

LAYING OUT A LEARNING SMÖRGÅSBORD IN CHEMISTRY: TEMPTING STUDENTS INTO FINDING THEIR OWN RECIPE FOR SUCCESS

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ABSTRACT

Students are encountering increasingly complex learning environments that incorporate multimodal resources provided by instructors across the lecture, tutorial, workshop and laboratory environments, with additional resources frequently supplied through online learning management systems. Instructors who provide these resources aim to encourage student self-awareness of their own understanding and develop their independence in self-regulated study strategies. The transition to tertiary studies presents many challenges for our students as they orient themselves into the new context, and for many, the vast array of resources can be difficult to filter so they don't access these in an effective way.

Our team of academics, who lead first-year chemistry programs in 5 Australian institutions across 3 states, has developed a combination of diagnostic tools, formative feedback options and a range of strategies for delivering face-to-face or self-regulated online study modules. The latter have integrated dynamic visualization and simulation tools to challenge, adjust or reconstruct conceptions in core chemistry concepts. Insights into the nature of alternate or missing conceptions, timing and delivery of formative feedback and engagement with online resources have been collected through an extensive evaluation process. This evaluation framework included development of a validated concept inventory instrument (involving collation and design of items), application of analytics to explore engagement in online learning activities, and student perception data (both quantitative scales and qualitative student interview data). The outcomes of this Office for Learning and Teaching Innovation and Development Project will be presented as a series of exemplars (banquets) representing initiatives delivered in each institution and the key outcomes will be shared in terms of the interplay between student strategies for learning (appetite), motivation (hunger) and self-efficacy (tastes). A series of recommendations for practice have evolved in relation to the relationships between summative assessment and self-regulated learning. The journey through this project for this highly collaborative team has deepened our own understanding of student learning and has changed our own teaching and assessment practices.

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