

ABSTRAK

Naibaho, Aurel C. I, NIM 4203121051 (2020). Pengaruh Model *Discovery Learning* Siswa untuk Meningkatkan Kemampuan Berpikir Kritis Siswa pada Materi Suhu dan Kalor Kelas XI MIPA.

Penelitian ini bertujuan untuk mengetahui perbedaan kemampuan berpikir kritis siswa setelah diterapkan model *discovery learning* dengan model pembelajaran konvensional dalam pembelajaran fisika serta untuk mengetahui peningkatan kemampuan berpikir kritis siswa yang diajarkan menggunakan model *discovery learning* pada materi suhu dan kalor kelas XI MIPA semester genap di SMA N 1 Percut Sei Tuan. Jenis penelitian ini adalah *quasi eksperimen* dengan sampel 30 orang siswa kelas XI MIPA 5 sebagai kelas eksperimen dan 30 orang siswa kelas XI MIPA 6 sebagai kelas kontrol. Pengambilan sampel dilakukan dengan teknik *simple random sampling*. Instrumen yang digunakan adalah tes kemampuan berpikir kritis. Sebelum diberikan perlakuan yang berbeda dilakukan *pre-test*, maka diperoleh nilai rata-rata *pre-test* kelas eksperimen 52,56 dan nilai rata-rata *pre-test* kelas kontrol 46,04. Pada pengujian normalitas dan homogenitas data *pre-test* kedua kelas diperoleh bahwa data kedua kelas berdistribusi normal dan homogen. Hasil uji t dua pihak pada pretest diperoleh $t_{hitung} < t_{tabel}$ ($1,993 < 2,002$) yang berarti H_0 diterima, sehingga dapat dikatakan bahwa kemampuan awal berpikir kritis siswa kelas eksperimen dan kelas kontrol sama. Kemudian dilakukan perlakuan berbeda, dan dilakukan *post-test* terhadap kedua kelas, maka diperoleh nilai rata-rata *post-test* kelas eksperimen 85,996 dan nilai rata-rata *post-test* kelas kontrol 73,986. Pada pengujian normalitas dan homogenitas data *post-test* diperoleh bahwa data kedua kelas berdistribusi normal dan homogen. Hasil uji t satu pihak pada *post-test* diperoleh $t_{hitung} > t_{tabel}$ ($7,392 > 1,671$) maka hipotesis H_a diterima sehingga ada pengaruh penggunaan model *discovery learning* terhadap kemampuan berpikir kritis siswa materi suhu dan kalor. Kemudian dilakukan uji *N-gain* pada kelas kontrol dengan nilai $g = 0,502$ dalam kategori sedang, dan pada kelas eksperimen nilai $g = 0,703$ dalam kategori tinggi, sehingga terdapat peningkatan kemampuan berpikir kritis dalam kategori tinggi pada kelas eksperimen.

Kata-kata kunci: Model Discovery Learning, Berpikir Kritis, Suhu dan Kalor

ABSTRACT

Naibaho, Aurel C. I, NIM 4203121051 (2020). *The Effect of the Discovery Learning Model to Improve Students' Critical Thinking Skills on the Topic of Temperature and Heat in Class XI MIPA*

This study aims to determine the difference in students' critical thinking skills after implementing the discovery learning model compared to the conventional teaching model in physics education. Additionally, it seeks to identify the improvement in critical thinking skills of students taught using the discovery learning model on the topic of temperature and heat in the second semester of grade XI MIPA at SMA N 1 Percut Sei Tuan. This research employs a quasi-experimental design with a sample of 30 students from class XI MIPA 5 as the experimental group and 30 students from class XI MIPA 6 as the control group. The samples were selected using simple random sampling techniques. The instrument used was a critical thinking skills test. Prior to administering different treatments, a pre-test was conducted, yielding an average pre-test score of 52.56 for the experimental group and 46.04 for the control group. Normality and homogeneity tests on the pre-test data from both classes indicated that the data were normally distributed and homogeneous. The results of a two-tailed t-test on the pre-test showed that $t_{\text{calculated}} < t_{\text{table}}$ ($1.993 < 2.002$), indicating that H_0 is accepted. Thus, it can be said that the initial critical thinking skills of students in the experimental and control groups were equivalent. Subsequently, different treatments were applied, followed by a post-test for both groups. The post-test results revealed an average score of 85.996 for the experimental group and 73.986 for the control group. Normality and homogeneity tests on the post-test data showed that the data from both groups were normally distributed and homogeneous. The results of a one-tailed t-test on the post-test showed that $t_{\text{calculated}} > t_{\text{table}}$ ($7.392 > 1.671$), indicating that the hypothesis H_a is accepted, thus confirming the impact of the discovery learning model on students' critical thinking skills in the topic of temperature and heat. An N-gain test was then conducted, resulting in a gain score of $g = 0.502$ for the control group, which falls within the moderate category, and $g = 0.703$ for the experimental group, which falls within the high category. Therefore, there was a significant improvement in critical thinking skills in the experimental group.

Keywords : Discovery Learning Model, Critical Thinking, Temperature and Heat.