

Development creativity of Grade 5 students on electricity through STEM Education of electric circuit

Abstract

The research aim was to develop creativity of grade 5 students through STEM education in electricity. There were 15 students of Grade 5 in Khon Kaen Province of the second Semester in 2020 who participated in this study. The action research was implemented to this study with tree loops to improve creativity of students. The physics contents of Grade 5 on electricity consisted of simple circuits, conductors, insulators, switches, connecting battery in series and parallel, series and parallel circuit and the motor connection. The twelve lessons were separated into three loops of actions. Each loop of lessons consisted of three Predict-Observe-Explain (POE) lessons, and a lesson with an Engineering design process for designing various work pieces to improve their creativity in electricity at the end of each loop. The students were fluent in designing various work pieces to solve problems arising from a given classroom situation and had flexibility and elaboration in given reasons in selecting the materials to create the works. At the last lesson of the action loops the data was collected to show how students improved their creativity. The student's works and their presentations were evaluated by the creativity's rubrics scores in four dimensions of Originality, Fluency, Flexibility and Elaboration.

The results showed that students' creativity was improved in all five groups of students. The originality was found in every group of students. They created their work differently from classmates. The students gain more Fluency, Flexibility and Elaboration from loop one to loop three of action loops.

Keywords: STEM education, POE for STEM, engineering design process, creative thinking's rubrics scores, electricity

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