

## ABSTRAK

**Fauziawati Ritonga.** Peningkatan Kemampuan Komunikasi Dan *Self-Efficacy* Siswa Menggunakan Pembelajaran *Contextual Teaching And Learning* (CTL) Berbantuan *Virtual Manipulative* Di SMP Negeri 2 Rantau Selatan. Tesis. Medan: Program Studi Pendidikan Matematika Pascasarjana Universitas Negeri Medan, 2015.

Penelitian ini bertujuan untuk mengetahui: (1) apakah peningkatan kemampuan komunikasi siswa yang diajarkan dengan menggunakan pembelajaran CTL berbantuan *virtual manipulative* lebih tinggi daripada siswa yang diajarkan dengan menggunakan pembelajaran langsung?, (2) apakah peningkatan *self-efficacy* siswa yang diajarkan dengan menggunakan pembelajaran CTL berbantuan *virtual manipulative* lebih tinggi daripada siswa yang diajarkan dengan menggunakan pembelajaran langsung?, (3) apakah terdapat interaksi antara pembelajaran dengan KAM terhadap peningkatan kemampuan komunikasi matematis. (4) apakah terdapat interaksi antara pembelajaran dengan KAM terhadap peningkatan *self-efficacy*?, (5) bagaimanakah proses penyelesaian jawaban siswa dalam menyelesaikan soal-soal kemampuan komunikasi matematis pada pembelajaran CTL berbantuan *virtual manipulative* dan pembelajaran langsung?.

Penelitian ini merupakan penelitian kuasi eksperimen. Populasi penelitian ini adalah seluruh siswa kelas VII SMP Negeri 2 Rantau Selatan yang berjumlah 240 siswa, dengan mengambil sampel dua kelas berjumlah 60 siswa melalui teknik *random sampling*. Data dalam penelitian ini dianalisis dengan menggunakan analisis statistik deskriptif dan statistik inferensial yaitu ANAVA dua jalur.

Berdasarkan hasil penelitian, diketahui bahwa: (1) kemampuan komunikasi matematis siswa yang diajarkan dengan menggunakan CTL berbantuan *virtual manipulative* lebih tinggi dari pada siswa yang diajarkan dengan menggunakan pembelajaran langsung, (2) *self-efficacy* siswa yang diajarkan dengan menggunakan CTL berbantuan *virtual manipulative* lebih tinggi dari pada siswa yang diajarkan dengan menggunakan pembelajaran langsung, (3) tidak terdapat interaksi antara pembelajaran (CTL berbantuan *virtual manipulative* dan pembelajaran langsung) dengan KAM terhadap peningkatan kemampuan komunikasi matematis, (4) tidak terdapat interaksi antara pembelajaran (CTL berbantuan *virtual manipulative* dan pembelajaran langsung) dengan KAM terhadap peningkatan *self-efficacy* siswa. (5) Proses jawaban siswa dalam menyelesaikan soal-soal komunikasi matematika pada pembelajaran CTL berbantuan *virtual manipulative* lebih baik, lengkap dan penyelesaian benar dibandingkan dengan pembelajaran langsung.

**Kata Kunci:** Pembelajaran CTL, Virtual Manipulative, Kemampuan awal matematika, Kemampuan komunikasi matematis, Self-Efficacy, Proses jawaban siswa dalam menyelesaikan soal matematika

## ABSTRAC

**FAUZIAWATI RITONGA. Increasing Mathematical Communication Ability and Self-Efficacy Through CTL Approach Helped by Software Virtual Manipulative In Junior School 2 South Of Rantau.** Thesis. Medan: Program Master of Mathematic Education University of Negeri Medan, 2015.

This research is aimed to know (1) whether the increasing of student's mathematical communication ability taught using CTL approach helped by *virtual manipulative* software is higher than student's mathematical communication ability taught using direct instruction?, (2) whether the increasing of student's self-efficacy ability taught using CTL approach helped by *virtual manipulative* software is higher than student's self-efficacy taught using direct instruction?, (3) whether there is a significant interaction between learning of mathematics and prior knowledge of students to increase students' mathematical communication ability?, (4) whether there is a significant interaction between learning of mathematics and prior knowledge of students to increase student's self-efficacy?, (5) how to the process of the answers made by students in solving problems of communication mathematical on CTL approach helped by *virtual manipulative* software and direct instruction?.

This study is a quasi-experimental research. The population in this study were all class VII students junior school 2 south of rantau the totaling 240 students, by taking samples of two classes, totaling 60 students through random sampling technique. The data in this research analysis by use descriptive statistic analysis and parametric statistic analysis namely ANOVA.

The results of this research showed that (1) The increasing of student's mathematical communication ability taught using CTL approach helped by *virtual manipulative* software is higher than student's mathematical communication ability taught using direct instruction, (2) The increasing of student's self-efficacy taught using CTL approach helped by *virtual manipulative* software is higher than student's self-efficacy taught using direct instruction, (3) there was not interaction between models of learning and prior knowledge of students to the increase student's mathematical communication ability, (4) there was not interaction between models of learning and prior knowledge of students to the increase student's self-efficacy, (5) the student's answer process in solving problem of mathematical communication by CTL approach helped by virtual manipulative software is more better, correct and complete than the student's answer process in learning by direct instruction.

**Key Word:** CTL, virtual manipulative, prior Mathematical skill, Mathematical communication skills, self-efficacy, process of the answers made by students in solving problems of communication mathematical