

# STUDENT ATTITUDES AND APPROACHES TO LEARNING CHEMISTRY: WHAT INFLUENCES ACADEMIC SUCCESS?

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## ABSTRACT

It is not unusual for a first year Chemistry course to serve a range of purposes for a range of students with differing backgrounds & capabilities (have they taken Chemistry at Year 12 and how well did they perform?) and trajectories (does their program of study require Chemistry at first year or are they electing to take Chemistry at first year?). Ideally, *every* student taking a first year Chemistry course should (in principle) be able to achieve a satisfactory outcome *regardless* of their background or trajectory if the course is both well designed and well taught. The generic aim of good teaching is to engage students and encourage them to adopt a deep approach to their learning (Biggs, 1999).

Whether a student *employs* a deep approach is however dependent upon the dynamic relationship between student factors (perceptions, attitudes, preferred approach to learning etc.) and the teaching context (content being taught, teaching and assessment methods etc.); both student and teacher are responsible for the learning outcomes (Biggs, 1993a; Biggs, 1993b). At the commencement of their university studies, attitude towards a discipline lies initially in the hands of the commencing student and is shaped by their prior experiences in that discipline.

The aim of this study is to determine whether the attitudes and approaches of first year students to learning Chemistry are reflected in their academic success. In order to investigate this, first year Chemistry students completed a survey instrument that contained items about their attitude to Chemistry (using the Attitude to the Subject of Chemistry Inventory (ASCIv2; Xu & Lewis, 2011)), their approaches to learning (using the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F; Biggs, Kember & Leung, 2001)), together with a number of Likert type questions pertaining to their attitude and confidence levels. The responses to the individual items were scored according to established methods (ASCIv2: Xu, Southam & Lewis, 2012; R-SPQ-2F instrument: Hamm & Robertson, 2010) and matched to students' individual performance on summative assessment tasks.

These results will be evaluated to determine whether student attitudes and approaches to learning are influenced by their array of backgrounds and future trajectories. Correlation with academic performance will also be considered.

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