Teaching Newton's 3rd Law of Motion Using Learning by Design Approach

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Abstract

This paper presents the process and implementation of Learning by Design approach in teaching Newton's 3rd Law of Motion. A lesson activity from integrative STEM education was adapted, modified and enhanced through pilot testing. After revisions, the implementation was done to one class. The respondent's prior knowledge was first assessed by a pretest. PPIT (*present the scenario, plan, implement and test*) was the framework followed in the implementation of Learning by Design. Worksheets were then utilized to measure their conceptual understanding and perception. A score guide was also used to evaluate the student's output.

Paired t-test analysis showed that there is a significant difference in the pretest and posttest achievement scores. This implies that the performance of the students has improved during the implementation of the Learning by Design. The Analysis of variance also depicts that the low, high and average benefited in the Learning by Design approach. The results of this study suggest that Learning by Design is an effective approach in teaching Newton's 3rd Law of Motion and thus be used in a Science classroom.

Keywords: Learning by design activity, Teaching Physics, STEM education