SKRIPSI

Pengaruh Inkuiri Berbasis Simulasi Model Perubahan Iklim terhadap Kemampuan Penalaran Ilmiah dan Miskonsepsi Siswa

Disusun Sebagai Salah Satu Persyaratan Guna Memperoleh Gelar Sarjana (S.Pd)

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PROGRAM STUDI PENDIDIKAN BIOLOGI

FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM

UNIVERSITAS PENDIDIKAN INDONESIA

BANDUNG

2021

LEMBAR HAK CIPTA

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Abstrak

Dalam melakukan penalaran ilmiah, untuk memahami konsep ekologi yang abstrak seperti perubahan iklim siswa masih banyak mengalami miskonsepsi. Penelitian ini bertujuan untuk mengidentifikasi penggunaan inkuiri menggunakan simulasi model perubahan iklim untuk meningkatkan penalaran ilmiah siswa dalam materi perubahan iklim serta mengatasi miskonsepsinya. Penelitian ini menggunakan *quasi experiment* dengan *one group, pretest posttest design.* Sampel yang digunakan adalah siswa kelas VII yang terdiri dari 17 orang yang menggunakan simulasi model perubahan iklim sebagai media pembelajaran inkuiri. Pengumpulan data dilakukan dengan menggunakan soal penalaran ilmiah dengan tipe soal pilihan ganda berdasarkan 7 aspek penalaran ilmiah berdasarkan TIMSS (Trends in Mathematics and Science Study), serta angket untuk mengetahui persepsi siswa mengenai pembelajaran. Hasil penelitian menunjukkan bahwa terjadi peningkatan kemampuan siswa untuk bernalar ilmiah (n-gain=0,55). Peningkatan tertinggi terjadi pada membuat pertanyaan, hipotesis, dan prediksi (n-gain=0,65), membuat justifikasi (n-gain=0,52), merancang penelitian (n-gain=0,50), membuat evaluasi (n-gain=0,44), sintesis (n-gain=0,40), dan yang terendah membuat kesimpulan (gain=0,36), serta yang terkecil adalah menganalisis (n-gain=0,25) Miskonsepsi yang dapat dihilangkan adalah efek rumah kaca disebabkan gedung berkaca serta gas rumah kaca merupakan polusi (n-gain=-1), sedangkan miskonsepsi yang masih ada perubahan iklim disebabkan oleh berlubangnya lapisan ozon (n-gain=-0,75) dan gas CFC (n-gain=-0,6). Penelitian ini menunjukkan bahwa inkuiri berbasis simulasi model perubahan iklim dapat meningkatkan penalaran ilmiah siswa dan mengurangi miskonsepsinya.

Kata Kunci : Penalaran ilmiah, perubahan iklim, inkuiri berbasis simulasi model, simulasi, model perubahan iklim, miskonsepsi, TIMSS

Abstract

In carrying out scientific reasoning, to understand abstract ecological concepts such as climate change, students still experience many misconceptions. This study aims to identify the use of model-based inquiry climate change simulations to improve students' scientific reasoning in climate change material and overcome misconceptions. This study uses a quasi-experimental with one group, pretest posttest design. The sample used was class VII students consisting of 17 people using an climate change simulation as a medium of inquiry learning. Data was collected using scientific reasoning questions with multiple choice types based on 7 aspects of scientific reasoning based on TIMSS (Trends in Mathematics and Science Study), as well as a questionnaire to determine students' perceptions of learning. The results showed that there was an increase in students' ability to reason scientifically (n-gain = 0.55). The highest increase occurred in making questions, hypotheses, and predictions (n-gain=0.65), making justifications (n-gain=0.52), designing research (n-gain=0.50), making evaluations (n- gain = 0.44), synthesis (n-gain = 0.40), and the lowest is to make conclusions (gain = 0.36), and the smallest is to analyze (n-gain = 0.25). the greenhouse effect is caused by glass buildings and greenhouse gases are pollution (n-gain=-1), while the misconception that climate change is still caused by the hole in the ozone layer (n-gain=-0.75) and CFC gases (n -gain=-0.6). This study shows that the inquiry with climate change model simulation can improve students' scientific reasoning on climate change material and reduce misconceptions.

Keywords: scientific reasoning, climate change, model based inquiry, simulation, climate change modelling, , misconceptions, TIMSS

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Daftar Pustaka

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