

Integrated PBL approach: preliminary findings towards physics students' critical thinking and creative-critical thinking

Abstract

The main purpose of this study was to report the findings on physics students' critical thinking of early implementation of an integrated problem-based learning (PBL) approach. This study was performed on a cohort of 28 Physics with Electronics students from School of Science and Technology at University Malaysia Sabah. The sample was trained by the integrated PBL method for 1 semester (i.e., 14 weeks). Participants' critical thinking was evaluated using a previously validated instrument, the Watson Glaser Critical Thinking Appraisal (WGCTA) (i.e., inference; assumption; deduction; interpretation; evaluation arguments) and their creative-critical thinking (i.e., superior creative thinking style; creative thinking style; balanced thinking style; critical thinking style; and superior critical thinking style) was using the YanPiaw Creative-Critical Thinking. Both tests administered before (pre-test, Form A) and (post-test, Form B) the teaching and learning process.. The result shows that there is significant different in two criterions that from WGCTA test: inference(sig 2-tailed, $t = -3.478$, $p=.001<*.05$) and interpretation(sig 2-tailed, $t = -5.53$, $p=.00*<.05$). As for the creative-critical thinking skills, the YCreative-Critical Thinking Test shows almost 32% of the students thinking style fall on balanced thinking style.