ABSTRAK

Heny Nurul Mufitdah, NIM 4183351011 (2023). Pengaruh Model Project Based Learning Berbantuan LKPD Berbasis STEM Terhadap Kemampuan Berpikir Kritis Siswa Pada Materi Kalor dan Perpindahannya Kelas VII MTS Cerdas Murni.

Penelitian ini bertujuan untuk mengetahui apakah terjadi peningkatan kemampuan berpikir kritis siswa melalui model *Project Based Learning* (PjBL) berbantuan LKPD berbasis STEM pada materi kalor dan perpindahannya dan aspek berpikir kritis apakah yang memiliki persentase dengan nilai gain tertinggi melalui model *Project Based Learning* berbantuan LKPD berbasis STEM pada materi kalor dan perpindahannya. Jenis penelitian adalah *quasi eksperimen* yang melibatkan kelas kontrol dan eksperimen dengan desain *two group pretest and posttest design*. Sampel dalam penelitian ini dipilih siswa kelas VII-1 dan VII-3 dengan jumlah masing-masing kelas sebanyak 28 orang siswa sehingga total sampel adalah 56 orang siswa dipilih secara *purposive sampling*. Instrumen yang digunakan berupa tes kemampuan berpikir kritis yang telah divalidasi dalam bentuk tes essai berjumlah 12 soal dengan memenuhi syarat validasi isi yaitu 0,377 sampai 0,563 dan memenuhi syarat reliabilitas sebesar 0,712. Dari hasil penelitian diperoleh data bersifat homogen. Pada uji normalitas data *pretest* dan *posttest* berdistribusi normal. Berdasarkan hasil analisis uji hipotesis *posttest* diperoleh sebesar 0,000 sehingga disimpulkan terdapat pengaruh model *Project Based Learning* berbantuan LKPD berbasis STEM terhadap kemampuan berpikir kritis siswa kelas 7 pada materi kalor dan perpindahannya di MTs Cerdas Murni. Pada pengujian gain ternormalisasi diperoleh n-gain sebesar 0,77 (77%) pada kelas eksperimen dan sebesar 0,56 (56%) pada kelas kontrol sehingga disimpulkan bahwa kemampuan berpikir kritis siswa melalui penerapan model *Project Based Learning* berbantuan LKPD berbasis STEM pada materi kalor dan perpindahannya memenuhi kriteria tinggi pada kelas eksperimen dan kategori sedang pada kelas kontrol. Hasil penelitian menunjukkan bahwa kemampuan berpikir kritis siswa pada aspek memberikan penjelasan lebih lanjut sebesar 83%, pada aspek memberikan penjelasan sederhana sebesar 82%, pada aspek menyimpulkan sebesar 76%, pada aspek menyusun strategi dan taktik sebesar 71% dan pada aspek membangun keterampilan dasar sebesar 63%. Sehingga dapat disimpulkan bahwa aspek berpikir kritis yang memiliki persentase lebih tinggi adalah pada aspek memberikan penjelasan lebih lanjut.

Kata Kunci: Kalor dan perpindahannya, kemampuan berpikir kritis, model pembelajaran *Project Based Learning*, pendekatan STEM

ABSTRACT

Heny Nurul Mufitdah, NIM 4183351011 (2023). The Effect of *Project Based Learning* Model Assisted by STEM-Based LKPD on Students' Critical Thinking Ability in Heat and Its Transfer Material Class VII MTs Cerdas Murni.

This study aims to determine whether there is an increase in students' critical thinking skills through the Project Based Learning (PjBL) model assisted by STEM-based LKPD on the material of heat and its transfer and what aspects of critical thinking have the percentage with the highest gain value through the Project Based Learning model assisted by STEM-based LKPD on the material of heat and its transfer. The type of research is a quasi-experiment involving control and experimental classes with a two group pretest and posttest design. The samples in this study were selected VII-1 and VII-3 grade students with a total of 28 students in each class so that the total sample was 56 students selected by purposive sampling. The instrument used in the form of a validated critical thinking skills test in the form of an essay test totaling 12 questions by meeting the content validation requirements of 0.377 to 0.563 and meeting the reliability requirements of 0.712. From the research results, the data is homogeneous. In the normality test, the pretest and posttest data were normally distributed. Based on the results of the posttest hypothesis test analysis, it was obtained at 0.000 so it was concluded that there was an effect of the Project Based Learning model assisted by STEM-based LKPD on the critical thinking skills of 7th grade students on heat and its transfer material at MTs Cerdas Murni. In testing the normalized gain, the n-gain was 0.77 (77%) in the experimental class and 0.56 (56%) in the control class so it was concluded that students' critical thinking skills through the application of the Project Based Learning model assisted by STEM-based LKPD on heat and its transfer material met the high criteria in the experimental class and the medium category in the control class. The results showed that students' critical thinking skills in the aspect of providing further explanation amounted to 83%, in the aspect of providing simple explanation amounted to 82%, in the aspect of concluding 76%, in the aspect of developing strategies and tactics amounted to 71% and in the aspect of building basic skills amounted to 63%. So it can be concluded that the aspect of critical thinking that has a higher percentage is in the aspect of providing further explanation.

Keywords: Critical thinking skills, heat and its transfer, project-based learning model, STEM approach