Jim Bee project Report

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Project title: Construction of a computer model to enhance teaching of veterinary anatomy and supporting vertical integration - T.3CEL(MACR)

The above project aimed at producing a high quality teaching materials for the head anatomy.

Project Background:

The understanding of the basic and functional anatomy of the head has been rated as one of the most difficult by the veterinary students. This is particularly so because of the intricate arrangement that combines the nervous system, the digestive and respiratory system in one entity. Most of the materials presented in text books and lecture notes comprise mostly of 2-D images that do not offer much interpretation in regard to structural anatomy which is more amenable in 3-D images. The use of videos or computer generated podcast offers a great deal of information and allows the student to synthesise and appreciate the anatomical design in a relevant and clear manner.

Project structure and methods:

Two BVetSci year 2 students were recruited for a period of 10 weeks and trained by the e-media personnel on audio-video script production and editing using Adobe Photoshop CS premium pro computer software. Students were involved only during their free time and therefore did not interfere with their normal study times.

Part 1

A step by step dissection was performed in unfixed dog and horse head and neck starting from the superficial to deep structures providing a hierarchical "peel off layers" effect. Every step was recorded with a layered voice-over and photographed and then edited on computer. The structures of the head were colour annotated to correlate with audio-visual script so that it was clearly visible their extent and dimension. The completed files were stored in formats for windows media player or QuickTime

Part 2

Magnetic resonance images (MRI) were obtained in longitudinal and transverse planes from the head of dog. Images were correlated to similar planes of dissected brain previously fixed in formalin. Images from the dissected brain were labelled and laid out to their equivalent MRI Scans.

Outcomes:

- The step by step video scripts and MRI scans can be placed in the RVC website as a repository and will be downloadable to personal computers, laptops, hand held devices such IPods and PDA. These can be used by students in college or at home for study and revision.
- The step by step guide can be used for independent self directed dissection by the undergraduate students as well as postgraduates who would wish to pursue more in-depth anatomical knowledge.
- Videos and images can be retrieved from mounted computers during dissection classes to reduce the amount of contact time required of staff.
- The MRI scans can be used as a clinical tool to correlate sites of lesions to identifiable region of normal brain. The MRIs will provide image segmentation and detailed depiction of anatomical structures already covered in part 1. This is particularly important when dealing with the brain and spinal cord. Superimposition of clinical and /or pathological case MRIs or radiographs of interest will help the student to localise lesions and understand the difference between normal and abnormal structures or occurrences.