

ABSTRAK

PENGEMBANGAN PROGRAM PEMBELAJARAN *FLIPPED CLASSROOM* TERINTEGRASI STEM UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR SISTEM PESERTA DIDIK

Oleh

FATONI LATIF

Penelitian ini bertujuan untuk mengembangkan program pembelajaran *flipped classroom* terintegrasi STEM untuk meningkatkan keterampilan berpikir sistem siswa pada materi perubahan iklim dengan menggunakan model pengembangan ADDIE. Subyek pada penelitian ini melibatkan 31 siswa kelas VIIA di SMP Al Kautsar Bandar Lampung yang dipilih secara *purposive sampling*. Pada tahap awal dilakukan analisis kondisi lapangan terhadap kinerja 30 responden guru di Lampung dengan hasil 70% guru belum pernah menggunakan *flipped classroom*, 65% belum pernah mengintegrasikan STEM, 73% belum memahami keterampilan berpikir sistem, serta dilakukan analisis kinerja terhadap 60 siswa di Lampung dengan hasil 72% pembelajaran dilakukan secara tradisonal, 73% belum pernah belajar dengan mengintegrasikan STEM dan nilai rata-rata keterampilan berpikir sistem masih rendah yaitu 40. Instrumen hasil pengembangan dinyatakan valid oleh validator dengan kriteria sangat tinggi yaitu 92,12% dan 92,52 % saat dilakukan uji terbatas kepada 6 guru IPA di Bandar Lampung. Implementasi pembelajaran dilakukan dengan model *Project Base Learning* dengan hasil penilaian keterlaksanaan pembelajaran 89% pada kriteria sangat tinggi dan penilaian kinerja siswa sebesar 88% berkriteria sangat tinggi. Dalam penerapannya program pembelajaran efektif dalam meningkatkan keterampilan berpikir sistem ditinjau dari *n-Gain* sebesar 0,58 berkriteria sedang dan *effect size* sebesar 0,22 berkategori sedang. Keefektifan program pembelajaran juga didukung dengan kepraktisan program pembelajaran yang ditinjau dari penilaian pembuatan produk sebesar 88% berkriteria sangat tinggi serta mendapatkan respon positif dari guru sebesar 88% dengan kriteria sangat tinggi, dan respon positif siswa sebesar 81% dengan kriteria sangat tinggi. Berdasarkan hasil penelitian tersebut disimpulkan bahwa program pembelajaran *flipped classroom* terintegrasi STEM efektif dan praktis dalam meningkatkan keterampilan berpikir sistem siswa.

Kata kunci: Pembelajaran, *Flipped Classroom*, Integrasi STEM, Keterampilan Berpikir Sistem, Perubahan Iklim

ABSTRACT

**DEVELOPMENT OF STEM INTEGRATED FLIPPED CLASSROOM
LEARNING PROGRAM TO IMPROVE STUDENTS' SYSTEMS
THINKING SKILLS**

By

FATONI LATIF

This research is to develop a flipped classroom integrated STEM learning program to improve students' systems thinking skills on climate change material using the ADDIE development model. The subjects of this research involved 31 class VIIA students at SMP Al Kautsar Bandar Lampung who were selected using purposive sampling. The initial stage is analysis of field conditions on the performance of 30 teacher respondents in Lampung with the results that 70% of teachers had never used a flipped classroom, 65% had never integrated STEM, 73% did not understand systems thinking skills, and performance analysis was carried out on 60 students in Lampung using the results of the research showing that 72% of them learned traditionally, 73% had never studied by integrating STEM and the average score for systems thinking skills was still low, namely 40. The design stage produces learning tools, questionnaire sheets and assessment instruments. At the development stage, namely expert validation, the results were 92.12% with very valid criteria and obtained 92.52% with very valids criteria in a limited test of 6 science teachers in Bandar Lampung. Implementation of learning uses the Project Base Learning model with implementation of learning assessment results of 89% on very high criteria and student performance assessment of 88% on very high criteria. During the evaluation process, the results showed that the learning program effectively improved systems thinking skills in terms of n-Gain of 0.58, a medium criterion, and an effect size of 0.22, a medium effect category. The effectiveness of the learning program is also supported by the practicality of the learning program as seen from the product manufacturing assessment of 88% with very high criteria and getting a positive response from teachers of 88% with very high criteria, and a positive response from students of 81% with very high criteria. Based on the research results, it can be concluded that the flipped classroom integrated STEM learning program is effective and practical in improving students' systems thinking skills.

Keywords: flipped classroom, STEM, System Thinking Skills, Climate Change