudian dipilihlah kelas XI-IA A sebagai kelas eksperimen dan kelas XI-IA B sebagai kelas kontrol dengan teknik pengambilan sampel secara *purposive sampling*. Kelas eksperimen diberi perlakuan pembelajaran dengan menggunakan model *Project Based Learning* berbantuan *Ms.Excel* dan kelas kontrol dengan pembelajaran biasa. Instrumen yang digunakan terdiri dari: tes kemampuan komunikasi matematik dan tes kemampuan kreativitas matematik. Data dalam penelitian ini dianalisis dengan menggunakan analisis statistik deskriptif dan analisis inferensial. Analisis deskriptif ditujukan untuk mendeskripsikan persentase pencapaian skor siswa pada pembelajaran dengan menggunakan model *Project Based Learning* berbantuan *Ms.Excel* dan Pembelajaran Biasa. Analisis inferensial data dilakukan dengan ANAVA 2 Jalur.

Berdasarkan hasil analisis tersebut diperoleh hasil penelitian sebagai berikut: (1) Peningkatan kemampuan komunikasi matematik siswa yang memperoleh model *Project Based Learning* berbantuan *Ms.Excel* lebih tinggi daripada kemampuan komunikasi matematik siswa yang memperoleh pembelajaran biasa. (2) Peningkatan kemampuan kreativitas matematik siswa yang memperoleh model *Project Based Learning* berbantuan *Ms.Excel* lebih tinggi daripada kemampuan kreativitas matematik siswa yang memperoleh pembelajaran biasa. (3) Tidak terdapat interaksi antara pembelajaran dengan kemampuan awal siswa terhadap peningkatan kemampuan komunikasi matematik siswa. (4) Tidak terdapat interaksi antara pembelajaran dengan kemampuan awal matematika siswa terhadap peningkatan kemampuan kreativitas matematik siswa. (5) Proses penyelesaian jawaban yang dibuat oleh siswa ketika menjawab permasalahan kemampuan komunikasi matematik dan kemampuan kreativitas matematik lebih baik daripada siswa yang menggunakan Pembelajaran Biasa.

Berdasarkan hasil penelitian, maka peneliti menyarankan: Model *Project Based Learning* berbantuan *Ms.Excel* dapat digunakan untuk meningkatkan kemampuan komunikasi matematik dan kemampuan kreativitas matematik siswa.

## ABSTRACT

**SITI MAYSARAH. The Increasing of Students' Mathematics Communication and Mathematics Creativity Ability Through Project Based Learning Model Assisted by Ms.Excel. Thesis. Medan: Postgraduate of Study Mathematics Education Program, State University of Medan. 2015.**

Keywords : Project Based Learning, Ms.Excel, Mathematics Communication and Mathematics Creativity Ability.

The purpose of this research is to analyze: (1) Is the increase in mathematics communication ability using Project Based Learning model assisted by Ms.Excel higher than mathematics communication skills of students who received regular learning. (2) Is the increase mathematics creativity of the students who obtain a Project Based Learning model assisted by Ms.Excel higher than the ability of mathematics creativity of students who received regular learning. (3) Is there an interaction between students' mathematics ability (high, medium, low) and model of learning to increase students' mathematics communication ability. (4) Is there an interaction between students' mathematics ability (high, medium, low) and model of learning to increase students' mathematics creativity ability. (5) How is the students' answering process in solving the problem of mathematics communication and mathematics creativity ability in learning using Project Based Learning model assisted by Ms.Excel and regular learning.

This type of research is a quasi experimental research. The population of this research is all high school students Asy-Syafi'iyah Internasional Medan. Then XI IA-A is chosen as the experimental class and class XI-IA B is as a control class by using purposive sampling technique. Experimental class was treated by using a Project Based Learning model assisted by Ms.Excel and control class was treated by using regular learning. The instrument used consisted of: a test of mathematics communication and mathematics creativity ability. The data in this study were analyzed using descriptive statistical and inferential analysis. Descriptive analysis is intended to describe the percentage of achievement scores of students in learning by using a Project Based Learning model assisted by Ms.Excel and regular Learning. Inferential analysis of data is performed by Two Ways ANOVA.

Based on those analyses, the researcher acquires the result. That are: (1) The increasing of students' mathematics communication ability using Project Based Learning model assisted by Ms.Excel is higher than regular learning. (2) The increasing of students' mathematics creativity ability using Project Based Learning model assisted by Ms.Excel is higher than regular learning. (3) There is no interaction between mathematical prerequisite ability and model of learning on mathematics communication ability. (4) There is no interaction between mathematical prerequisite ability and model of learning on mathematics communication ability. (4) There is no interaction between mathematical prerequisite ability and model of learning on mathematics creativity ability. (5) Students' answering process that taught by Project Based Learning model assisted Ms.Excel is better than students' answering process that taught by regular learning.

Based on results of this research suggested that Project Based Learning model assisted by Ms.Excel could increase students' mathematics communication and mathematics creativity ability.