



## **Problem-based learning: Is it a way to enhance engagement in heterogeneous cohorts of postgraduate students?**

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### **Abstract**

Problem-Based Learning (PBL) has been employed as a pedagogical method to enhance students' self-directed learning, engagement, and collaborative learning (Cheung et al., 2016; Sheeba, 2019). In the Mechanisms of Disease module offered to biomedical laboratory scientists at Sheffield Hallam University, the student cohort is quite heterogeneous, with a majority of international students accustomed to traditional, teacher-centred learning and possessing diverse educational backgrounds. Owing to the cohort's diversity, students encounter challenges in engaging with class activities. Consequently, we decided to implement PBL to address this engagement issue and cultivate the students' independent learning skills, which are crucial at the postgraduate level. The PBL pedagogical approach was chosen because it supports student-centred learning and engagement. Out of the seven topics in the module, two were delivered using a PBL approach. Quantitative surveys assessing students' perceptions of the PBL approach were collected from two different cohorts of students over two consecutive academic years (22-23 and 23-24). Ninety-two percent of the students reported engagement in group discussions, while 90% found the session content engaging. Regarding the preferred teaching approach, 40% of the students favoured PBL, 32% preferred a combination of both pedagogical methods, and 28% voted for a didactic learning approach. Intrigued by these findings, we explored whether PBL had an impact on students' performance in the exam. The exam comprised five essay questions, with students required to choose three. We included four of the exam questions in our analysis, excluding the fifth, which was taught by a different academic. Two out of the four questions were taught using PBL, while the other two were primarily taught using a didactic approach. The mean score for the didactic questions was  $41.36 \pm 23.4$ , while the mean for PBL was  $41.04 \pm 23.1$ ; a paired t-test showed a p-value  $>0.05$ . Consequently, we inferred that our modified PBL pedagogical approach enhanced students' engagement without affecting their performance. To maximise the session's benefits, further improvements will be implemented, with a focus on addressing the time constraint identified as a limiting factor.

### **Keywords**

Problem-based learning, student engagement, postgraduate students

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