

A case study exploring students' problem-solving strategies in a PBL chemistry task

Volume/Issue

Vol 1, Issue 8

Date

Saturday, 1 September, 2012

Journal Name

New Directions

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Abstract

This paper shares the initial results of a small-scale research study which aimed to investigate the problem solving processes Year 1 undergraduate science students used while undertaking problem-based learning tasks in the chemistry laboratory. A qualitative case study, combining observation and semi-structured interviews, was used to explore learners' experience of the problem-based learning (PBL) task. The literature on problem solving processes of experts generally places importance on domain specific knowledge, developed through experience, for the expert. This is of particular relevance to this study since the students have a range of different prior experiences in the 'chemistry' and 'experimental/practical' domains. Overall, it was shown that students revealed novice-like problem solving strategies and surface approaches to learning. However, one group revealed more expert-like characteristics, coupled with a deep approach, with this group successfully solving the problem. One implication of this study is that we need to be more aware of the learning approaches of our students, as well as their subject knowledge, as they enter into higher education through careful scaffolding of such problem-based task.

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