
PRACTICALLY IMPOSSIBLE!?! THE PARADOX OF DELIVERING AUTHENTIC, HANDS-ON BIOLOGY PRACTICAL CLASSES IN A HANDS-OFF, REMOTE LEARNING ENVIRONMENT

Matthew Pye, Cameron Negus, Francesca T. van den Berg

Presenting Author: Matthew Pye (matthew.pye@sydney.edu.au)
School of Life and Environmental Sciences, The University of Sydney, Sydney NSW 2006, Australia.

KEYWORDS: biology, practicals, online

A tension exists around the pedagogical paradox of delivering *hands-on*, authentic Biology Practical experiences within a *hands-off*, remote, online learning environment. Our immediate implementation of online learning during the COVID-19 pandemic 2020 necessitated an urgent rethink of what would formerly have been considered paradoxical or 'practically impossible' - *hands-off*, online, remote Biology *Practical* classes.

Rather than try to eliminate the tensions, we chose to recognise their necessary role in the implementation of change and/or innovative practice. In doing so, we re-examined all of the learning outcomes associated with the Practical component of the course and assessed the feasibility of their delivery in an online environment.

All learning outcomes could be adequately addressed and, in some cases, led to a pedagogical synergy which surpassed the original intended learning outcomes.

We present a range of evidence-based techniques and approaches to overcome the paradox of hands-on learning in a hands-off environment. While sharing some of the few setbacks, we highlight the importance, as educators, of visibility, versatility and vulnerability in producing our next generation of scientists; ones fully equipped with scientific integrity and an ethical approach that reaches beyond the discipline of Science. "This unit taught me many things, not only academically, but also ethically and has made me learn new life skills."

Proceedings of the Australian Conference on Science and Mathematics Education, 30 September - 2 October 2020, page 67, ISBN Number 978-0-9871834-9-1.