Online resources to support the teaching of physiology content and practicals

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Biomedical science departments are beset by the twin pressures of increasing student numbers but static staff numbers and teaching time. In response to these pressures, we have developed a suite of online tools, specifically innovative eBooks and online practical simulations (see http://ilearn.med.monash.edu.au/physiology/), to complement or supplement our teaching. These tools were implemented in 2014 and 2015 in a 2nd year Introductory Physiology unit, focused on neuroscience, of Signalling, Sensory and Control Systems. This unit was selected because it has been for many years a very highly rated unit by students, with a stable pool of convenor and teaching staff for some years. Thus, it was possible to examine the effect of the introduction of the novel tools without the confounders of having a poorly performing unit benefiting simply from having attention paid to it, and from having new staff with different styles engaged in delivery. The eBooks were introduced for content to complement lectures and to act as eManuals for practical classes. The virtual labs/simulations were introduced to complement and/or to extend existing practical classes.

Student responses to these tools were very positive as reflected in student usage and anonymous comments, in student ratings of the unit, and in student-driven teaching awards for innovation. In 2014 40% of students used the eBooks as the major mode for access to lecture content and this percentage increased slightly in 2015; student rating of the utility of the eBooks was high, with 70% rating it useful or very useful in 2014 and in 2015. Almost 100% of the classes used the eManuals for preparation for the laboratory classes and reported very positively on the impact on their preparedness for the practical classes and their understanding of the classes. The simulations had a similar very positive outcome. In 2015 there was wide dissemination of the simulations by the students in this unit to other classes, particularly to MBBS classes where little physiology is undertaken in practical classes, with 60% of the traffic to the simulations coming from non-directed access by other classes. Currently the simulations average > 2500 hits/month from within the biomedical and medical sciences.

We propose to make these tools widely available for use in Australia for teaching of physiology.