

**PENINGKATAN KEMAMPUAN PENALARAN PROPORSIONAL
DAN PERUBAHAN *MATHEMATICS SELF-EFFICACY* SISWA SMP
DENGAN PENDEKATAN *ERROR ANALYSIS-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
UNIVERSITAS PENDIDIKAN INDONESIA**

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LEMBAR HAK CIPTA

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S.Pd. Universitas Islam Sultan Agung, 2021

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

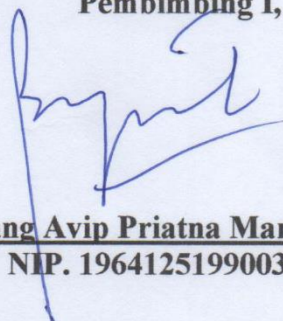
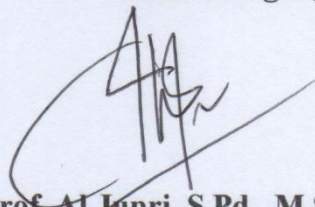
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DAN PERUBAHAN *MATHEMATICS SELF-EFFICACY* SISWA SMP
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LEMBAR PERNYATAAN

Dengan ini saya menyatakan bahwa tesis dengan judul “**PENINGKATAN KEMAMPUAN PENALARAN PROPORSIONAL DAN PERUBAHAN *MATHEMATICS SELF-EFFICACY* SISWA SMP DENGAN PENDEKATAN *ERROR ANALYSIS-BASED LEARNING*”** ini beserta seluruh isinya adalah benar-benar karya saya dan bukan hasil penjiplakan atau plagiasi dengan yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan yang saya buat, saya siap menanggung segala risiko/sanksi apabila dikemudian hari ditemukan adanya pelanggaran terhadap etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

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Yang membuat pernyataan,

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ABSTRAK

Ahmad Lutfi. (2208688). **Peningkatan Kemampuan Penalaran Proporsional dan Perubahan *Mathematics Self-Efficacy* Siswa SMP dengan Pendekatan *Error Analysis-Based Learning*.**

Penalaran proporsional termasuk dalam jenis penalaran yang fundamental untuk dikembangkan dalam pembelajaran matematika. Kemampuan untuk terlibat dalam penalaran proporsional menjadi faktor krusial dalam perolehan pengetahuan matematika, karena proporsional merupakan konsep kunci dalam pembelajaran matematika dasar hingga perguruan tinggi. Selain memiliki kemampuan penalaran proporsional, penting bagi siswa untuk memiliki keyakinan atas kapasitas yang dimiliki untuk mempengaruhi tindakan mereka sendiri dan lingkungannya, konsep tersebut disebut dengan istilah *self-efficacy*. Penelitian ini bertujuan untuk menguji suatu perlakuan tertentu dalam pembelajaran matematika dalam upaya meningkatkan kemampuan penalaran proporsional dan mengembangkan *mathematics self-efficacy* siswa. Penelitian ini menggunakan metode kuasi eksperimen dengan *pretest and posttest nonequivalent control group design*. Teknik pengambilan sampel dengan *purposive sampling*. Pada kelompok kelas kontrol diterapkan *learning not based on error analysis*, dan pada kelompok kelas eksperimen diterapkan *error analysis-based learning*. Analisis data dengan menggunakan uji *independent sample t-test*, uji *Mann-Whitney U Test*, dan uji *two-way anova*. Hasil penelitian ini menunjukkan bahwa (1) Peningkatan kemampuan penalaran proporsional siswa yang memperoleh *error analysis-based learning* lebih tinggi secara signifikan daripada siswa yang memperoleh *learning not based on error analysis*; (2) Perubahan *mathematics self-efficacy* siswa yang memperoleh *error analysis-based learning* lebih baik secara signifikan daripada siswa yang memperoleh *learning not based on error analysis*; (3) Peningkatan kemampuan penalaran proporsional siswa yang memperoleh *error analysis-based learning* berbeda secara signifikan daripada siswa yang memperoleh *learning not based on error analysis* pada siswa dengan perubahan *mathematics self-efficacy* kategori sedang, sedangkan tidak berbeda secara signifikan pada siswa dengan perubahan *mathematics self-efficacy* kategori rendah; (4) Tidak terdapat perbedaan peningkatan kemampuan penalaran proporsional yang signifikan pada siswa yang memperoleh *learning not based on error analysis* antara siswa dengan kategori perubahan *mathematics self-efficacy* yang berbeda; (5) Terdapat perbedaan peningkatan kemampuan penalaran proporsional yang signifikan pada siswa yang memperoleh *error analysis-based learning* antara siswa dengan kategori perubahan *mathematics self-efficacy* yang berbeda; dan (6) Terdapat pengaruh interaksi antara pembelajaran yang digunakan dengan kategori perubahan *mathematics self-efficacy* terhadap peningkatan kemampuan penalaran proporsional siswa.

Kata kunci: Penalaran Proporsional, *Mathematics Self-Efficacy*, *Error Analysis-Based Learning*, *Learning not Based on Error Analysis*

ABSTRACT

Ahmad Lutfi. (2208688). **Improvement of Proportional Reasoning Ability and Change of Mathematics Self-Efficacy of Junior High School Students with Error Analysis-Based Learning Approach.**

Proportional reasoning is a fundamental type of reasoning to be developed in mathematics learning. The ability to engage in proportional reasoning is a crucial factor in the acquisition of mathematical knowledge, as proportion is a key concept in learning mathematics from primary to tertiary level. In addition to having proportional reasoning ability, it is important for students to have belief in their capacity to influence their own actions and their environment, the concept is called self-efficacy. This study aims to test a certain treatment in mathematics learning in an effort to improve proportional reasoning ability and develop students' mathematics self-efficacy. This research used quasi-experimental method with pretest and posttest nonequivalent control group design. The sampling technique was purposive sampling. The control group applied learning not based on error analysis, and the experimental group applied error analysis-based learning. Data analysis used independent sample t-test, Mann-Whitney U test, and two-way anova test. The results of this study showed that (1) The improvement of proportional reasoning ability of students who obtained error analysis-based learning was significantly higher than students who obtained learning not based on error analysis; (2) Changes in mathematics self-efficacy of students who obtained error analysis-based learning were significantly better than students who obtained learning not based on error analysis; (3) The improvement of proportional reasoning ability of students who obtained error analysis-based learning was significantly different with students who obtained learning not based on error analysis in students who experienced mathematics self-efficacy changes in the medium category, while there is no significant difference in students who experienced mathematics self-efficacy changes in the low category; (4) There is no significant difference in the improvement of proportional reasoning ability in students who obtained learning not based on error analysis between students with different categories of mathematics self-efficacy changes; (5) There is a significant difference in the improvement of proportional reasoning ability in students who obtained error analysis-based learning between students with different categories of mathematics self-efficacy changes; and (6) There is an interaction effect between the learning used and the category of mathematics self-efficacy changes on the improvement of students' proportional reasoning ability.

Keywords: Proportional Reasoning, *Mathematics Self-Efficacy*, *Error Analysis-Based Learning*, *Learning not Based on Error Analysis*

KATA PENGANTAR

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