PENINGKATAN KEMAMPUAN *COMPUTATIONAL THINKING* DAN PENCAPAIAN *SELF-EFFICACY* SISWA SMP MELALUI MODEL *PROBLEM-BASED LEARNING*

TESIS

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

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PROGRAM STUDI PENDIDIKAN MATEMATIKA
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
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PENINGKATAN KEMAMPUAN *COMPUTATIONAL THINKING* DAN PENCAPAIAN *SELF-EFFICACY* SISWA SMP MELALUI MODEL *PROBLEM-BASED LEARNING*

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Sebuah Tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Magister Pendidikan (M.Pd.) pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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LEMBAR PERNYATAAN KEASLIAN

Dengan ini saya menyatakan bahwa tesis dengan judul **"Peningkatan Kemampuan *Computational Thinking* dan Pencapaian *Self-Efficacy* Siswa SMP Melalui Model *Problem-Based Learning*"** ini beserta seluruh isinya adalah benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2024
Yang membuat pernyataan,

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ABSTRAK

Ahmad Mukhibin (2208172)**. Peningkatan Kemampuan *Computational Thinking* dan Pencapaian *Self-Efficacy* Siswa SMP Melalui Model *Problem-Based Learning***

Kemampuan *computational thinking* adalah keterampilan untuk memecahkan masalah kompleks menjadi bagian-bagian lebih kecil, mengenali pola, membuat abstraksi, dan merancang algoritma yang sistematis untuk menyelesaikannya. Faktanya, banyak siswa yang masih mengalami kesulitan dalam melakukan dekomposisi saat memahami fakta dan konsep matematika, kesulitan dalam menemukan pola yang terkait dengan prinsip matematika, dan kesulitan membuat algoritma ketika menghadapi kesulitan dalam memahami prosedur pemecahan masalah. Dalam proses pemecahan masalah ini, siswa perlu memiliki keyakinan diri terhadap kemampuan yang dimilikinya yang disebut *self-efficacy*. Penelitian ini bertujuan untuk mengkaji perbedaan peningkatan kemampuan *computational thinking* dan pencapaian *self-efficacy* siswa sekolah menengah pertama melalui model *problem-based learning* ditinjau dari keseluruhan dan kemampuan awal matematis. Penelitian ini merupakan penelitian kuasi eksperimen dengan menggunakan *pretest-posttest control group design*. Populasi penelitian terdiri dari seluruh siswa kelas VIII di salah satu sekolah menengah pertama swasta di Kabupaten Sleman, Yogyakarta. Sedangkan sampel penelitian terdiri 45 siswa yang berasal dua kelas. Instrumen yang digunakan adalah tes kemampuan *computational thinking* dan angket skala *self-efficacy*. Analisis data dalam penelitian ini menggunakan analisis parametrik dan non-parametrik menyesuaikan hasil uji prasyarat dari masing-masing data. Hasil penelitian menunjukkan bahwa (1) terdapat perbedaan yang signifikan antara peningkatan kemampuan *computational thinking* siswa yang memperoleh pembelajaran dengan menggunakan model *problem-based learning* dan siswa yang memperoleh pembelajaran konvensional ditinjau secara keseluruhan dan kemampuan awal matematis, (2) tidak terdapat perbedaan peningkatan kemampuan *computational thinking* yang signifikan pada siswa yang memperoleh pembelajaran dengan menggunakan model *problem-based learning* ditinjau dari kemampuan awal matematis, (3) tidak terdapat perbedaan yang signifikan antara pencapaian *self-efficacy* siswa yang memperoleh pembelajaran dengan menggunakan model *problem-based learning* dan siswa yang memperoleh pembelajaran konvensional ditinjau secara keseluruhan dan kemampuan awal matematis, (4) terdapat perbedaan pencapaian *self-efficacy* yang signifikan pada siswa yang memperoleh pembelajaran dengan menggunakan model *problem-based learning* ditinjau dari kemampuan awal matematis, dan (5) terdapat hubungan korelasional yang signifikan antara kemampuan *computational thinking* dan *self-efficacy* matematis siswa.

Kata Kunci: Kemampuan *Computational Thinking, Self-Efficacy,* Model *Problem-based Learning,* Kemampuan Awal Matematis

ABSTRACT

Ahmad Mukhibin (2208172)**. The Improvement of Computational Thinking Skill and Self-Efficacy Achievement of Junior High School Students through Problem-Based Learning Model**

Computational thinking skill is the skill to break down complex problems into smaller parts, recognize patterns, make abstractions, and design systematic algorithms to solve them. In fact, many students still have difficulty in decomposing when understanding mathematical facts and concepts, difficulty in finding patterns related to mathematical principles, and difficulty in creating algorithms when facing difficulties in understanding problem solving procedures. In this problem-solving process, students need to have confidence in their abilities called self-efficacy. This study aims to examine the differences in the improvement of computational thinking skill and self-efficacy achievement of junior high school students through problem-based learning model in terms of overall and initial mathematical ability. This research is a quasi-experimental research using pretest-posttest control group design. The study population consisted of all VIII grade students in one of the private junior high schools in Sleman Regency, Yogyakarta. While the research sample consisted of 45 students from two classes. The instruments used were computational thinking ability test and self-efficacy scale questionnaire. Data analysis in this study used parametric and non-parametric analysis according to the prerequisite test results of each data. The results showed that (1) there is a significant difference between the improvement of computational thinking ability of students who followed learning by using problem-based learning model and students who followed conventional learning in terms of overall and initial mathematical ability, (2) there is no significant difference in the improvement of computational thinking ability of students who followed learning by using problem-based learning model reviewed by initial mathematical ability, (3) there is no significant difference between the achievement of self-efficacy of students who followed learning by using problem-based learning model and students who followed conventional learning in terms of overall and initial mathematical ability, (4) there is a significant difference in the achievement of self-efficacy of students who followed learning by using problem-based learning model reviewed by initial mathematical ability, and (5) there is a significant correlation between computational thinking ability and mathematical self-efficacy of students.

Keywords: Computational Thinking Ability, Self-efficacy, Problem-based Learning Model, Initial Mathematical Ability,

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