

ABSTRAK

IMPLEMENTASI MODEL 7E DENGAN PENDEKATAN STEM BERBANTUAN *DESIGN THINKING* UNTUK MENUMBUHKAN *ENTREPRENEURIAL THINKING* PESERTA DIDIK SMA PADA MATERI ENERGI TERBARUKAN

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Kemampuan *Entrepreneurial Thinking* merupakan keterampilan penting yang harus ditumbuhkan dalam pembelajaran fisika untuk mempersiapkan peserta didik menghadapi tantangan abad ke-21. Penelitian ini bertujuan untuk mengetahui efektivitas implementasi model 7E dengan pendekatan STEM berbantuan *Design Thinking* terhadap kemampuan *entrepreneurial thinking* peserta didik SMA pada materi Energi Terbarukan. Penelitian ini menggunakan metode kuasi eksperimen dengan desain *non-equivalent control group design*, yang melibatkan dua kelas X di SMA Negeri 1 Gedung Harapan, yaitu kelas eksperimen dan kelas kontrol. Instrumen yang digunakan berupa soal uraian yang mengukur indikator *Entrepreneurial Thinking* seperti *Opportunity Identification Skills, Creativity and Innovation, Collaboration Skills, Adaptability Skills, and Problem Solving*. Hasil penelitian menunjukkan bahwa pembelajaran menggunakan model 7E dengan pendekatan STEM dan *Design Thinking* efektif dalam menumbuhkan kemampuan *Entrepreneurial Thinking*. Hal ini dibuktikan melalui rata-rata nilai *N-Gain* kelas eksperimen sebesar 0,53 yang lebih tinggi dibandingkan kelas kontrol sebesar 0,37. Uji *Independent Sample T-Test* dan *Paired Sample T-Test* menunjukkan nilai signifikansi (*Sig. 2-tailed*) sebesar $0,00 < 0,05$, yang berarti terdapat perbedaan signifikan antara kelompok eksperimen dan kontrol serta antara *pretest* dan *posttest*. Selain itu, uji ANCOVA juga menunjukkan pengaruh yang signifikan dengan nilai *Sig.* sebesar $0,00 < 0,05$. Efektivitas model pembelajaran ini termasuk dalam kategori besar berdasarkan hasil uji *Effect Size* dengan nilai *Partial Eta Squared* (η^2) sebesar 0,201 atau 20,1%. Temuan ini mengindikasikan bahwa integrasi model 7E, pendekatan STEM, dan *Design Thinking* mampu menumbuhkan keterampilan *Entrepreneurial Thinking* peserta didik secara signifikan.

Kata Kunci: 7E, *Design Thinking*, *Entrepreneurial Thinking*, STEM

ABSTRACT

IMPLEMENTATION OF THE 7E MODEL WITH A STEM APPROACH ASSISTED BY DESIGN THINKING TO DEVELOP ENTREPRENEURIAL THINKING OF HIGH SCHOOL STUDENTS ON RENEWABLE ENERGY MATERIALS

By

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Entrepreneurial thinking is an essential 21st-century skill that should be developed in physics learning to prepare students to face global challenges. This study aims to examine the effectiveness of implementing the 7E learning model integrated with the STEM approach and supported by the Design Thinking strategy in enhancing the entrepreneurial thinking skills of high school students on the topic of Renewable Energy. The research employed a quasi-experimental method with a non-equivalent control group design, involving two 10th-grade classes at SMA Negeri 1 Gedung Harapan: one experimental class and one control class. The instrument used was an essay test measuring indicators of entrepreneurial thinking, including opportunity identification, creativity and innovation, collaboration, adaptability, and problem solving. The results showed that the implementation of the 7E model integrated with STEM and Design Thinking was effective in improving students' entrepreneurial thinking. This was evidenced by the average N-Gain score of the experimental class, which was 0.53 higher than that of the control class at 0.37. Both the Independent Sample T-Test and Paired Sample T-Test yielded a significance value (Sig. 2-tailed) of $0.00 < 0.05$, indicating a significant difference between the experimental and control groups, as well as between pretest and posttest scores. Additionally, the ANCOVA test showed a significant effect with a Sig. value of $0.00 < 0.05$. The effectiveness of the model also falls into the high category based on the Effect Size test, with a Partial Eta Squared (η^2) value of 0.201 or 20.1%. These findings suggest that the integration of the 7E model, STEM approach, and Design Thinking strategy significantly enhances students' entrepreneurial thinking skills.

Keywords: 7E, Design Thinking, Entrepreneurial Thinking, STEM