

ABSTRAK

EFEKTIVITAS *FLIPPED CLASSROOM* TERINTEGRASI *DEEP LEARNING* BERBASIS *MULTIPLE REPRESENTATIONS* PADA MATERI KESETIMBANGAN KIMIA UNTUK MENINGKATKAN HOTS

Oleh

VEDRA SANDRINA MANALU

Penelitian ini bertujuan untuk mendeskripsikan efektivitas pembelajaran *flipped classroom* terintegrasi *deep learning* berbasis *multiple representations* pada materi kesetimbangan kimia untuk meningkatkan HOTS. Populasi penelitian meliputi seluruh siswa kelas XI.F SMA Negeri 15 Bandar Lampung Tahun Ajaran 2025/2026 yang berjumlah 175 siswa. Sampel ditentukan menggunakan teknik *purposive sampling*, dengan kelas XI.F.4 sebagai kelas eksperimen dan XI.F.5 sebagai kelas kontrol. Kelas eksperimen diberikan pembelajaran *flipped classroom* terintegrasi *deep learning* berbasis *multiple representations*, sedangkan kelas kontrol menggunakan pembelajaran konvensional. Penelitian ini menggunakan metode *quasi experimental* dengan desain *nonequivalent pretest-posttest control group*. Analisis data dilakukan menggunakan uji *Independent Sample t-Test*. Hasil penelitian menunjukkan bahwa rata-rata *n-gain* HOTS siswa pada kelas eksperimen sebesar 0,35 dengan kategori sedang dan lebih tinggi secara signifikan dibandingkan kelas kontrol. Dengan demikian, pembelajaran *flipped classroom* terintegrasi *deep learning* berbasis *multiple representations* pada materi kesetimbangan kimia efektif dalam meningkatkan HOTS.

Kata kunci: *flipped classroom*, *deep learning*, *multiple representations*, HOTS, kesetimbangan kimia

ABSTRACT

THE EFFECTIVENESS OF FLIPPED CLASSROOM INTEGRATED WITH DEEP LEARNING BASED ON MULTIPLE REPRESENTATIONS ON CHEMICAL EQUILIBRIUM TO IMPROVE HOTs

By

VEDRA SANDRINA MANALU

This study aims to describe the effectiveness of a flipped classroom integrated with a deep learning approach based on multiple representations on chemical equilibrium material in improving Higher Order Thinking Skills (HOTs). The population of this study consisted of all students of class XI.F at SMA Negeri 15 Bandar Lampung in the 2025/2026 academic year, totaling 175 students. The sample was selected using purposive sampling, with class XI.F.4 as the experimental class and XI.F.5 as the control class. The experimental class was taught using a flipped classroom integrated with deep learning based on multiple representations, while the control class received conventional instruction. This study employed a quasi-experimental method with a nonequivalent pretest-posttest control group design. Data were analyzed using the Independent Sample t-Test. The results showed that the average n-gain HOTs of students in the experimental class was 0.35, which was categorized as moderate and significantly higher than that of the control class. Thus, the flipped classroom learning integrated with deep learning based on multiple representations on chemical equilibrium material was effective in improving students' HOTs.

Keywords: flipped classroom, deep learning, multiple representations, HOTs, chemical equilibrium