

ABSTRAK

EFEKTIVITAS *FLIPPED CLASSROOM* DENGAN PENDEKATAN *DEEP LEARNING* BERBASIS *MULTIPLE REPRESENTATIONS* PADA MATERI KESETIMBANGAN KIMIA UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR KRITIS

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Penelitian ini bertujuan untuk mendeskripsikan efektivitas strategi *flipped classroom* dengan kerangka kerja *deep learning* berbasis *multiple representations* pada materi kesetimbangan kimia untuk meningkatkan keterampilan berpikir kritis. Populasi dalam penelitian ini adalah seluruh peserta didik kelas XI di SMA Negeri 15 Bandar Lampung Tahun Ajaran 2026/2027. Pengambilan sampel menggunakan teknik *purposive sampling* dengan satu kelas sebagai kelas eksperimen dan satu kelas sebagai kelas kontrol. Pada kelas eksperimen diterapkan strategi *flipped classroom* dengan kerangka kerja *deep learning* berbasis *multiple representations*, sedangkan kelas kontrol menggunakan pembelajaran konvensional. Penelitian ini merupakan penelitian kuasi eksperimen dengan desain *nonequivalent pretest-posttest control group design*. Instrumen yang digunakan berupa soal pretest dan posttest keterampilan berpikir kritis, lembar observasi aktivitas peserta didik serta lembar keterlaksanaan. Teknik analisis data yang digunakan adalah uji perbedaan dua rata-rata menggunakan uji *independent samplest-test*. Hasil analisis menunjukkan bahwa rata-rata *n-gain* keterampilan berpikir kritis pada kelas eksperimen sebesar 0,59 yang berkriteria sedang dan lebih tinggi secara signifikan dibanding kelas kontrol. Berdasarkan hasil tersebut dapat disimpulkan bahwa strategi *flipped classroom* dengan kerangka kerja *deep learning* berbasis *multiple representations* pada materi kesetimbangan kimia efektif untuk meningkatkan keterampilan berpikir kritis peserta didik.

Kata kunci: *deep learning*, *flipped classroom*, kesetimbangan kimia, *multiple representations*, keterampilan berpikir kritis

ABSTRACT

EFFECTIVENESS OF FLIPPED CLASSROOM WITH A DEEP LEARNING APPROACH ASSISTED BY MULTIPLE REPRESENTATIONS ON CHEMICAL EQUILIBRIUM TO IMPROVE CRITICAL THINKING SKILLS

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This study aimed to describe the effectiveness of the flipped classroom strategy with a deep learning framework based on multiple representations on the topic of chemical equilibrium in improving students' critical thinking skills. The population of this study consisted of all eleventh-grade students at SMA Negeri 15 Bandar Lampung in the 2026/2027 academic year. The samples were selected using a purposive sampling technique, with one class assigned as the experimental class and another as the control class. The experimental class was taught using the flipped classroom strategy with a deep learning framework based on multiple representations, while the control class received conventional learning. This research employed a quasi-experimental method with a nonequivalent pretest-posttest control group design. The instruments used included pretest and posttest questions to measure critical thinking skills, students' activity observation sheets, and implementation observation sheets. The data were analyzed using the independent samples t-test to determine the difference between the two mean scores. The results showed that the average n-gain score of critical thinking skills in the experimental class was 0.59, which was categorized as moderate and significantly higher than that of the control class. Based on these findings, it can be concluded that the flipped classroom strategy with a deep learning framework based on multiple representations on the topic of chemical equilibrium was effective in improving students' critical thinking skills.

Keywords: deep learning, flipped classroom, chemical equilibrium, multiple representations, critical thinking skills