

GRADUATE LEARNING ATTRIBUTES IN SCIENCE: DOES EVERYONE GET THE SAME VALUE?

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Abstract

The development of transferrable skillsets, articulated in statements of graduate learning outcomes, are emphasised in undergraduate science degree programmes. Science students enrolled in dual (double) degrees comprise a significant minority of Australian science undergraduates, yet comparing perceptions of single and dual degree students on their science learning outcomes has rarely been explored. Students studying dual (double) degrees take the same subjects as single degree students, and should thus be experiencing and gaining the same educational value out of their courses as single degree students.

Study Design

Using the Science Students Skills Inventory, we analysed the differences in perceptions of single (n=640) and dual (n=266) degree undergraduate science students on the importance, the extent to which outcomes were included and assessed, the improvement, confidence and likely future use of science graduate learning outcomes (scientific content knowledge, quantitative skills, oral communication skills, ethical thinking, writing skills). Percentage agreement was calculated based on the two highest points of a four-point scale for all indicators and the three highest points on the seven-point scale for confidence. The data were treated as continuous as per common practice in studies using alphanumeric Likert-item surveys. Thus, a series of independent sample t-tests were used to assess differences between dual and single BSc students on graduate learning outcomes.

Results & Interpretation

We found that dual degree students had consistently lower perceptions than single degree students across almost all graduate learning outcomes, with the notable exception of quantitative skills (Matthews et al., 2015). Viewing these results within the *planned-enacted-experienced* curriculum framework (Erickson & Shultz, 1992), our data indicates that despite the curriculum being *planned* and *enacted* by the lecturers in the same way for students in both degree types, the groups of students *experience* the curriculum differently. Encouragingly, the similarities in the two student groups with respect to quantitative skills perceptions indicate that with curricular reform, it is possible to equalize the students' perceptions. This indicates that dual degree students may be getting less value for the science degree than single degree students, and indicates a gap in curriculum design.

Impact

The key contribution of this study is a shift toward progressive curriculum development that draws on both single and dual degree student perspectives to achieve graduate learning outcomes. Resulting recommendations for course coordinators and degree designers include: design whole-of-programmes curricular pathways premised on progressive development of learning outcomes (Knight, 2001) that are inclusive of dual degree students; create explicit interdisciplinary learning opportunities, and adopt dual/single status as demographic variable reported in future research.

References

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