

ABSTRAK

Isma Aulia. 2026. ANALISIS PENERAPAN MODEL PEMBELAJARAN *CONNECTING, ORGANIZING, REFLECTING, EXTENDING* (CORE) TERHADAP KEMAMPUAN ARGUMENTASI ILMIAH PESERTA DIDIK PADA MATERI ENERGI ALTERNATIF DITINJAU DARI PENALARAN ILMIAH

Rendahnya kemampuan argumentasi ilmiah peserta didik di SMA Negeri 1 Cimaragas menjadi latar belakang penelitian ini. Sebagai upaya mengatasi permasalahan tersebut, diterapkan model pembelajaran *Connecting, Organizing, Reflecting, Extending* (CORE). Penelitian ini bertujuan untuk mengetahui pengaruh model CORE terhadap kemampuan argumentasi ilmiah peserta didik pada materi energi alternatif, mengetahui perbedaan kemampuan argumentasi ilmiah antara peserta didik dengan tingkat penalaran ilmiah tinggi dan rendah, serta mengetahui interaksi antara model CORE dan penalaran ilmiah terhadap kemampuan argumentasi ilmiah peserta didik. Metode penelitian yang digunakan adalah kuasi eksperimen dengan desain faktorial 2×2 . Penelitian dilaksanakan di SMA Negeri 1 Cimaragas dengan populasi sebanyak 4 kelas. Sampel dipilih menggunakan teknik *cluster random sampling* sehingga diperoleh kelas X-E3 sebagai kelas eksperimen dan X-E2 sebagai kelas kontrol. Instrumen pengumpulan data berupa LCTSR untuk mengukur penalaran ilmiah dan *posttest* yang terdiri dari enam butir soal uraian untuk mengukur empat indikator kemampuan argumentasi ilmiah. Hasil uji hipotesis menggunakan anava dua arah pada taraf signifikansi $\alpha = 0,05$ menunjukkan bahwa model pembelajaran CORE berpengaruh signifikan terhadap kemampuan argumentasi ilmiah peserta didik. Selain itu, terdapat perbedaan kemampuan argumentasi ilmiah antara peserta didik dengan tingkat penalaran ilmiah tinggi dan rendah. Namun, tidak terdapat interaksi antara model CORE dan penalaran ilmiah terhadap kemampuan argumentasi ilmiah peserta didik pada materi energi alternatif. Penelitian ini berimplikasi bagi guru dalam merancang pembelajaran berbasis keterampilan berpikir tingkat tinggi, khususnya melatih peserta didik menyusun struktur argumen yang logis melalui sintaks CORE. Bagi peserta didik, model CORE memberikan pengalaman belajar bermakna yang berpotensi meningkatkan kemampuan argumentasi ilmiah.

Kata kunci: Energi Alternatif, Kemampuan Argumentasi Ilmiah, Model Pembelajaran CORE, Penalaran Ilmiah

ABSTRACT

Isma Aulia. 2026. ANALYSIS OF THE APPLICATION OF THE CONNECTING, ORGANIZING, REFLECTING, EXTENDING (CORE) LEARNING MODEL ON STUDENTS' SCIENTIFIC ARGUMENTATION SKILLS IN ALTERNATIVE ENERGY MATERIALS FROM THE PERSPECTIVE OF SCIENTIFIC REASONING

The low scientific argumentation ability of students at SMA Negeri 1 Cimaragas is the background of this research. As an effort to overcome this problem, the Connecting, Organizing, Reflecting, Extending (CORE) learning model was applied. This study aims to determine the effect of the CORE model on students' scientific argumentation ability on alternative energy material, to determine the differences in scientific argumentation ability between students with high and low levels of scientific reasoning, and to determine the interaction between the CORE model and scientific reasoning on students' scientific argumentation ability. The research method used was a quasi-experimental with a 2×2 factorial design. The study was conducted at SMA Negeri 1 Cimaragas with a population of 4 classes. The sample was selected using a cluster random sampling technique so that class X-E3 was obtained as the experimental class and X-E2 as the control class. The data collection instrument was in the form of LCTSR to measure scientific reasoning and a posttest consisting of six essay questions to measure four indicators of scientific argumentation ability. The results of the hypothesis test using a two-way ANOVA at a significance level of $\alpha = 0.05$ indicate that the CORE learning model has a significant effect on students' scientific argumentation abilities. In addition, there are differences in scientific argumentation abilities between students with high and low levels of scientific reasoning. However, there is no interaction between the CORE model and scientific reasoning on students' scientific argumentation abilities on alternative energy material. This study has implications for teachers in designing learning based on higher-order thinking skills, especially training students to construct logical argument structures through CORE syntax. For students, the CORE model provides a meaningful learning experience that has the potential to improve scientific argumentation abilities.

Keywords: Alternative Energy, CORE Learning Model, Scientific Argumentation Skills, Scientific Reasoning