



Oral pathology in blended space: A pilot study

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In traditional dental education the specialty of oral pathology has been predominately didactic and teacher-led in a large group environment. Because of the discipline's nature, it is difficult to provide authentic clinical cases that will enable critical thinking and decision making due to clinical or patient issues and limited access to physical spaces. To address this issue and to enhance the learning experience within a non-critical environment, a 'transforming blended' model (Graham 2006) has been employed within the University of Adelaide's Bachelor of Dental Surgery (BDS) program. Student evaluation of an oral pathology online clinical and laboratory scenario has been very positive. The approach will be enhanced as a result of this feedback and further enable movement between dependent and independent learning. This poster outlines the scenario methodology, use of authentic activities, assessment and student feedback of the pilot to support a 'more engineered and deliberate use of technology' blended learning approach (Oliver, Herrington & Reeves, 2006).

Keywords: oral pathology, scenario-based learning, authentic, problem-based learning, blended learning

The challenge

The delivery of oral pathology as a discipline within a hybrid PBL-based dental curriculum poses many challenges. The common perception of the public is that dentists spend their time "drilling and filling" teeth, often considering other mouth problems more in the domain of the general medical practitioner. However, evidence suggests that medical training in oral disease, including its diagnosis and treatment, is inadequate (McCann, Sweeney, Gibson & Bagg, 2005). Dental practitioners therefore are often in the best clinical situation to identify oral disease and the acknowledged impact of oral health on general health. In designing this pilot program the major concerns determined were that students lacked the understanding of the required interaction between general dentists and specialists (i.e. oral pathologists and oral surgeons). It was also deemed that they had difficulty understanding the concept of developing a differential diagnosis in their everyday clinical practice. The main disadvantage the students faced was that the lectures and laboratories are offered once providing limited opportunity for learning, and with no consideration for students who fail to grasp initial concepts or scope for revision. The style of learning also did not allow students to correlate clinical and theoretical components in a realistic environment, particularly in a step-by-step linear process from patient examination to treatment and review.

The solution

The development group decided to use the approach preferred by Albino et al, 2008 to develop a package that used the approach of general competence rather than silo competency where oral pathology would have been taught as a separate entity. An online oral pathology scenario integrated into *Blackboard* was trialled at the University of Sharjah, United Arab Emirates (affiliated with The University of Adelaide) during 2009. The online scenario includes past lectures in a PDF format, video files of surgical processes, an animation of the actual cyst development, and instructional audio and text reinforcement for exploring

the diagnostic options. The use of material that would be viewed under a microscope was required and replicated patient record files from an electronic database also provide a realistic scenario. Formative assessment with feedback at critical stages of the presentation has been incorporated. The project group used *Articulate* software, as it allowed an add-in to Microsoft *PowerPoint* which is used as a *Flash* based e-learning software that develops interactive content, quizzes, assessment and surveys. Supplementary documentation was linked to the presentation in PDF, wmv and jpg formats. All four features of *Articulate* – Presenter, Engage, Quizmaker and Video Endoder – were utilised.

Formative assessment is embedded into the learning process and provides individual feedback at clearly defined stages of the learning process. There are three assessment hurdles, students are required to submit responses and automated feedback to is integrated into the online package. The online package requires forced completion of quizzes to pass through each phase, with tracking mechanisms on the learning management system to determine student access.

Student feedback

The online scenario was piloted with 44 students in the final year revision phase of Year 4 BDS as an adjunct to their existing learning resources, and evaluated after their final summative assessment task in the course. There was high broad agreement (strongly agree or agree) that the laboratory assisted in student understanding of Diagnosis and Treatment Planning (95.4%); Management of Oral Lesions (81.8%); and Histopathology (81.8%). 67.5% of the students considered the online scenario was more effective than attending lectures and face-to-face laboratories. Student comments indicated that they found the scenario very effective, but wanted to combine this with lectures and laboratories, that is a blended learning approach. As one student commented "The scenario was very helpful in reinforcing my knowledge but not to replace the lectures and the labs". The quizzes that were integrated into the online laboratory were also positively received by the students as they received immediate feedback which confirmed whether or not they had full knowledge and understanding. Overall the students are eager for more of this type of learning.

The future

Further evaluation of the process and future packages would not envisage total elimination of the face-to-face teaching mode of all facets of oral pathology, but introduction of online case scenarios for a range of oral conditions, fewer traditional laboratories and tutorial-based discussion to maintain academic staff contact. Further exploration and survey of how effective the formative feedback is in identifying strengths and weaknesses in the subject content and, as suggested by Kramer, Albino & Andrieu (2009) how to focus on improvements to the curricula and instructional method, would be integral to further evaluation of this package.

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