PEMBELAJARAN BERBASIS STEM *(SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS)* PADA MATERI TEKANAN HIDROSTATIS UNTUK MENINGKATKAN *SCIENTIFIC REASONING* SISWA SMP

Dini Fitriani
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ABSTRAK

Penelitian "Pembelajaran Berbasis STEM (*Science, Technology, Engineering, and Mathematics)* pada Materi Tekanan Hidrostatis untuk Meningkatkan *Scientific Reasoning* Siswa SMP" telah dikembangkan dengan tujuan untuk mengetahui pengaruh pembelajaran berbasis STEM terhadap peningkatan *scientific reasoning* siswa pada materi tekanan hidrostatis. Metode yang digunakan pada penelitian ini adalah *pre experimental* dengan *one group pretest and posttest design.* Penelitian dilakukan di salah satu SMP di kota Bandung Barat dengan jumlah partisipan dalam penelitian sebanyak 36 siswa dari siswa SMP kelas VIII. *Scientific reasoning* yang diukur dalam penelitian ini dibatasi pada dimensi *deductive reasoning, correlational reasoning, causal reasoning, control of variable* dan *hypothetical-deductive reasoning.* Data penelitian diambil dari hasil *pretest* dan *posttest* melalui tes *scientific reasoning* modifikasi bentuk pilihan ganda beralasan dan diolah menggunakan *effect size (d) Cohen's* untuk melihat pengaruh *treatment* terhadap peningkatan *scientific reasoning.* Dari hasil pengolahan dan analisis data, *effect size* yang terukur sebesar 1,70 masuk dalam kategori besar. Analisis lebih lanjut berdasarkan masing-masing dimensi yang diukur, *scientific reasoning* kelima dimensi mengalami peningkatan diukur menggunakan N-Gain masuk dalam kategori sedang dengan *causal reasoning* sebesar 0,68, *deductive reasoning* sebesar 0,51, *correlational reasoning* sebesar 0,42, *hypothetical reasoning* sebesar 0,36, dan *control of variables* sebesar 0,32.

Kata kunci : Pembelajaran Berbasis STEM, *Scientific Reasoning, Science and Engineering Practice.*

ABSTRACT

The research of "STEM (Science, Technology, Engineering, and Mathematics)–based learning on the material Hydrostatic Pressure to enhance the Scientific Reasoning of secondary school Students" have been developed to identify the influence of STEM-based learning, in increasing scientific reasoning of the students. The methods that used in this research was the pre-experimental with pretest and posttest group one design. Research was conducted in one of the secondary school in the Bandung western of city with the number of participants in the study as many as 36 students of secondary school. Scientific reasoning as measured in this study was restricted to the dimensions of deductive reasoning, correlational, causal reasoning reasoning, control of variables and hypothetical deductive reasoning-. The data was taken from the results of a pretest and posttest through scientific reasoning multiple choice tests are form modification reasoned and processed using effect size (d) Cohen's to see the influence of the treatment against the increase of scientific reasoning. From the results of the processing and analysis of data, the effect size that scalable 1.70 fall into the category of large. Further analysis based on each dimension measured, scientific reasoning of the fifth dimension is experiencing an increase in measured using N-Gain entry in the category of being with the causal reasoning of 0.68, deductive reasoning of 0.51, correlational reasoning of 0.42, hypothetical reasoning of 0.36, and control of variables of 0.32.

Keywords : Pembelajaran Berbasis STEM, *Scientific Reasoning, Science and Engineering Practice.*