

ABSTRACT

Jennie Febrina Hutagalung. NIM 4192451005. The Effect of Project Based Learning Model with STEM Approach to Students' Critical Thinking Skill on Human Excretion System at SMP Negeri 37 Medan.

This study was aimed to determine the effect of Project Based Learning Model with STEM approach to students' critical thinking skills on Human Excretion System material in class 8th grade at SMP Negeri 37 Medan. This research used quantitative methods with the type of research quasi experiment with pretest-posttest control group design. The sample of this study consisted of two classes randomly selected by simple random sampling technique, namely in class VIII-D and VIII-F. The first sample is an experimental class that was taught using the PjBL-STEM learning model, and the second sample is a control class that was taught using conventional learning model. The research instrument that was used included critical thinking skills test instrument using essay questions totaling 5 questions. Analysis of research data used the Independent Sample T-Test using SPSS version 26.0. The pretest data results of students' critical thinking skills in class VIII-D and class VIII-F are 33.71 and 29.35. After obtained the results of the initial ability of students by looking at the pretest results in both classes, class VIII-D was selected as the experimental class and class VII-F as the control class. The posttest data in the experimental class and control class are 80.00 and 52.58. Based on the hypothesis test, the calculated t value is $12.761 > t$ table 1.671, and the significance value is $0.000 < \alpha$, with $\alpha = 0.05$, so H_0 is rejected and H_a was accepted, which meant that there was an effect of the PJBL-STEM model on the critical thinking skills of students on the material of the excretory system. The influence of the PJBL-STEM model on students' critical thinking skills was categorized as strong with a cohen's d value of 3.242. It can be concluded that the PJBL-STEM model have an effect on students' critical thinking skills with a strong effect category.

Keywords: *PjBL-STEM, Critical Thinking Skill, Human Excretion System*

