

MAKING SCIENCE GRADUATE CAPABILITIES VISIBLE IMPROVES THE STUDENT PERCEPTION OF SKILL ACQUISITION

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Abstract

A major revision of curriculum in the Faculty of Science, Technology and Engineering at La Trobe University resulted in intended learning outcomes and graduate capabilities (or skills) being identified and aligned with assessment tasks in all undergraduate subjects so that they were clearly visible to students. This Faculty-wide study compared the student perception of skill acquisition across the Faculty between graduating students from 2012, who had no formal exposure to graduate capabilities throughout their studies, with graduating students from 2014 who completed the newly-revised second and third year subjects. The student perception of learning outcomes was surveyed with the Science Students Skills Inventory (SSSI), a validated survey instrument developed by Matthews & Hodgson (2012). The survey questioned students on four indicators (importance, confidence, improvement and inclusion in the curriculum) to explore the extent to which seven graduate capabilities (scientific content knowledge, oral communication, writing, teamwork, quantitative literacy, ethical thinking, critical thinking/analysis and independent inquiry/research) were developed throughout their undergraduate degrees. Survey responses revealed that the 2012 and 2014 graduating cohorts had similarly positive perceptions about the importance of activities which developed graduate capabilities and the inclusion of activities that developed graduate capabilities in the curriculum. In comparison, the 2014 graduating cohort indicated higher levels of confidence in the capabilities scientific content, writing, quantitative skills and ethical thinking, significantly greater improvement in the skills scientific content, oral communication and teamwork, and a greater level of skill attainment of scientific content and critical thinking on graduation. The 2014 graduating cohort were also more likely to identify as a scientist. Significant correlations between grade point average and self-rating of skill level for several capabilities suggest that self-reporting of learning gains is linked to actual learning outcomes for the majority of graduate capabilities. These results provide valuable insight into the importance of making science graduate capabilities visible to enhance student learning outcomes.

References

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