

iAnatomie – Providing online learning and testing options for Francophone medical students at the University of Ottawa

Opportunity

In the Faculty of Medicine at the University of Ottawa, the entire curriculum is available online through PowerPoint presentations, problem-based learning cases, and other resources.

As each student has a laptop or tablet, learning can be extended and supported through the development of additional online resources that allow anywhere, anytime learning and reflect various learning styles through video, audio, text, and images.

Dr. Alireza Jalali, a Professor of Anatomy in the Faculty of Medicine, is working with colleagues to create and assess a variety of online learning tools to “educate and enthuse” his Francophone students. In addition, mobile technology is being assessed as a replacement for paper-based anatomy exams to provide faster feedback for students and reduce paper usage.

Innovation

Dr. Jalali designed the web site iAnatomie.com to facilitate his Francophone students' learning by providing resources to supplement his clinical anatomy lectures. He offers a variety of French-language materials on the iAnatomie site – podcasts, Wikis, and blogs – which have been developed and revised according to student usage and their impact on learning.

Podcasts: Podcasts were produced to provide reviews of anatomy lectures for first-year Francophone medical students. Immediately following each lecture, topic-based audio podcasts of 15-20 minutes were posted, highlighting key points and difficult concepts. Students already had access to the accompanying Power Point slides and their computers or tablets could automatically download newly posted podcasts. At the end of the semester, the students responded to a questionnaire on the use of the podcasts, as well as their utility as learning tools.

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Ressources / Resources

Bienvenue en iAnatomie.com :

iAnatomie.com est conçu pour aider les étudiants francophones de la Faculté de médecine de l'Université d'Ottawa avec leurs cours d'anatomie clinique.

En développant ce site, j'espère faciliter l'apprentissage de mes étudiants non seulement en fournissant une ressource complémentaire aux cours oraux, mais aussi en leur permettant de décider où, quand et comment passer en revue leur cours.

J'espère que ceci éduquera et passionnera mes étudiants pour l'anatomie clinique.

Welcome to iAnatomie.com :

iAnatomie.com is designed to help University of Ottawa's francophone medical students with their clinical anatomy lectures. By developing this site, I attempt to facilitate my students' learning process not only by providing a learning resource to supplement oral lectures, but also by enabling them to decide when, where and how to review the lectures. I hope this will both educate and enthuse my students about clinical anatomy.

DR ALI R. JALALI

Blog: Je signale souvent les dernières informations sur mes cours, conférences, examens et autre information utile ici. Donc, assurez-vous d'y aller plusieurs fois par semaine.

I often post the latest information about my courses, conferences, exams and other useful information, so make sure you check it out a few times a week.

Baladodiffusion/Podcast: Une courte revue de chaque cours est téléchargée ici pour vous.

A short review of each lecture is uploaded here for you to listen.

Vodcast: Toutes ces présentations ont la voix et les PowerPoint.

These have voice and Powerpoints .

Wiki: Vous pourrez communiquer vos notes de cours ou n'importe quelle autre information intéressante dans cet espace et la partager avec vos collègues.

You will be able to post your course notes or any other interesting information in this space and share it with your colleagues.

Wiki: Under the supervision of Dr. Jalali, two medical students created a French-language wiki, Medswiki.ca, populated by students' class notes, literature reviews, and links to clinical publications to promote communication and collaboration among students. Topic-specific templates were created for potential content and the site was made available to first-year medical students who could add, change, delete, and view content. The site's usefulness was assessed through usage statistics and focus group discussions.

Dr. Jalali also worked with colleagues on online exams. For anatomy exams in first and second year, students rotate through stations in a laboratory and answer two to four multiple-choice questions at each station. Pilot testing has been done on the use of mobile technology for these exams. Another project looked at online accommodations for medical students with dyslexia.

Mobile Exams: A mock online anatomy examination using Questionmark software and comparing two tablets (Lenovo and the iPad) was set up with four stations for the study participants to move through with two multiple-choice questions at each. Questionmark software was chosen as students were already familiar with it, it is compatible with existing technology in the Faculty, and it allows the creation of question banks in different languages – an essential feature for a bilingual university. After completing the mock examination, the participants were asked about the online experience and the two tablets.

Students with Dyslexia: Two Faculty of Medicine students with dyslexia required accommodations for writing the standard Objective Structured Clinical Examinations (OSCE) three-hour exam that rotates students at the end of second year through a

circuit of patient examination stations. To support the students, an online solution was developed and tested during the students' first and second years in a number of exam settings set up to prepare all medical students for the OSCE.

The students used the Kurzweil 3000 software, a text-to-speech learning tool, which was loaded on to an iPod Touch to allow for easy movement during the exam. The students could hear and visualize documents which dealt with patient histories and symptoms as they would on a computer. The accommodations for the dyslexic students included:

- The use of the iPod with the Kurzweil software to read the information at each station of the exam circuit;
- The speed of the Kurzweil text to speech capacity was set to 285 words per minute;
- Students were allowed 1.5 times more time at each station to read at the door of the examination room. At the Emergency station, no extra time was allowed.

After each practice session, the students were asked about the functioning of the system.

Outcomes and Benefits

The online learning tools developed by Dr. Jalali, working with colleagues and experts inside and outside of the University of Ottawa, have been assessed for level of student usage and usefulness for learning.

Podcasts: With a 92% response rate to the questionnaire about the usage and effectiveness of the podcasts, the feedback from the students was extremely positive, as almost 75% reported having listened to the podcasts. Students found the length and amount of content to be very satisfactory; the podcasts were clear, well-paced, supportive for their preparations for exams – and a useful educational tool for self-paced learning.

The combination of the auditory podcasts and the visual PowerPoint slides allowed the students to combine visual and auditory learning. They could access them when and where they needed them and find the specific points they needed to review. The audio podcasts were also economical and relatively simple to produce.

Wiki: The Wiki was used very infrequently by the first-year medical students and only for viewing.

Mobile Exams: All the participants liked the idea of an online anatomy examination to replace the paper version; they found it easy to use and appreciated the immediate feedback. The iPad and the Questionmark software were suitable for a timed, online examination. Moving to mobile exams would improve the evaluation process for the students and provide cost savings for the university. As the final licensing examination

from the Medical Council of Canada is on a computer, taking online exams during their education can provide students with useful experience.

Students with Dyslexia: The students were satisfied with the technology used during the examination and felt more comfortable with it each time they used it. The Ottawa Exam Centre (where the OSCE is held), the University Student Accommodation Committee, and the Medical Education Centre were also satisfied with the accommodations made. The Kurzweil software and the iPod Touch were judged to be successful tools for administering the OSCE for dyslexic students.

Challenges and Enhancements

Podcasts: In their assessments of the podcasts, the students suggested that a useful addition would be a session dealing with frequently-asked questions. The most common reasons offered for not listening to the podcasts were lack of time, preference for other study habits, and lectures did not need clarification.

Wiki: The students reported that they did not use the Wiki as they had trouble getting access, the materials did not meet their academic needs, and they were not confident enough of their knowledge to contribute. To make it useful, they suggested that it be integrated into pre-existing web tools, and that the quality of the content be improved and targeted to faculty learning objectives. Making contributions to the Wiki a course requirement would also clearly encourage usage.

Mobile Exams: The participants in the online anatomy exam expressed concerns about not having a paper examination in their hands and having to rely on a potentially unreliable Internet connection. They were stressed by the possibility that their responses might not be recorded and submitted.

Students with Dyslexia: The students expressed apprehensions about the functioning of the technology – what would happen if it stopped working or the software froze during the timed examination. It was agreed that the examination would be stopped and restarted when the problem was resolved. The design of the accommodation and testing of the hardware and software took a great deal of time and expertise from many parts of the university.

Potential

The podcasts and other online learning resources are available in French on the iAnatomie web site and other post-secondary institutions in Ontario are encouraged to use them for teaching and learning. Dr. Jalali is very open to discussions about his innovations, to learning about the work of his colleagues in other post-secondary institutions, and to the possibilities of collaboration on future projects and research.

Podcasts: The second year of the anatomy curriculum is being adapted to the podcast format and research continues on the best practices in podcasting for medical education. Variations on the format to include question and answer and case-based approaches may also be explored.

Mobile Exams: The University of Ottawa has purchased a license for Questionmark. Eventually all of the written exams at the Faculty of Medicine will be created using the software.

Students with Dyslexia: As expressed in the article cited below: “Our project demonstrated that providing dyslexic medical students with practical accommodations allows them to participate successfully in university examinations. This innovation should also allow them to adapt more successfully to their eventual practice as physicians by using these technologies in their day-to-day activities”. The approach provides a concrete path for the implementation of an iPad-based solution and may spur the development of mobile apps to assist medical students and practicing physicians with learning disabilities.

Further Information

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