

An Investigation of the Effectiveness of PBL Online on Tertiary Physics Students' and Pre-Service Science Teachers' Critical Thinking.

Abstract

This paper aims at finding out the effectiveness of PBL Online on physics students' creativity and critical thinking. A cohort of 61 physics students from the School of Science and Technology (SST) of Universiti Malaysia Sabah, Malaysia comprised the sample. The sample was separated into experimental and control groups, with the experimental group was experiencing PBL online learning activities and the control group more to traditional learning activities. Both groups were supported via an online learning environment, which acted as the main medium for learning. Participants' creativity was evaluated using a previously validated instrument, the Torrance Test of Creativity Thinking (TTCT), whilst their critical thinking was using the Watson Glaser Critical Thinking Appraisal (WGCTA). Both tests administered before (pre-test) and after (post-test) the intervention. Examination of these data, points to statistically significant differences in both creativity and critical thinking favour to PBL group. Therefore the research findings suggest that PBL online effectively improves both of physics students' creativity and critical thinking.