

University of Wollongong

## Research Online

---

Faculty of Science, Medicine and Health -  
Papers: part A

Faculty of Science, Medicine and Health

---

1-1-2014

### Bridging the gap: face-to-face or online?

Peter Monaghan

*University of Wollongong*, pfnm745@uowmail.edu.au

Joshua Dos Santos

*University of Wollongong*, jds992@uowmail.edu.au

Simon B. Bedford

*University of Wollongong*, S.Bedford@westernsydney.edu.au

Follow this and additional works at: <https://ro.uow.edu.au/smhpapers>



Part of the [Medicine and Health Sciences Commons](#), and the [Social and Behavioral Sciences Commons](#)

---

### Recommended Citation

Monaghan, Peter; Dos Santos, Joshua; and Bedford, Simon B., "Bridging the gap: face-to-face or online?" (2014). *Faculty of Science, Medicine and Health - Papers: part A*. 2753.  
<https://ro.uow.edu.au/smhpapers/2753>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: [research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)

---

## **Bridging the gap: face-to-face or online?**

### **Abstract**

Abstract of a presentation at The 2014 Australian Conference on Science and Mathematics Education, 29-30 September, University of Sydney, Australia.

### **Disciplines**

Medicine and Health Sciences | Social and Behavioral Sciences

### **Publication Details**

Monaghan, P. F. N., Dos Santos, J. & Bedford, S. B. (2014). Bridging the gap: face-to-face or online?. Proceedings of the Australian Conference on Science and Mathematics Education (pp. 60-61). Australia: University of Sydney.

# BRIDGING THE GAP: FACE-TO-FACE OR ONLINE?

Peter. F. N. Monaghan, Joshua Dos Santos, Simon. B. Bedford

Presenting Author: Simon B. Bedford ([sbedford@uow.edu.au](mailto:sbedford@uow.edu.au))

School of Chemistry, University of Wollongong, Wollongong NSW 2522, Australia

**KEYWORDS:** Electronic books; iBook and ePub3, Adobe Connect, online help service, blended learning, self-directed learning, student engagement and motivation

## BACKGROUND

The transition between high school study and the first year of an undergraduate science degree can be difficult. Undergraduate science (and often, engineering) students are required to study chemistry. This presents challenges that are most salient in students who have not studied high school chemistry. To meet these challenges, students without HSC chemistry are encouraged to enrol in a pre-session "bridging course", which provides a foundation for tertiary-level chemistry.<sup>1</sup>

The transition to tertiary chemistry also has challenges for those with the requisite high school credentials, which the University of Wollongong (UOW) bridging course fails to meet. Many of these students have gaps in their knowledge, or do not fully understand key chemical concepts. Only when the topic is re-taught at the university level, do these students realise their lack of ability. This can impede their progress, with consequent reductions in marks and academic confidence.<sup>2</sup>

## AIMS

The primary objective was to test electronic ways of providing student support in transitioning and compare these with traditional face-to-face methods. Thus we have published a cross-platform chemistry e-book that acts as an alternative or supplement to the first-year bridging course and a synchronous online help service. A secondary objective was to analyse and compare student attitudes to online learning compared with face-to-face.

## DESIGN AND METHODS

The e-book was published as two versions, an iBook and an EPUB3. The content was developed from the bridging-course subject manual. Development of the online help service went through several incarnations as the demands for it changed – eventually being delivered via Adobe Connect. Surveys and focus groups were used to obtain feedback: survey participants were selected using convenience sampling from a population of all first-year students.<sup>3</sup> Focus group<sup>4</sup> participants were selected purposively, since we wanted a non-proportional quota of students from five main categories, that is, those: (i) who had taken the face-to-face bridging course (ii) who had used the e-book (iii) who had used both (iv) who had used the online help service (v) who had taken HSC chemistry.<sup>5</sup>

## RESULTS

Analysis and interpretation of the data about the e-book was specific and informative. Students had some difficulty accessing and using the iBook, due to size and layout issues. Students cited eye fatigue and lack of note-taking features as problems with the EPUB3 version. Interestingly, most students used laptop computers (rather than tablets) for reading. Rather than a portable replacement for a textbook, students used the e-book as both a revision tool, and a supplement to lecture learning. They regarded the worked problem sets as extremely useful, but somewhat insufficient.

The analysis of student attitudes to online learning was more diffuse: (i) online learning, when discussed generally, was overwhelmingly lauded but mobile learning was not (ii) student engagement with new tools such as the online help service was bimodal (iii) while student engagement was driven by a complex suite of motivations where assessment was the strongest motivator (iv) students appreciate a variety of delivery modes to meet their particular set of learning styles. There appears to be no "one size fits all" solution.<sup>6</sup>

## CONCLUSIONS

The e-book needs to move online as mobile learning is not a key driver, and the content should have greater focus on worked problem sets and interactive simulations to account for the multiple learning styles of students. This will also allow the online help service to be integrated into it. Examples of these will be demonstrated at the presentation.

## REFERENCES

- Bedford, S. B. and O'Brien, G. A. A view of first year transition from Down Under, *New Directions in the Teaching of Physical Sciences* 8, 53-57, HE Academy UK, New Directions, Issue 8, 2012, and Bedford, S.B. and G.A. O'Brien. The flat earth project: Motivating students to journey across transitions. In *Proceedings of the Australian Conference on Science and Mathematics Education*, Canberra, 2013.
- Conley, D.T., The challenge of college readiness. *Educational Leadership*, 2007. 64(7), 23.
- Evans, A.N. and Rooney, B.F. *Methods in Psychological Research*. Personnel Psychology, 2009. 62(3), 125-139.
- Oliver, P., *The SAGE Dictionary of Social Research Methods*. SAGE Publications, 2006, 245-246.
- Lindlof, T.R. and Taylor, B.C. *Qualitative Communication Research Methods*. SAGE Publications, 2010, 58-64.

Chen, N.S., et al., Bridging the Gap Between Face-to-Face and Cyber Interaction in Holistic Blended Learning Environments, in Handbook on Information Technologies for Education and Training, H. Adelsberger, et al., Editors. 2008, Springer Berlin Heidelberg. p. 239-259.

Proceedings of the Australian Conference on Science and Mathematics Education, University of Sydney, Sept 29<sup>th</sup> to Sept 30<sup>th</sup>, 2014, pages 60-61, ISBN Number 978-0-9871834-3-9.