LETTERS

Use of Moodle, ExamSoft, and Twitter in a First-Year Pharmacy Course

In Canada, the Faculty of Pharmacy of the Université de Montréal was the first to develop and implement an entry-level doctor of pharmacy (PharmD) degree in 2007. With this initiative, the curriculum was entirely redesigned and various pedagogical approaches were implemented.\textsuperscript{1,2} A custom learning management system based on the concept of the learning object (http://www.UGOpharm.umontreal.ca) was developed and implemented and most of the academic program was posted on a secure-access Web site. Incoming first-year pharmacy students were expected to purchase a preconfigured laptop for personal and academic use. In this letter, we report on the successes and pitfalls we experienced using 3 different technology initiatives in the 2011 semester of a pharmacy law course.\textsuperscript{3}

We have been using WebCT (Blackboard, Inc) since 1999\textsuperscript{4,5} as the platform offered additional tools for interaction with students including educational and certification tests. In 2011, the Université de Montréal decided to replace WebCT with Moodle (Moodle Pty Ltd, Perth, Australia; called locally StudiUM\textsuperscript{6}) as its new open source Web platform for online courses. Moodle is used on more than 56,400 Web sites in at least 214 countries for more than 4,784,691 courses taken by more than 45 million students and more than 1.1 million teachers, but there is relatively little data about its use in pharmacy curricula. A search on moodle.org with “pharmacy” and “pharmacie” terms results in only 123 hits.\textsuperscript{7}

Moodle was used to host the law course’s pedagogical material using a 9-step approach: (1) learning Moodle to define its benefits, disadvantages, and host of functions; (2) reviewing the LSS print seventh edition; (3) developing a framework to write multiple-choice and short development educational and summary questions, including the random generation of questions from a bank of questions; (4) developing standard content for the Web platform; (5) developing new pedagogical tools; (6) drafting questions and initiating the platform; (7) conducting platform tests; (8) logging management problems and debugging in conjunction with the Moodle support team; and (9) drafting policies and procedures. The implementation phase took place from May through August 2011, and the platform went online September 1, 2011.

Moodle is a tool-rich user-friendly platform (eg, newswire for news, glossaries, a chatting tool, wiki, databases, blogs, RSS flux, calendars, etc). Moodle integrates more easily into Web sites and offers management tools such as detailed student usage reports. The use of StudiUM has helped us to implement a meta-course that allows us to link one or more courses to the same core material so that content, questionnaire, and tools can be selectively shared. A meta-course avoids needless duplication of content and makes it easier to update and correct content in case of error.\textsuperscript{8} In this way, for each chapter, the student may consult a history of commented pertinent news, a list of laws, regulations, and other normative documents dealt with, including hyperlinks to source documents in the form of summary tables and databases, a history of the development of the legislative framework, suggested hyperlinks, pivotal documents deposited in the platform to facilitate their consultation within the pedagogical framework, commented decisions from various courts, educational questions, and summary questions.

For example, the database function allows for structured development, setting how various types of knowledge are displayed, long-term content entry, and more efficient searches by the students. Finally, the platform can offer access to various student cohorts throughout their university studies and promote longitudinal use of content for integration in various courses, workshops, laboratories, and training sessions. As of September 1, 2011, StudiUM hosted 950 courses at the Université de Montréal.

The ExamSoft suite (ExamSoft Worldwide, Inc) was chosen for the administration of formal examinations (mid-terms and finals) in class, starting in the fall of 2011. ExamSoft provides a solution for secure examination preparation, administration, and grading. The Web site reports that it is used by 8 faculties of pharmacy.\textsuperscript{9} The SofTeach application makes it possible for the professor to create items and manage a bank of items (ie, multiple-choice questions, short-answer questions, etc). The centralized depository allows the collaborative management of item banks. Items can be added to an examination using one or more banks of questions. In the case of interrelated questions that require chronological presentation for comprehension and response purposes, the order of display may be forced. When required, the order of display is random, reducing the risk of plagiarism among students. An encrypted and password-protected examination file is then produced.

The examination file is published so that students can download it before the scheduled examination period. Only students who have downloaded the file will be authorized to enter the examination room. Student identification is required and students are assigned a seat according to a specific room plan. When all the students are present and the instructions are given, the password
is given. A technician is present in the room 30 minutes before the examination and stays for 45 minutes after the examination starts to answer the student’s technical questions. To this date, no major technical problem has been encountered. On 3 occasions, students had to reboot their computers, but did so without any data loss. A team of 5 invigilators (proctors) makes sure that the examination runs smoothly and confirms that all the students end their examination at the end of the examination period by checking each student screen by screen. Given the time allowed for the examination and its level of difficulty, this procedure has not been able to handle a large number of students all leaving at the same time after the statutory examination time is up.

The development questions raised a number of issues with the students. First, lengthy reading on the screen led to eye strain in the case of 1 student and some students also questioned the speed of typing on a keyboard versus their handwriting speed. Some students had problems with the display of French accent characters on the screen when reading or writing and some students experienced problems with closing or uploading the examination (eg, error messages that the test had not closed correctly). The presence of a support person allowed us to solve these problems.

ExamSoft greatly facilitated the process of correcting the examinations. In the past, a similar examination took on average 40 hours to correct by hand. With ExamSoft, the amount of time required to correct examinations was reduced to approximately 25 hours. A number of reasons can explain the time saved. First, automatic correction of multiple-choice questions included item analysis and facilitated the review of questions (cancelling, identifying answer keys, for example). Next, having the students write directly on a computer facilitated reading their answers. It was even possible to use the search function in the text to look for and validate certain elements in the answer in the short/long development questions. In addition, it was possible to correct 1 question for all the students, thereby ensuring a uniform correction of a question versus correcting each student’s examination individually, one after another. The presence of statistical data made it possible to see the development of the correction and also the average score for each question. A single corrector performed all the examination corrections. ExamSoft made it possible to provide the corrector with targeted access, for example, to home in on development questions alone. Furthermore, it enabled a collaborative approach between the person in charge of the course and the corrector so that 2 people could connect to ExamSoft at the same time from a distance.

When ExamSoft was first used to correct an examination, some problems were encountered. First, the list of questions being corrected was not displayed appropriately and the corrector had to disconnect from ExamSoft and return in order to download the updated list of students again. Another problem encountered was that some comments shown for 1 student were automatically copied into the comment file of the next student. Furthermore, once a comment had been added by the corrector or a mark had been given to a student, it was impossible to remove the comment and leave the space blank.

Finally, we tried to use Twitter (Twitter Inc) within the context of a summary course. All the students were invited on a voluntary basis to open an account in order to test student-professor interaction with this social medium. The tool TweetDeck was installed on the teachers’ laptop. During the course, the students were asked to interact and ask questions by raising their hands or using Twitter. Although 99 of the 200 students had a Twitter account (only a few had an account before this initiative), only 8 students wrote a tweet. At the end of the course, the students were asked to answer 4 multiple-choice questions using StudiUM to measure their level of agreement with this initiative. While the trial was not a success (only 8 questions were asked in class using a Twitter account during a 3-hour course and about 30 questions were asked by students raising their hand), 41% of the students stressed that using Twitter in class could allow individuals to express themselves when they would not otherwise do so.

Teaching pharmacy legislation can benefit from novel technologies. Migrating to Moodle and using ExamSoft were both a success in 2011 at the Faculty of Pharmacy of the Université de Montréal and using ExamSoft. We do not plan to use Twitter as a complementary communications tool in class at this time.

Jean-François Bussières, MSc, BPharm, Marie-Élaine Métras, PharmD, Gilles Leclerc, PhD Candidate, BPharm

REFERENCES


