

ABSTRAK

PENGEMBANGAN *e*- LKPD BERBASIS *PROBLEM BASED LEARNING* TERINTEGRASI *STEM* UNTUK MENINGKATKAN KEMAMPUAN *COMPLEX PROBLEM SOLVING* DAN SIKAP *ENVIROMENTAL* *AWARENESS* PESERTA DIDIK

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Penelitian ini bertujuan untuk menghasilkan bahan ajar berupa *e*-LKPD berbasis model *Problem Based Learning* terintegrasi *STEM* yang valid, praktis dan efektif untuk meningkatkan kemampuan *Complex Problem Solving* dan sikap *Enviromental Awareness*. Metode penelitian yang digunakan adalah R&D yang mengacu pada model 4D yang disarankan Thiagarajan. Penelitian ini menggunakan *mixed method* dengan tipe *explanatory sequential design* yang terdiri dari dua tahap pengumpulan data, yaitu pengumpulan data kuantitatif dilanjutkan dengan pengumpulan data kualitatif. Data kuantitatif berupa kemampuan *Complex Problem Solving* yang diukur menggunakan *pretest-posttest*, serta data kualitatif yaitu kebutuhan pendidik dan peserta didik, validasi ahli, keterlaksanaan pembelajaran, dan sikap *Enviromental Awareness* yang diperoleh dari angket. Desain uji coba yang digunakan adalah *one group pretest-posttest* dengan subjek penelitian adalah peserta didik kelas VII C SMP Negeri 12 Bandar Lampung. Penelitian ini berhasil mengembangkan bahan ajar (*e*-LKPD) yang terbukti sangat valid, praktis, dan efektif. Validitas bahan ajar (*e*-LKPD) sangat tinggi mencapai 93,22 % berdasarkan penilaian komprehensif validator ahli. Dari sisi kepraktisan bahan ajar (*e*-LKPD) sangat tinggi mencapai 95 % berdasarkan keterlaksanaan pembelajaran. Selanjutnya dari sisi keefektifan diperoleh *n*-Gain sedang (0,56) dan effect size sangat besar (4,12) serta sikap *Enviromental Awareness* diperoleh relatif tinggi sebesar (83,13%). Berdasarkan hasil penelitian dan analisis data bahwa bahan ajar (*e*-LKPD) yang dikembangkan dapat digunakan dalam pembelajaran pencemaran lingkungan guna meningkatkan kemampuan *Complex Problem Solving* dan sikap *Enviromental Awareness* peserta didik.

Kata kunci : *Problem Based Learning, STEM, Kemampuan Complex Problem Solving, Sikap Enviromental Awareness*

ABSTRAK

PENGEMBANGAN *e*- LKPD BERBASIS *PROBLEM BASED LEARNING* TERINTEGRASI *STEM* UNTUK MENINGKATKAN KEMAMPUAN *COMPLEX PROBLEM SOLVING* DAN SIKAP *ENVIROMENTAL* AWARENESS PESERTA DIDIK

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This study aims to develop teaching materials in the form of an e-worksheet (*e*-LKPD) based on the Problem-Based Learning model integrated with *STEM* that are valid, practical, and effective for improving Complex Problem Solving skills and Environmental Awareness attitudes. The research method used is Research and Development (R&D), referring to the 4D model proposed by Thiagarajan. This study employs a mixed-method approach with an explanatory sequential design consisting of two stages of data collection: quantitative data collection followed by qualitative data collection. The quantitative data comprises Complex Problem Solving abilities measured using pretest-posttest, while the qualitative data includes educators' and students' needs, expert validation, learning implementation, and Environmental Awareness attitudes obtained through questionnaires. The trial design used is a one-group pretest-posttest design with the research subjects being students of class VII C at SMP Negeri 12 Bandar Lampung. This study successfully developed teaching materials (*e*-LKPD) that proved to be highly valid, practical, and effective. The validity of the teaching materials (*e*-LKPD) was very high, reaching 93.22% based on comprehensive expert validator assessments. In terms of practicality, the teaching materials (*e*-LKPD) scored very high at 95% based on learning implementation. Furthermore, regarding effectiveness, a moderate *n*-Gain of 0.56 and a very large effect size of 4.12 were obtained, along with a relatively high Environmental Awareness attitude score of 83.13%. Based on the research results and data analysis, the developed teaching materials (*e*-LKPD) can be used in environmental pollution learning to improve students' Complex Problem Solving skills and Environmental Awareness attitudes.

Keywords : *Problem Based Learning, STEM, Complex Problem Solving, Enviromental Awareness*