HKU Faculty of Dentistry introduces 3D virtual-reality training to its undergraduate degree programme

The HKU Faculty of Dentistry has now included the use of 3D virtual reality in its undergraduate degree programme to train manual dexterity and hand-eye coordination for surgical procedures.

Thanks to a HK$1.5-million donation, the Faculty recently purchased six bimanual “haptics” (touch-feedback) systems, which use two joysticks to simulate the 3D feel of dental instruments as well as different layers of healthy and diseased teeth. The sight and sound of dental procedures are also closely simulated.

The Simodont Dental Trainer systems are housed in the newly established “Virtual-Reality (Haptics) Training Unit” on the sixth floor of the Prince Philip Dental Hospital. A “soft opening” of this state-of-the-art training unit was held as an in-house open day of the facility on 12 and 13 October 2011, during which teaching staff and students had an opportunity to try their hands, ears, and eyes on the six high-fidelity systems.

The hardware of the Simodont machines was developed by Moog Inc., a company well known for making precision aircraft parts and advanced flight and driving simulator machines. The software was developed with the help of the Academic Center for Dentistry, Amsterdam, Netherlands. The Faculty is the first dental school in Asia to use these 3D simulators for training dental operative skills.

“We have already integrated the technology into our undergraduate problem-based learning curriculum,” says Faculty Dean, Prof Lakshman Samaranayake. “The precision motion control, sensitive force-feedback, wide variety of dental cases in the software, and recording of all trainee hand movements during procedures make the simulators an invaluable addition to our dental training programmes.”

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For more information about the HKU Faculty of Dentistry, visit http://facdent.hku.hk

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