



## Questionmark Case Study

### “Virtual Patients” Help USC School of Dentistry Test Students

#### Background

At the University of Southern California in Los Angeles, the School of Dentistry includes the Orofacial Pain and Oral Medicine Center. It's an advanced training program for dental students and residents, who treat patients with oral soft and hard tissue diseases, orofacial pain, headaches and other disorders. Each year, about 165 dental students rotate through the center, and two to three highly trained specialists graduate from the residency program.

As part of their training, dental students take courses in orofacial pain and oral medicine, and then use their knowledge in treating patients. The center uses Questionmark™ Perception™ combined with content created in Adobe Captivate to test students' knowledge of the conditions they will be treating.

#### Virtual Patients

Dr. Glenn Clark, a professor at the USC School of Dentistry, directs the Orofacial Pain and Oral Medicine Center. The tests he builds in Captivate and delivers on the web with Perception are actually virtual patient cases, which are based on live patients who have been treated at the center. Dental students on rotation in the center work on six to 10 of these cases each year.

Each case provides graphic and video content about the patient's problems. Then students are given a series of pages with buttons to choose from. Each button represents additional diagnostic tests, diagnoses and treatment options, which students choose based on the patient's medical history and exam findings. Choosing the correct button leads to a positive score and a screen showing the findings of the diagnostic test and explaining why the answer is correct. Incorrect choices lead to a negative score and a page that explains why the choice is not appropriate. Each student's final score is a cumulative score based on all of their choices.

Perception allows Clark to track how long each student takes to work through each case, and to confirm whether the student has viewed a given page in the case.

These virtual patient cases give the program control over which diseases each student encounters during training. Clark says that this is better than the usual method of student observation of practitioners, because it guarantees that students will see each of the common conditions and that students genuinely understand the treatment decisions that are made.

#### Real Learning

Dr. Clark says that the virtual cases are a great teaching tool. "Multiple choice tests are important evaluators of a student's basic knowledge of the facts," Clark says. "But they do not capture the student's ability to gather data, filter it, and make logical choices based on it." The survey he designed confirms that students find the cases helpful and more meaningful than multiple-choice questions.

#### Future Expansion

Dr. Clark intends to create 18 to 20 more cases and to incorporate more video from actual patient cases so that they seem more real to students. Other cases will be developed for patients who present with accompanying conditions such as diabetes, hypertension, and AIDS, so that students learn how to plan these patients' dental care appropriately.

Clark is glad to have Perception to deliver the content and monitor the choices the students make in these virtual cases, because he believes they're the ideal tool for student learning: "Because cases are real patient cases that are moderately complex, students learn very quickly what they don't know."

#### More information

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