

READ TO SUCCEED: DEVELOPING ACADEMIC AND PROFESSIONAL STEM COMMUNICATION PRACTICES

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Problem

As a key practice in science is the use of the scientific literature to communicate research findings, being able to read the scientific literature selectively and critically is fundamental for science students. However, teaching students how to read the often unfamiliar disciplinary discourse is not prioritised and they may be overwhelmed by the new terminology, and complex graphical data (Round & Campbell, 2013). Although reading practices are usually not directly assessed, the results from reading are (Du Boulay, 1999) because they impact on students' ability to effectively integrate and communicate in the Science discipline.

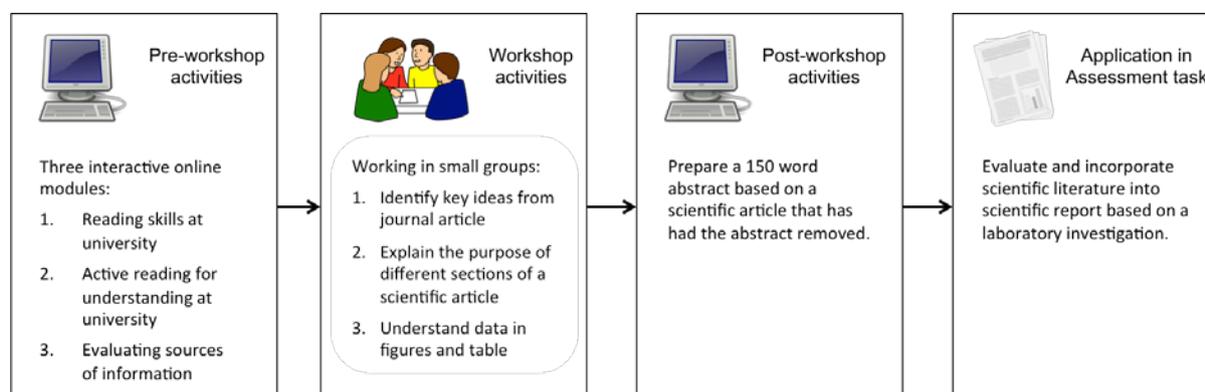
Plan

To induct students into the science discourse community, we designed and embedded a program to prepare them to read scientific texts (journal articles and other primary literature) early on in the science curriculum focusing on:

1. developing first year science students' critical reading practices of the scientific literature, and
2. building students' confidence in evaluating and filtering relevant and reliable sources of information to integrate into their scientific writing.

Action

In 2015, the program was embedded into a core, first year, first semester science subject, which introduces commencing students to inquiry-oriented experimentation and how to communicate scientific findings, using a scaffolded, blended learning approach (illustrated below). The students completed three interactive online modules prior to applying their reading strategies in class, in preparation for researching and writing up their own scientific investigation in their assessment task. We evaluated our reading practices intervention using a mixed methods approach: online statistics tracking to identify completion of the modules over three semesters (2015, 2016); and, a post-activity anonymous online survey evaluating students' experiences and perceived value of the learning activities over two semesters (2015).



Reflection

Completion rates of the pre-workshop online modules was high, with 76% of students completing all three in 2015 (Semester 1, n = 779; Semester 2, n = 207), and 80% of students completing all three in 2016 (Semester 1, n = 751). In the post-activity surveys (2015), overall students agreed that the modules helped them develop their reading strategies. The majority reported using the strategies when finding and reading scientific articles for their assessment task, and their increased confidence in their ability to select and read the scientific literature. Furthermore, most students indicated that they would use the reading practices that they had developed in the future.

Effective reading practices underpin academic and professional communication skills and build capacity for all STEM graduates. We recommend that discipline specific, contextualised resources, which develop these practices, should be integrated early into the STEM curriculum.

References

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