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A blended learning approach to supporting student learning of scientific writing skills with an embedded Academic Integrity Module

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A particular challenge for university Science students is the academic skill of scientific writing. Key scientific writing skills include effectively managing and integrating the research literature; however, appropriate use of the literature is problematic with many students accidentally plagiarising because they lack paraphrasing and referencing skills (Devlin & Gray, 2007). Writing support materials are neither hands-on nor discipline-specific and are often disregarded by students. As writing scientific reports accounts for a substantial proportion of many undergraduate science assessments, discipline-specific writing support resources must be embedded early in the science curriculum. The goal was to design, embed and evaluate a new academic integrity module (AIM) for a large core first year biology subject that: (a) Builds student understanding of what constitutes plagiarism and academic integrity in the scientific discipline, and how these relate to being a professional scientist; (b) Improves student skills in correctly citing the scientific literature and paraphrasing.

The AIM was designed using a blended learning approach with scaffolded online and face-to-face activities. Pre-workshop learning included an introduction to academic integrity as a professional skill, and instruction on referencing and paraphrasing in Science via an online interactive tutorial. In the workshop, students applied their new knowledge in a hands-on paraphrasing activity, with peer discussion and feedback. Referencing and paraphrasing skills were evaluated in the final scientific report assessment task. The AIM was evaluated (2014 and 2015) using a mixed methods approach (with ethics approval). Students' completion of the online tutorial and their corresponding academic performance in the scientific report were recorded and post-task evaluation surveys were conducted on students' learning experiences. Engagement with the AIM has been high with 60-64% of students (n = 650) completing the online tutorial even though no marks are associated with it. In both 2014 and 2015, students who completed the online tutorial performed better (on average) on the referencing criterion in their assessment than those who did not attempt the online tutorial. Student evaluation surveys revealed that students agreed that they had a better understanding of why academic integrity (85% in 2015; 94% in 2015) and correct use of the scientific literature (85% in 2014; 94% in 2015) are important for a scientific career. The AIM has enhanced the development of first year Science students' understanding of academic integrity and their confidence in applying scientific writing conventions. It contributes to shaping the next generation of competent, employable science graduates.

Devlin, M., & Gray, K. (2007). In their own words: a qualitative study of the reasons Australian university students plagiarise. *Higher education research and development*, 26(2), 181-198.