

**PENINGKATAN *COMPUTATIONAL THINKING* SISWA SMP DENGAN
PROJECT BASED LEARNING BERBANTUAN APLIKASI SCRATCH
DITINJAU DARI *SELF-REGULATED LEARNING***

TESIS

Diajukan untuk memenuhi sebagian syarat memperoleh gelar Magister
Pendidikan Program Studi Pendidikan Matematika



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**PROGRAM STUDI MAGISTER PENDIDIKAN MATEMATIKA
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA**

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Sebuah tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Magister Pendidikan (M.Pd) pada Program Studi Pendidikan Matematika

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Desember 2023

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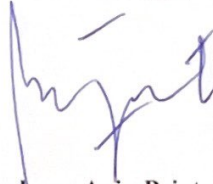
LEMBAR PENGESAHAN TESIS

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PROJECT BASED LEARNING BERBANTUAN APLIKASI SCRATCH
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LEMBAR PERNYATAAN

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Bandung, Desember 2023

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ABSTRAK

Elmawati. (2113115). Peningkatan *Computational Thinking* Siswa SMP Dengan *Project Based Learning* Berbantuan Aplikasi Scratch Ditinjau Dari *Self-Regulated Learning*.

Computational Thinking (CT) merupakan salah satu keterampilan penting abad 21 yang harus dimiliki oleh setiap orang. CT menjadi aspek penting dalam pengembangan keterampilan pemecahan masalah dan kreativitas di era digital. Penelitian ini bertujuan untuk mengkaji perbedaan pencapaian dan peningkatan kemampuan CT siswa yang memperoleh pembelajaran dengan model *project based learning* berbantuan aplikasi Scratch, *project based learning* dan *direct instruction* yang ditinjau dari *self-regulated learning* siswa, serta untuk menganalisis pengaruh interaksi antara model pembelajaran (*project based learning* berbantuan Scratch, *project based learning* dan *direct instruction*) dengan *self-regulated learning* siswa terhadap pencapaian dan peningkatan kemampuan CT siswa. Penelitian ini menggunakan metode kuantitatif dengan desain penelitian *quasi experiment*. Populasi dari penelitian ini adalah siswa kelas VIII di salah satu SMP Negeri di Kota Tembilahan tahun ajaran 2023/2024. Sampel yang diambil yakni 55 siswa kelas VIII yang terdiri dari 3 kelas. Instrumen yang digunakan dalam penelitian ini diantaranya soal tes CT dan angket SRL yang telah diuji validitas dan reliabilitasnya. Penelitian ini memperoleh temuan diantaranya: (1) Terdapat perbedaan pencapaian dan peningkatan kemampuan CT siswa yang memperoleh pembelajaran dengan model *project based learning* berbantuan aplikasi Scratch, model *project based learning* dan *direct instruction*. Model pembelajaran yang paling unggul untuk meningkatkan kemampuan CT yakni *project-based learning* berbantuan Scratch; (2) Tidak terdapat perbedaan pencapaian dan peningkatan kemampuan CT antara siswa dengan *self-regulated learning* tinggi, sedang dan rendah; (3) Tidak ada pengaruh interaksi antara model pembelajaran (*project based learning* berbantuan Scratch, *project based learning* dan *direct instruction*) dengan *self-regulated learning* siswa terhadap pencapaian dan peningkatan kemampuan CT siswa.

Kata Kunci: *Computational Thinking, Project-Based Learning, Scratch, Self-Regulated Learning*

ABSTRACT

Elmawati. (2113115). Improving Computational Thinking of Junior High School Students with Project-Based Learning Assisted by Scratch Application Based on Self-Regulated Learning.

Computational Thinking (CT) is one of the important 21st-century skills that everyone must have. CT is important in developing problem-solving skills and creativity in the digital era. This study aims to examine the differences in the achievement and improvement of CT skills of students who learn with project-based learning models assisted by the Scratch application, project-based learning and direct instruction in terms of students' self-regulated learning and to analyze the interaction effect between learning models (project-based learning assisted by Scratch, project-based learning and direct instruction) with students' self-regulated learning on the achievement and improvement of students' CT skills. This research used a quantitative method with a quasi-experiment research design. The population of this study was eighth-grade students in one of the state junior high schools in Tembilahan City in the 2023/2024 school year. The sample taken was 55 VIII grade students consisting of 3 classes. The instruments used in this study include CT test questions and SRL questionnaires that have been tested for validity and reliability. This study obtained findings including (1) Differences in the achievement and improvement of CT skills of students who learn with a project-based learning model assisted by the Scratch application, project-based learning model and direct instruction. The most superior learning model to improve CT skills is project-based learning assisted by Scratch; (2) There is no difference in the achievement and improvement of CT skills between students with high, medium and low self-regulated learning; (3) There is no interaction effect between learning models (project-based learning assisted by Scratch, project-based learning and direct instruction) with students' self-regulated learning on the achievement and improvement of students' CT skills.

Keywords: Computational Thinking, Project-Based Learning, Scratch, Self-Regulated Learning

KATA PRAKATA

Puji syukur kehadiran Allah SWT karena atas rahmat dan lindungan-Nya penulis mampu menyelesaikan penulisan tesis yang berjudul “**Peningkatan Computational Thinking Siswa SMP dengan Project Based Learning Berbantuan Aplikasi Scratch Ditinjau dari Self-Regulated Learning**” dengan baik. Penulisan tesis ini didasari atas pemikiran bahwa dalam era globalisasi yang semakin berkembang, kemampuan CT menjadi sangat penting dan perlu dipelajari oleh semua orang seperti halnya membaca, menulis, dan berhitung. Kemampuan ini memungkinkan siswa untuk mengembangkan keterampilan pemecahan masalah dan mempersiapkan mereka untuk sukses dalam dunia kerja yang semakin tergantung pada teknologi.

Tesis ini mengkaji perbedaan pencapaian dan peningkatan kemampuan CT siswa yang memperoleh pembelajaran dengan model *project based learning* berbantuan aplikasi Scratch ditinjau dari *self-regulated learning*. Selain itu, tesis ini menganalisis pengaruh interaksi antara model pembelajaran (*project based learning* berbantuan Scratch, *project based learning* dan *direct instruction*) dengan *self-regulated learning* siswa terhadap pencapaian dan peningkatan kemampuan CT siswa.

Penulis berharap tesis ini dapat memberikan informasi yang bermanfaat bagi para pembaca yang tertarik untuk mengembangkan kemampuan berpikir komputasi matematis siswa melalui model pembelajaran *Project Based Learning* dan aplikasi Scratch.

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