AN UNDERGRADUATE CHEMISTRY STUDENT VIEW OF CRITICAL THINKING

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BACKGROUND
In the field of chemistry, critical thinking is commonly listed as graduate attribute in higher education qualifications. Much research has been conducted into the definition and pedagogy of critical thinking, and the methods by which it can be developed in tertiary students of chemistry.

AIM
This research sets out to define critical thinking from a student perspective and evaluate the importance students place on developing critical thinking skills in their studies. Furthermore, this study has sought to gain an understanding of which aspects of their chemistry education students perceived to be developing these skills.

METHOD
A short open ended questionnaire was administered to a cohort of 800 first year, 300 second year and 90 third year Monash University undergraduate chemistry students at the beginning of semester 1, 2015. In total there were 522 respondents and the data was analysed via Nvivo using a grounded theory approach.

RESULTS
Respondents identified critical thinking as an important skill to develop but only after skills such as 'social skills', 'study skills' and 'communication'. Themes that emerged from the data with respect to a definition of critical thinking included 'ability', 'analysis', 'decision making', 'information', 'lateral thought', 'objectivity' and 'problem solving'.

Results determined that all students developed their critical thinking most often in a practical setting with second year students in particular, highlighted inquiry-based activities as an opportunity to develop critical thinking.

When asked to describe their confidence in developing their critical thinking approximately 15% of respondents cited difficulties and/or strategies associated with developing critical thinking, unrequested. These respondents cited a lack of guidance and content knowledge as the source of these difficulties.

CONCLUSION
In conclusion it emerged that students believed critical thinking to be important to develop during their studies but it was not their highest priority. Respondents defined critical thinking using words such as 'analysis', 'objectivity' and 'problem solving'. The results suggest that students develop their critical thinking skill in practical setting and that difficulties arise in development due to poor guidance and limited content knowledge.