STEM-ESD INTEGRATED PjBL BASED ON LEARNING STYLES IDENTIFICATION TO ENHANCE 8TH GRADERS' MULTILITERACY

THESIS

Submitted as a Requirement to Achieve a Master of Science Education Degree

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MASTER OF SCIENCE EDUCATION

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DECLARATION SHEET

I hereby declare that the research paper entitled "STEM-ESD INTEGRATED PjBL BASED ON LEARNING STYLES IDENTIFICATION TO ENHANCE 8TH GRADERS' MULTILITERACY"with everything contained in it is all true my work. I did not do plagiarism or quotation that is not appropriate with the ethics used in academic society. Thus, I am ready to bear with all the risks or sanctions if later it is found that there is scientific ethics violation or claims from other parties regarding my work.

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Abstract

Providing differentiated learning in which learning strategies correspond to the various demands of students potentially yields optimal results. Students' learning needs can be identified using the VARK learning style (Visual, Aural, Read/write, and Kinesthetic). However, there are an insufficient amount of learning models that are based on students' learning styles. This study aims to integrate STEM-ESD into Project-based learning based on student learning styles to increase the multiliteracy of 8th graders. Multiliteracy stands for three literacies that build up the ESD framework which are STEM Literacy, Environmental Literacy, and Sustainability Literacy. The topic of alternative energy is raised as an ESD issue that supports the realization of SDGs as one of the themes of the Merdeka curriculum. This research includes 19 eighth-grade students from a school in Cibubur, Indonesia. The research method used is the pre-experimental one-group pre-posttest design. The first stage of the research includes the profiling of students' learning styles, followed by the integration of STEM-ESD into Project-based learning. The integration was done by plotting Project-based learning as the learning model, STEM as the learning approach, and ESD as the learning framework. The results of the study highlighted it can accommodate each student's learning style and enhance students' multiliteracy. Students' STEM literacy was improved in the low category, Environmental literacy in the medium category, and Sustainability literacy in the medium category. Students with three learning styles visual-aural-kinesthetic (VAK) show the highest improvement in almost every aspect of multiliteracy.

Keywords: VARK Learning Style, STEM-ESD, Project-based Learning, Multiliteracy, Alternative Energy, Secondary School, Science Education

STEM-ESD TERINTEGRASI PjBL BERBASIS IDENTIFIKASI GAYA BELAJAR UNTUK MENINGKATKAN MULTILITERASI SISWA KELAS 8

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Abstrak

Penyelenggaraan kurikulum berdiferensiasi dimana strategi pembelajaran disesuaikan dengan kebutuhan siswa yang bervariasi dapat membuahkan hasil yang lebih optimal Kebutuhan siswa dalam belajar dapat diidentifikasi dengan menggunakan format gaya belajar VARK (visual, auditory, read/write, kinesthetic). Namun, belum banyak model pembelajaran yang mendukung pembelajaran berbasis gaya belajar siswa. Penelitian ini bertujuan untuk mengintegrasikan STEM-ESD ke dalam pembelajaran berbasis proyek berdasarkan gaya belajar siswa untuk meningkatkan multiliterasi siswa kelas 8. Multiliterasi terdiri dari tiga literasi yang membangun pilar ESD yaitu Literasi STEM, Literasi Lingkungan, dan Literasi Keberlanjutan. Topik energi alternatif diangkat sebagai isu ESD yang mendukung terwujudnya SDGs sebagai salah satu tema dari kurikulum merdeka. Partisipan terdiri dari 19 siswa SMP kelas 8 yang berasal dari satu sekolah di Cibubur, Indonesia. Metode penelitian yang digunakan adalah pre-experimental one-group pre-posttest design. Tahap pertama penelitian meliputi identifikasi gaya belajar siswa, diikuti dengan integrasi STEM-ESD ke dalam pembelajaran berbasis proyek. Integrasi dilakukan dengan menempatkan Project-based learning sebagai model pembelajaran, STEM sebagai pendekatan pembelajaran, dan ESD sebagai kerangka pembelajaran. Hasil penelitian menunjukkan pembelajaran ini dapat mengakomodasi setiap gaya belajar siswa serta meningkatkan multiliterasi siswa. Literasi STEM siswa meningkat pada kategori rendah, Literasi lingkungan pada kategori sedang, dan Literasi keberlanjutan pada kategori sedang. Siswa dengan tiga gaya belajar visual-aural-kinestetik (VAK) menunjukkan peningkatan tertinggi hampir di setiap aspek multiliterasi.

Kata Kunci: Gaya Belajar VARK, PjBL-STEM, ESD, *Multiliteracy, Energi Alternatif, Sekolah Menengah, Pendidikan IPA*

PREFACE

Bismillahirrahmanirrahim.
Assalamu'alikum Warrahmatullahi Wabarakatuh,

All the praises and gratitude belong to Allah SWT because of His mercy, blessings, and love so that the author can finish the research paper entitled "The Impact of Virtual Lab Activity with Inquiry-Based Learning on Students' Scientific Literacy and Attitude towards Science in Light and Optics Topic". May the blessings and prosperity always be devoted to our great Prophet Muhammad SAW, to his family, friend, and his followers.

The research paper is the last demand and requirement for almost all university students to complete their studies and obtain a Master of Science degree. In this research paper, the author is willing to explain the research that has been done by the author. There are five chapters that include a literature review, research methodology, result and discussion, and conclusion and recommendation.

The author realizes that there are a lot of mistakes and weaknesses in this research paper. Positive critiques, comments, and suggestions are welcome to help the author improve the quality of the following research. Hopefully, this research paper can be useful for readers, especially those who come from the educational field as a reading source and reference.

Bandung, May 2023

The Author

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