Impact of Integrated Adaptive Tutorials on Learning in Pathology
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Abstract

Background:
We have previously demonstrated enhanced learning of Pathology using virtual microscopic adaptive tutorials (VMATs), which enable students to interact directly with virtual slides and receive adaptive remedial feedback regarding misconceptions. This study utilised novel integrated adaptive tutorials (ATs) based on clinical cases and compared their learning impact with that of VMATs. Integrated ATs included interactions with diagnostic investigations, macroscopic and microscopic Pathology and were intended to enhance learning of clinicopathological correlation.

Methods:
A suite of adaptive tutorials was created, based on selected topics from the Adult Health 1 (AH1) course for Year 3 and Year 4 medical students at UNSW. A non-randomised controlled trial was performed using volunteer students during consecutive iterations of the AH1 course. The control group had access to VMATs, whilst the study group had access to integrated adaptive tutorials. An online post-test and evaluation questionnaire was administered to both groups. Groups were compared by performance in the post-test, consisting of adaptive tutorial-related and unrelated MCQs.

Results:
No differences were demonstrated in post-test performance between the study group (n=41) and the control group (n=43), for either AT-related or unrelated questions. However, participants were extremely positive in their evaluations of integrated ATs, spent significantly more of their free time engaging with them, and overwhelmingly preferred them to VMATs.

Conclusion:
While no differences in knowledge were demonstrated between the control and study groups, enhanced engagement with integrated ATs might lead to long-term learning benefits. We intend to extend integration of ATs to both Histology and Anatomy.

Key words:
virtual microscopy, adaptive tutorials, e-learning