Australia steps ahead in virtual learning

CRAWLEY, Australia: Virtual methods of education are increasingly finding their way into dental schools worldwide. Students at the University of Western Australia’s School of Dentistry have been the latest to get hands-on with the Moog Simodont Dental Trainer, a sophisticated dental-procedure simulator developed in the Netherlands and the US.

The system, recently launched for the new Doctor of Dental Medicine degree programme, allows students to perform basic tasks like drilling and caries removal realistically in a virtual environment. A high-fidelity feedback technology used in the training of pilots—and in other fields called haptic—provides a realistic sense of touch similar to treating real patients. The investment, worth almost US$1 million, has received funding by Health Workforce Australia, an Adelaide-based governmental agency set up in 2008 to help the country to develop a sustainable medical and dental workforce.

According to Prof. Andrew Smith, head of the dental school, by replicating preclinical situations in a virtual setting almost no tissue or material is consumed. More importantly, the system allows students to practise drilling on human teeth that have unique morphologies, a process not yet possible to replicate using plastic teeth or teeth derived from animals.

“It is essential that a student be able to practise the tasks using those unique formations,” he told Dental Tribune Asia Pacific. “The computerised dental trainers are able to meet these demands.”

UWA is not the first university in Australia to have employed the unique technology. Among others, trials have been conducted by the Griffith University’s School of Dentistry and Oral Health in Southport in 2011. According to Moog, there are now over a dozen universities worldwide, including the University of Michigan dental school in the US, that are training students in this way. A study conducted there in 2012 found that virtual teeth replicated by the Simodont simulator are more realistic than the plastic models traditionally used.

Smith said that 14 units had recently been purchased and installed at UWA to help train 1,150 students at the school over the next ten years. So far, the units have been used in interprofessional learning programmes with dental nurses, for remedial training and for testing candidates for the dentistry programme, he said.

“An important aspect, however, is the ability to teach the students how to use a mirrored image to allow completion of drilling tasks when these cannot be viewed directly. Other tasks available allow the diseased portion of the tooth to be cut away on both primary and permanent teeth,” Smith explained.

“Very soon we will have the exercises for training students to cut preparations on teeth for crowns and in the future bridges will be also taught.”

Lab with Simodont dental trainers. (DTE/Photo courtesy of UWA, Australia)