STRATEGIES FOR BUILDING STUDENTS' META-AFFECTIVE AND META-COGNITIVE IN SCIENCE LEARNING

DISSERTATION

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Strategies for Building Students' Meta-Affective and Meta-Cognitive in Science Learning

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DECLARATION

I do hereby declare that every aspect was written in this research paper entitled "**Strategies for Building Students' Meta-Affective and Meta-Cognitive in Science Learning**" is the original result of my idea, efforts, and works without copying or plagiarizing from other papers. The theories, opinions, and others that are contained in this paper have been quoted or referenced based on scientific code from UPI and under scientific ethics that applies in scholarly society. This declaration is created truthfully and mindfully. Unless it is eventually considered to be a violation of scientific ethics, or whether there is a statement by the other to the authenticity of this research paper, I can accept the authorization of scholars or copyright that are found. Hence, I am willing to take responsibility and accept academic sanctions corresponds to the rules.

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STRATEGIES FOR BUILDING STUDENTS' META-AFFECTIVE AND META-COGNITIVE IN SCIENCE LEARNING

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ABSTRACT

Meta-affective can influence intrinsic cognitive load, and consequently, emotion management is a goal of learning. Meta-cognitive has an important role in learning, namely to enhance students' memory, self-monitoring, note-taking, and critical thinking skills. The combination of meta-affective and meta-cognitive skills shows transformative competencies, which demonstrate how students navigate their lives and the world. Even though the two have a strong relationship, the reality is that students' scientific attitudes and metacognitive skills are still comparatively low. This research objective is to analyze the effectiveness of meta-affective and meta-cognitive-based training for achieving the students' meta-affective, meta-cognitive, and transformative competencies in science learning. The research design is a mixed-methods design, specifically an embedded design. All students at two private junior high schools in Bandung city make up the research population, whereas all students in two classes from each grade and school make up the research sample. There are 100 students, each with 50 in the integrated and separate training groups. This sample was taken by non-random sampling methods using convenience sampling. A questionnaire is a research instrument used to assess three dependent variables that have high validity and reliability indices. The results show that, even though the statistical test showed that integrated and separate training did not have a significantly different impact on students' meta-affective, meta-cognitive, and transformative competencies, improvements were still seen for each training group in different dimensions. This result has the implication that combining integrated and separate training is better to facilitate students' achieving meta-affective, meta-cognitive, and transformative competencies.

Keyword: Meta-affective and Meta-cognitive based Training, Meta-affective, Meta-cognitive, Science Learning, Transformative Competencies.

STRATEGI MEMBANGUN META-AFEKTIF DAN META-KOGNITIF SISWA DALAM PEMBELAJARAN IPA

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ABSTRAK

Meta-afektif dapat mempengaruhi beban kognitif intrinsik, dan akibatnya, manajemen emosi adalah tujuan pembelajaran. Meta-kognitif memiliki peran penting dalam pembelajaran, yaitu untuk meningkatkan daya ingat siswa, pemantauan diri, mencatat, dan keterampilan berpikir kritis. Kombinasi keterampilan meta-afektif dan meta-kognitif menunjukkan kompetensi transformatif, yang menunjukkan bagaimana siswa memandu arah kehidupan dan dunia. Meskipun keduanya memiliki hubungan yang kuat, namun kenyataannya sikap ilmiah dan keterampilan meta-kognitif siswa masih tergolong rendah. Penelitian ini bertujuan untuk menganalisis keefektifan pelatihan berbasis meta-afektif dan meta-kognitif terhadap pencapaian kompetensi meta-afektif, meta-kognitif, dan transformatif siswa dalam pembelajaran IPA. Rancangan penelitiannya adalah rancangan metode campuran, khususnya *embedded design*. Seluruh siswa di dua SMP swasta di kota Bandung menjadi populasi penelitian, sedangkan seluruh siswa di dua kelas dari masing-masing kelas dan sekolah menjadi sampel penelitian. Terdapat 100 siswa, masing-masing 50 dalam kelompok pelatihan terpadu dan terpisah. Sampel ini diambil dengan metode non random sampling dengan menggunakan *convenience sampling*. Kuesioner adalah instrumen penelitian yang digunakan untuk menilai tiga variabel terikat yang memiliki indeks validitas dan reliabilitas yang tinggi. Hasil penelitian menunjukkan bahwa, meskipun uji statistik menunjukkan bahwa pelatihan terpadu dan terpisah tidak memberikan dampak yang berbeda secara signifikan terhadap kompetensi meta-afektif, meta-kognitif, dan transformatif siswa, peningkatan masih terlihat untuk setiap kelompok pelatihan dalam dimensi yang berbeda. Hasil ini berimplikasi bahwa menggabungkan pelatihan terpadu dan terpisah lebih baik untuk memfasilitasi siswa mencapai kompetensi meta-afektif, meta-kognitif, dan transformatif.

Kata Kunci: Pelatihan berbasis Meta-afektif dan Meta-Kognitif, Meta-afektif, Meta-kognitif, Pembelajaran IPA, Kompetensi Transformatif.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

REFERENCES

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