Helping Dyslexic Medical Students Pass Their OSCE Exams

By Guylaine Renaud, Alireza Jalali / September 2011

In September 2008, two students with learning disabilities were admitted to the University of Ottawa’s Doctorate in Medicine program. Because both are dyslexic, special accommodations had to be made. The students used the Kurzweil 3000 software—a text-to-speech, learning tool—and were allowed extra time to complete their examinations. For the practical (lab) component of the course, the software was not used but they were given extra time after the exam ended. These accommodations worked for their first year, but during the second year when students are evaluated on their clinical abilities we needed a better solution.

Most health education programs use Objective Structured Clinical Examinations (OSCEs) to evaluate students, and it is no different the University of Ottawa. The OSCE is designed for students to rotate through a circuit of exam stations. However this type of examination was problematic for our learning disabled students. After meeting with the Academic Advisor and the Chair of the Student Accommodation Committee to formally request accommodation for the OSCE, we coordinated with the Assistant Dean of Student Affairs Office, the Director of the Ottawa Exam Centre, and the Director of the PSD (Physician Skills Development) to try to find the best solution for these students. These discussions also included the Medical Council of Canada (MCC). We wanted assurance that our students would be accommodated when they
were ready to take the Medical Council of Canada Qualifying Examination Part II. This is a three-hour OSCE that assesses the competence of medical students prior to entry into independent clinical practice. Unfortunately, each request is dealt with on case-by-case basis and evaluated independently. The MCC could only provide us with tips on what types of accommodation had been provided in the past.

As educators we must assure students' academic success, but are mandated to train them as efficient physicians. We had to think outside the box. After many meetings with our IT department, a decision was made to download the Kurzweil 3000 software onto an iPod allowing for easy movement during the OSCE. The software processes the written text and reads it to users at the speed they want.

**Materials and Methods**

We transferred text and other documents onto an iPod Touch device, using the Kurzweil 3000 software the students could hear and visualize the document as they would on a personal computer. In addition, we simultaneously ran another program, Camtasia, which enables us to capture what is happening on the laptop screen and save it as an .AVI format video. Using Adobe Premiere CS4, we converted the .AVI file to produce an .MP4 file that the iPod could play back. The file was then uploaded to the iPod Touch using ITunes software.

On our second try, we had some setbacks. Our equipment malfunctioned and our replacement computer did not have enough RAM to properly run Adobe Premiere CS4. With the help of our colleagues at the University's Medical Technology Office, we eventually discovered an alternate program called SUPER Caption, which could convert .AVI files to .MP4 files. Unfortunately the software is now obsolete; we will eventually need to find another alternative.
Results

Once we believed our technology was adequate to provide assistance during an OSCE, we decided to create a practice exam for the two students. We simulated a five-station OSCE with a standardized patient (SP) but no examiners. The purpose of this practice was to evaluate the efficiency of the technology. Like anything else, when confronted with change there is always resistance. Even though the students were open to this setup, they were nervous and unsure of how this would work. Although the practice exam went fine, the students realized they would have different challenges to overcome. Not only did they need a pencil, booklet, labels, stethoscope, and reflex hammer to perform this exam, they also had to handle an iPod and earphones.

The first try of our setup in a real exam occurred during the end of the first year of medical studies when students take a practice OSCE. This exam is to help first-year medical students better prepare for the mandatory PSD OSCE during their second year. Our dyslexic students wanted to run this exam like it was the mandatory session to assure that the accommodations would be adequate. Again they were happy with the setup and the exam ran smoothly. The second try of our setup was done during the second year practice OSCE. This again allowed the students to better familiarize themselves with the setup of an OSCE and the technology they would use to take the exam. This practice exam included an SP and examiners and was intended to help evaluate the students’ level of knowledge.

Not only did the two dyslexic students have to prepare for this examination, but we also had to provide adequate logistics for them to perform the exam. The following accommodations were made:

- The Faculty of Medicine provided an iPod with Kurzweil 3000 software to help students read the station.
• The speed of the Kurzweil 3000 was set at 285 words per minute.
• Students were allowed 1.5 more time per station to read at the door of the examination room (which represents 30 seconds more per station). At the Emergency station, no extra time was allowed.
• Instead of following the other students to the next station when the buzzer rang, students were provided a personal assistant to indicate the time during the performance of the OSCE.

After each practice, the Academic Advisor met with the students to discuss the system put in place. The students were satisfied with the technology used during the examination, but appeared to still be apprehensive about the logistics and needed time to adapt to the process. Each time they completed a practice OSCE, the students felt more comfortable and at ease. The students' primary concern was what would happen if the iPod stopped working or one of the software programs froze. This concern was brought to the Ottawa Exam Centre. It was agreed that if such a thing happened, we would stop the exam and restart it once the problem was solved. Because the iPods used for the exams were new and the software has been tested many times, we were confident in the efficiency of the equipment.

The students performed a final PSD OSCE with the technology proposed. This examination was administered by the Ottawa Exam Centre. It was decided that the students would rotate through a separate circuit of exam stations. This would allow the dyslexic students to have their own buzzers and exam timer. They were matched with another student who also required more time to perform this examination. The students had the following accommodations:

• The students used an iPod with the Kurzweil 3000 software provided by the Faculty of Medicine to help read the station.
• The speed of the Kurzweil 3000 was set at 285 words per minute.
• The students were allowed 1.5 more time per station to read at the door (which represents 30 seconds more per station). If there was an emergency station, no extra time was allowed.

Conclusion

From a technical point of view, we found the combination of the Kurzweil 3000 software and iPod Touch to be an excellent tool for conducting the OSCE-style exam for dyslexic students. The Ottawa Exam Centre, the Student Accommodation Committee, and Medical Education Office were satisfied with this type of accommodation. A great deal of time and effort was invested in working out the process, installing all the software, and testing the product.

Our project demonstrates that providing dyslexic medical students with practical accommodation allows them to participate successfully in university examinations. This innovation should also help them to adapt more successfully to their eventual practice as physicians by using these technologies in their day-to-day activities. For example, the same strategy could be used by dyslexic physicians to read patient radiology reports. Moreover, the approach that we have developed provides a concrete path for implementation of an iPad-based approach. And more importantly, our experience may spur development of innovative mobile apps as faster and better tools to assist medical students and practicing physicians with learning disabilities.

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