



708/F

Problem based learning in teaching science: A study on students' behavior and learning outcome

W C P Wanniarachchi

Gateway College, Rajagiriya

Problem-based learning (PBL) is identified as a student-centered novel instructional strategy that effectively increases the students' responsibility in learning. The objective of this research was to understand the effect of a PBL approach on learning behavior and its outcome on 8th grade students in selected schools in Sri Lanka.

This research was conducted in two government schools in the Kandy Education Zone. One was a boys' school and the other was a girls' school. Two classes with an equal level of prior knowledge from each of the selected school were chosen based on the marks of a diagnostic test on prior knowledge. One class from each school was considered as the PBL class. One teacher from each school was instructed on PBL and was assigned to teach both classes. Students were motivated to discover and gain knowledge on the concepts related to force, pressure, work and energy, included in the science curriculum for 8th grade. Ill-structured problems were crafted mimicking students the situation to face the challenges as soldiers in battle carrying a pressure sensitive bomb. A series of lessons were developed considering the common interests of students. Data were collected through participant observation, videotaping, student comments and an achievement test.

Although students in both PBL groups were confused during the first lesson, they become independent and involved in subsequent lessons. They were learning from each other and used all the available recourses to arrive at find answers without waiting for teacher's guidance. However, students of both genders of the non-PBL groups were less active, did mainly writing and listening and were waiting for instructions from the teacher. The t-test based on the marks of the final achievement test confirmed that the PBL approach is more effective in increasing students' conceptual understanding than the conventional method.

These results show that unlike the conventional method PBL approach was successful in achieving the main objective of the research of giving a conceptual understanding of the above physics concepts as well as achieving the specific objectives of increasing student involvement, motivation and enthusiasm while encouraging them to construct the knowledge by making them responsible for their learning.