

ABSTRAK

PENGEMBANGAN PROGRAM PEMBELAJARAN ENERGI TERBARUKAN BERBASIS SSI TERINTEGRASI STEM-PjBL UNTUK MENSTIMULUS KETERAMPILAN BERPIKIR KREATIF DAN *SUSTAINABILITY LITERACY*

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Penelitian ini bertujuan mendeskripsikan validitas, kepraktisan, dan efektivitas program pembelajaran dengan pendekatan *Socio Scientific Issue* (SSI) terintegrasi STEM-PjBL untuk menstimulus keterampilan berpikir kreatif dan *Sustainability Literacy* peserta didik pada topik energi terbarukan. Jenis penelitian pengembangan ini mengacu pada model ADDIE yang meliputi tahap *Analysis, Design, Development, Implementation, dan Evaluation*. Teknik analisis data pada pengembangan produk menggunakan analisis persentase terhadap skor validitas dan kepraktisan, serta analisis statistik untuk efektivitas. Hasil analisis data menunjukkan program pembelajaran berbasis *Socio Scientific Issue* (SSI) terintegrasi STEM-PjBL valid untuk menstimulus keterampilan berpikir kreatif dan *Sustainability Literacy* peserta didik pada topik energi terbarukan dengan bobot persentase 92,2% dengan kriteria sangat valid. Kepraktisan program pembelajaran memperoleh bobot persentase 92,9% dengan kriteria sangat praktis, dan efektivitas memperoleh N-Gain 0,9 untuk keterampilan berpikir kreatif dan N-Gain 0,74 untuk *Sustainability Literacy* dengan kategori tinggi. Sedangkan skor skor *effect size* menunjukkan pengaruh sebesar 0,663 (sedang) dalam menstimulus keterampilan berpikir kreatif dan berpengaruh sebesar 0,745 (sedang) dalam menstimulus *Sustainability literacy* peserta didik, menunjukkan bahwa produk yang dikembangkan memiliki efektivitas sedang. Berdasarkan hasil analisis data yang telah dilakukan, dapat disimpulkan bahwa: 1) Program pembelajaran berbasis *Socio Scientific Issue* (SSI) terintegrasi STEM-PjBL dinyatakan sangat valid, skor ini diperoleh melalui penilaian aspek validasi yang meliputi modul ajar (89%), *e-Handout* (94,3%), dan *e-LKPD* (93,2%); 2) kepraktisan program pembelajaran dengan pendekatan *Socio Scientific Issue* (SSI) terintegrasi STEM-PjBL terkategori sangat praktis, skor ini diperoleh melalui penilaian aspek kepraktisan yang meliputi aspek keterlaksanaan (94,4%), kemenarikan (92,3%) dan keterbacaan (92,1%); serta 3) efektivitas program pembelajaran terkategori sedang berdasarkan skor *N-Gain* dan *effect size*, sehingga program pembelajaran berbasis *Socio Scientific Issue* (SSI) terintegrasi STEM-PjBL dinyatakan dapat menstimulus keterampilan berpikir kreatif dan *Sustainability Literacy* peserta didik pada topik energi terbarukan.

Kata kunci: Keterampilan Berpikir Kreatif, *Socio Scientific Issue* (SSI), *Sustainability Literacy*, STEM- PjBL, program pembelajaran.

ABSTRACT

DEVELOPMENT OF A RENEWABLE ENERGY LEARNING PROGRAM BASED ON SSI INTEGRATED WITH STEM-PjBL TO STIMULATE CREATIVE THINKING SKILLS AND SUSTAINABILITY LITERACY

By

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This study aims to describe the validity, practicality, and effectiveness of learning programs with the Socio Scientific Issue (SSI) approach integrated with STEM-PjBL to stimulate students' creative thinking skills and Sustainability Literacy on the topic of renewable energy. This type of development research refers to the ADDIE model which includes Analysis, Design, Development, Implementation, and Evaluation stages. Data analysis techniques in product development use percentage analysis of validity and practicality scores, as well as statistical analysis for effectiveness. The results of data analysis showed that the Socio Scientific Issue (SSI) based learning program integrated with STEM-PjBL was valid to stimulate students' creative thinking skills and Sustainability Literacy on the topic of renewable energy with a percentage weight of 92.2% with very valid criteria. The practicality of the learning program obtained a percentage weight of 92.9% with very practical criteria, and the effectiveness of obtaining N-Gain 0.9 for creative thinking skills and N-Gain 0.74 for Sustainability Literacy with high categories. While the effect size score shows an effect of 0.663 (medium) in stimulating creative thinking skills and an effect of 0.745 (medium) in stimulating students' Sustainability literacy, indicating that the product developed has moderate effectiveness. Based on the results of the data analysis that has been carried out, it can be concluded that: 1) The learning program based on Socio Scientific Issue (SSI) integrated STEM-PjBL is declared very valid, this score is obtained through the assessment of validation aspects which include teaching modules (89%), e-Handout (94.3%), and e-LKPD (93.2%); 2) the practicality of the learning program with the Socio Scientific Issue (SSI) approach integrated STEM-PjBL is categorized as very practical, this score is obtained through the assessment of practicality aspects which include aspects of implementation (94.4%), attractiveness (92.3%) and readability (92.1%); and 3) the effectiveness of the learning program is categorized as very practical; and 3) the effectiveness of the learning program is categorized as moderate based on the N-Gain score and effect size, so that the learning program based on Socio Scientific Issue (SSI) integrated with STEM-PjBL is stated to stimulate students' creative thinking skills and

Sustainability Literacy on the topic of renewable energy.

Keywords: Creative Thinking Skills, Socio Scientific Issue (SSI), Sustainability Literacy, STEM-PjBL, learning program.