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Strengthening science learning by using Problem- Based Learning method

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Recent changes to the school science syllabi have introduced a plethora of concepts to students. Therefore teachers need to use diverse tactics in their teaching for improving students' learning. Problem-based learning (PBL) as a student-centered instructional strategy in which students collaboratively solve problems and reflect on their experiences is identified as an effective method to cater to this need. In this approach learning is driven by open ended practical problems.

This research aimed at finding the effectiveness of PBL on 8th graders' learning of the unit, "Properties of matter and their uses". Research was conducted using two groups of students who were taught using PBL and non-PBL approaches by the same teacher from each boys' and girls' school. Data were collected through participant observation, interviews, questionnaires, a diagnostic test and an achievement test. Data collected from multiple sources were triangulated and two sample t-tests were used for qualitative analysis as supplementary data. Lessons developed for PBL groups were used by the teachers for PBL groups and the non-PBL groups followed the teachers own method. For PBL lessons, eight problems were crafted for twelve periods. Students used scaffolding charts with the problem to guide them through lessons. In solving these problems students had to be involved in different activities such as making posters and panel discussions to share their findings with other groups.

The findings show that students in the PBL group participated enthusiastically and student-teacher interactions as well as student-student interactions were high in their learning compared to the non-PBL group. This method also encouraged students to use learned concepts to explain day–to-day situations. Further, students mentioned in written form and in the interviews that this new method is comfortable for understanding science concepts. Thus, the results of the study made it apparent that the PBL method was successful in enabling students to gain a conceptual understanding and to enhance motivation for learning in the newly introduced science syllabi.

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