

The effectiveness of practical work in physics to improve students' academic performances

Abstract

The purpose of this study is to investigate the effectiveness of physics practical work on students' academic performances and to compare male and female students' academic performances after the implementation of practical work in experimental group. This study was conducted in a secondary school at Semporna District in Sabah. A total of sixty-six (66) Form Four students (e.g., 16 years old) participated in this research; thirty-two (32) students were assigned to experimental group and thirty-four (34) students to control group. The experimental group and control group were taught by using practical work and traditional teaching method respectively. A quasi-experimental design was used in this study. Data on students' academic performances were analysed by using Statistical Package for Social Science (SPSS) Version 22.0 and Mann-Whitney U Test was used. Before the treatment, students in both groups showed no significant difference in their academic performances ($U = 489.00$, $p > 0.05$ is not significant) indicated that the group of students is homogenous. Students' academic performances, however, have a statistical difference after the implementation of practical work ($U = 380.00$, $p < 0.05$ is significant). Gender analysis was done where male students in experimental group performed better than female students ($U = 60.00$, $p < 0.05$ is significant). It is suggested that educators should conduct practical work as frequent as possible (once a week) and increase the time of practical work to enhance students' understanding towards the physics concept.