

**PENGEMBANGAN MODUL IPA-FISIKA DENGAN
PENDEKATAN STEM TERINTEGRASI *SELF-REGULATED
LEARNING* UNTUK MENGEMBANGKAN KETERAMPILAN
BERPIKIR KREATIF DAN *ATTITUDE TOWARDS PHYSICS***

TESIS

diajukan untuk memenuhi sebagian dari syarat untuk memperoleh gelar Magister
Pendidikan Fisika Program Studi Pendidikan Fisika



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*ATTITUDE TOWARDS PHYSICS***

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SRI WAHYUNI

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*ATTITUDE TOWARDS PHYSICS***

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ABSTRAK

Dalam proses pembelajaran salah satu komponen penting yang menunjang tercapainya tujuan pembelajaran adalah modul. Modul dengan pendekatan STEM adalah modul yang digunakan dalam pembelajaran dengan mengintegrasikan disiplin ilmu *science, technology, engineering and mathematics*. Pada abad 21 pembelajaran berorientasi pada keterampilan abad 21, salah satunya yaitu keterampilan berpikir kreatif. Oleh karena itu, pada penelitian ini bertujuan untuk mengembangkan modul IPA-Fisika dengan pendekatan STEM terintegrasi *self-regulated learning* (SRL) untuk mengembangkan keterampilan berpikir kreatif dan *attitude towards physics*. Adanya agen SRL dalam modul sebagai petunjuk yang akan membantu siswa dalam mempelajari materi secara mandiri. Metode yang digunakan adalah *Research and Development* (R&D) model 4D, dengan kerangka *mix method* menggunakan design *sequential exploratory*. Uji kelayakan modul mengacu pada hasil validasi ahli dan uji keterbacaan siswa. Hasil validasi menunjukkan bahwa (1) kesesuaian materi dengan aspek STEM memperoleh nilai validasi sebesar 0,88 dengan kriteria “sangat tinggi”, (2) kesesuaian modul dengan agen SRL memperoleh nilai validasi sebesar 0,87 dalam kriteria “sangat tinggi”, dan (3) kelayakan modul memperoleh nilai validasi sebesar 0,87 dengan kriteria “sangat tinggi”. Jadi modul tersebut terkategori valid, sehingga layak digunakan. Peningkatan keterampilan berpikir dilihat dari hasil N-gain. Hasil analisis diperoleh N-gain sebesar 0,62 dengan kategori “sedang”. Penerapan modul IPA-Fisika dengan pendekatan STEM terintegrasi SRL terhadap perubahan *attitude towards physics* didapatkan hasil perubahan kearah positif (*positive attitude towards physics*) dengan persentase jumlah skor *favorable* 80,91%. Penyebaran angket respon siswa terhadap penggunaan modul diperoleh hasil sebesar 86,59% dengan kriteria “tinggi”. Berdasarkan hasil tersebut menunjukkan bahwa modul IPA-Fisika dengan pendekatan STEM terintegrasi SRL layak digunakan dan dapat mengembangkan keterampilan berpikir kreatif serta *attitude towards physics*.

Kata Kunci: Modul; STEM; *Self-Regulated Learning*; Keterampilan Berpikir Kreatif; *Attitude Towards Physics*.

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PENGEMBANGAN MODUL IPA-FISIKA DENGAN PENDEKATAN STEM TERINTEGRASI SELF-REGULATED LEARNING UNTUK MENGEMBANGKAN KETERAMPILAN BERPIKIR KREATIF DAN ATTITUDE TOWARDS PHYSICS

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**DEVELOPMENT OF NATURAL SCIENCE-PHYSICS STEM MODULE
INTEGRATED SELF-REGULATED LEARNING TO ESTABLISH
CREATIVE THINKING SKILL AND ATTITUDE TOWARDS PHYSICS**

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ABSTRACT

Modules are one of the key in the learning process that support the achievement of learning objectives. Physics-STEM modules are modules used for teaching and learning by integrating the disciplines of science, technology, engineering and mathematics. Learning objectives in the 21st century are oriented to 21st-century skills, one of them being creative thinking skills. Therefore, in this study aims to develop integrating self-regulated learning in Physics-STEM module to develop creative thinking skills and attitude towards physics. The SRL agent in the module as a guide that will help students learn the material independently. The method used is Research and Development (R&D) 4D model, with a mix method framework. The module feasibility test refers to the results of expert validation and student readability tests. The validation results show that (1) the material conformance using the STEM aspect is 0.88 against the Very High criterion, and (2) the module conformance using SRL averages is against the Very High criterion. 0.87, and (3) the feasibility of the module is 0.87 on the "very high" criterion. Therefore, the module is classified as valid for use. The improvement of creative thinking skills is seen from the results of the N-gain. Analysis reveals that N-gain of 0.62 for the middle category. The application of natural science-physics STEM module integrated SRL towards changes in attitude towards physics obtained positive attitude towards physics with favorable percentage of 80.91%. The distribution of student response questionnaires on module usage achieved a result of 86.59% for the "high" criterion. Based on these results, we demonstrate that developing integration of the SRL in natural science-physics STEM module is feasible to use and can establish creative thinking skills and attitude towards physics.

Keywords: Module; STEM; Self-Regulated Learning; Creative Thinking Skill; Attitude Towards Physics.

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Lampiran E.4 Surat Keterangan Selesai Penelitian

Lampiran E.5 Riwayat Hidup Penulis

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Sri Wahyuni, 2022

PENGEMBANGAN MODUL IPA-FISIKA DENGAN PENDEKATAN STEM TERINTEGRASI SELF-REGULATED LEARNING UNTUK MENGEMBANGKAN KETERAMPILAN BERPIKIR KREATIF DAN ATTITUDE TOWARDS PHYSICS

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