Effectiveness of Robotic Gaming Towards Students Motivation for Respiration Topic

ABSTRACT

The purpose of this study is to investigate the effectiveness of learning robot game on student motivation for cell respiration topic. A total of 474 students oneyear module 1 & 3 involving three colleges Kedah Matriculation College, Perlis Matriculation College and Perak Matriculation College. The motivational questionnaire on learning materials developed by Keller (1987) was used in the study to measure student motivation. This study uses a quantitative non-survey approach with quasi-experimental design involving treatment and control groups. Robots developed using the Arduino-uno brain and coding processes for robot coordination through the software Scratch for Arduino (S4A). Student motivation was measured at three different time periods (pre-questionnaire, post-questionnaire and postquestionnaire 2). The two statistical test was performed, repeated analysis of variance (ANOVA) and analysis of covariance (ANCOVA) one way at significant level $p<0.05$, Mauchly test and also the effect size as measurement was performed at three different time periods. The results of the analysis showed that both control and treatment groups showed significant improvement in three periods based on motivation with $p<0.05$. Howeversuch a size effect shows that the treatment group has a high impact and the desired zone effect from the learning material compared to the control group.