INTEGRATING SURGICAL TRAINING VIDEO SIMULATION INTO THE VIRTUAL ORTHOPAEDIC UNIVERSITY

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Objectives: A digital library, together with its users and its contents don't exist in isolated splendour. The Virtual Orthopaedic European University [1], developed by a consortium drawn from six European countries, is dedicated to the ongoing professional education of Orthopaedic Surgeons across the European Community. VOEU supports experienced surgeons learning about and disseminating material upon surgical techniques in Orthopaedics, especially Image Guided Orthopaedic Surgery. The objective is to integrate the surgical operative video into multimedia based educational packages so that the embedded video is linked automatically to the relevant supporting material. These activities are intrinsically coupled as a part of the requirements of Continuing Professional Development.

Method: Within VOEU, the multimedia modules are designed using Extensible Mark-up Language (XML) to ensure compliance with international standards in computer assisted learning [2], whilst facilitating the integration of learning objects generated by individuals that are peer reviewed and collated to provide content for the orthopaedic syllabus. This requires inclusion of video from operations and to integrate this in such a way that the user can automatically transition between the exact point of relevance in an operative video and the background reading material, it is necessary to ensure automate embedded linking within the video itself. The system needs to run across a client server architecture with a thin client. For this reason QuickTime™ video server was adopted, using a Quicktime 6.0 'plugin' to MS Explorer 5.5 (or greater) browser.

Results: The user interface allows access to videos of surgery, extracted from a video simulation database. These can be recorded by any surgeon using conventional video filming and editing techniques. In a pilot study demonstrating the principles using shoulder arthroscopy [3,4] learning module, results demonstrated 87% 'good' or 'very good' usability performance (n=8) with ongoing evaluation by 80+ clinicians. Discussion: The web gives publishers a new medium for making their journal archives available [5], it also gave authors the means to break the so-called "Faustian bargain" and directly distribute their educational material in pre- or post-publication form, from their own, institutional pages [6]. The tools are available to allow open access to this service for virtual university developers and contributors. The pedagogy is designed to invoke active participation using these multiple resources in the shared learning environment.

Conclusions: The objective to build integrated bidirectional video support for the digital library systems in orthopaedics, and in particular in the context of the Virtual Universities for computer-supported education and communication has been achieved. This has been set up to concentrate upon the training of image guided orthopaedic surgery[7], though may be applied generically.

References:

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