INTEGRATED SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS (STEM) EDUCATION IN SCIENCE-BASED LEARNING BASED ON ISSUES FOR DEVELOPING SCIENTIFIC ATTITUDE AND 21st CENTURY SKILLS FOR STRENGTHENING “PENGUATAN PENDIDIKAN KARAKTER (PPK)”

by Joko Sudomo, Zuhdan Kun Prasetyo, Putri Anjarsari, Ekosari Roektiningroem, Febriana Cahyaningsih, Ika Nur Kholifah,Endri Sutiyatmini

ABSTRACT

This aims of the study is to determine the effect of integrated STEM education in science learning on: (1) curiousity of junior high school students, and (2) 21st century skills (critical and creative thinking skills) of junior high school students.
This research is a quasy experiment with nonequivalent control group pretest posttest design using cluster random sampling. The experimental class was given treatment in the form of science learning based on integrated STEM education, while the control class was given science learning as usual by the teacher. The data collected by observation sheets, curiosity attitude questionnaires, and test of critical and creative thinking skills that had been validated by experts. The data analysis technique in this study was a t-test to see differences in scores of curiosity attitudes, critical thinking skills, and creative between the experimental and the control class, then proceed by calculating the effect size to see how much influence science learning based on integrated STEM education towards curiosity, critical and creative thinking skills.
The results showed that there was a significant effect of science learning on the curiosity of junior high school students based on the t test with a p value of 0.002 (less than 0.05) and an effect size of 0.92 (influencing with a large category), and influencing the 21st century skills, especially critical and creative thinking skills based on t-test values ??with a p value of 0,000 (less than 0.05) and the effect size values ??are 1.08 and 1,366, respectively (influencing with a large category).

Kata Kunci: *STEM, curiousity, critical thinking skills, creative thinking skills*