

Problem-based practical chemistry education at the university-industry interface: Organic Chemistry Summer School (OCSS)

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Abstract

Practical chemistry education typically follows one of two different pathways: laboratory classes with set experiments or problem-based learning/experiments (PBL/E) in a less prescriptive practical setting. Modern PBL/E approaches – often in private institutes – place the student into an applied research environment. All these are normally delivered by academics that also assess and feedback on these activities.

At the University of Southampton we have pioneered a third alternative, initially for the advancement of our most gifted students: our Organic Chemistry Summer School (OCSS) is a non-assessed, month-long course designed in cooperation with up to three industrial partners who typically adapt a live research project and deliver it as a PBL/E experience in our teaching laboratory using all the department's research and analysis facilities.

In this presentation, the programme, its design and delivery as well as the unique benefits that it offers to all three parties involved (students, academics, industry) will be discussed. It will then explore on the basis of student and industry feedback the advantages of the lack of assessment on knowledge and skill retention as well as motivation of participants. The presentation will conclude with recommendations how this educational cooperation at the university-industry interface serves as a model to general undergraduate laboratory instruction and how it can be exported and implemented at partner institutions.