



Lectures on demand

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How technology is transforming the lecture



Dalton Kehoe (at left) decided to change his in-class lecture format after he watched a recorded version of his lecture online.

Professors are gaining valuable insights into their teaching methods by looking at their own video-recorded lectures and examining how students are using them

by Suzanne Bowness

Sometimes a teacher can learn from his students. For Dalton Kehoe, an award-winning communications studies professor at York University, the opportunity to record his lectures newscaster-style in a professional studio seemed like a great idea – until he solicited student feedback on the finished product.

“I like teaching and I have all kinds of awards from people who say I do it well,” says Dr. Kehoe. “So when my students said ‘these really suck’ then I had to wake up.”

Dr. Kehoe watched the lectures himself, and agreed with his students. While his other video lectures recorded in the classroom had the dynamic of live performance, the talking-head format was terribly dull. Yet where some people might simply have gone back to the livelier classroom video, Dr. Kehoe took that feedback a step further and asked himself whether he could improve his live lectures.

A self-described “data collector,” Dr. Kehoe made a point the next year of surveying students about their attention span. He realized that they began to fade halfway through his lectures.

So he changed. Now, rather than lecturing for 50 minutes at a time straight through, he talks for 25 minutes, followed by what he calls a “laugh break,” where he shows a funny two- or three-minute YouTube video (initially he selected them himself but now chooses them based on student suggestions). He then gives another 25 minutes of lecture, followed by another break, then a final 30 minutes of talk.

The response to the new format, he says, has been overwhelmingly positive.

Robert Burk, chair of the chemistry department at Carleton University, is another teacher who pays close attention to how his students use his lectures. In 2006, Dr. Burk was reportedly the first in the world to release video podcasts of an entire course, a move that earned instant media attention and led to portions of his regularly videotaped lectures appearing on iTunes and YouTube, with a quarter-million downloads by students and chemistry enthusiasts alike (check YouTube for his acetylene explosion and demo on making nylon).

Yet the statistics that Dr. Burk seems to prefer are those that report on how his students are using the lec-

tures. “My average student watches 120 percent of the lectures. So, most likely students come to lectures and review lectures, or do a combination of coming to lectures, watching them on TV and watching them on their iPods.” The viewing counts go up even higher between lectures and tests.

The surging popularity for taped lectures appears to be a trend across North America. New research released this fall from the University of Wisconsin-Madison involving 7,500 graduate and undergraduate students showed that 82 percent preferred courses that offer “captured” lectures online, over traditional classes that don’t include an online component. When asked why, most students cited “making up for missed classes, convenience, improving retention of materials covered, improving test scores, and help with material review prior to class,” reported the website Campus Technology.

For his part, Dr. Burk says the technology is having a positive impact on his students’ performance. “Higher performance correlates with the total lectures they’ve seen, how many practice problems they attempt, and how often they



Mount Allison's Elizabeth Wells has started making short videos to explain assignments and exams to her students.

communicated with me outside class," he says.

He is most pleased with this last correlative. While he hasn't reworked his lecture format much (his lectures are taped by two camera people in the classroom), he *has* changed the way he interacts with his students.

Dr. Burk's most significant move is into what he calls "their space," as in creating Facebook groups and chatting on MSN, a more efficient tool than e-mail because he can narrow down exactly what problem they have while they're studying. "I have no TAs for 550 students so I need very efficient ways of communication. Spending an hour on MSN is efficient. It saves many hours."

Patrick Lyons, assistant director of instructional technologies at Carleton, is part of the support system that helped Dr. Burk to go digital. Now that podcasting has become popular, the next step is to give students tools to help them make use of podcast lectures even more effectively, he says.

One of the technologies he's most excited about are "mashups." These allow users to take content (usually video) and recombine and mix that content for themselves and to share with others. Where the process used

to require know-how and expensive video software, his department is testing programs that allow students to do this completely online.

The mashup tools let students tag and keyword lectures, break apart and reassemble videos to create clips to review later, and even make highlight reels of important concepts. The project was piloted in the Introduction to Psychology class of another Carleton professor, Dan MacIntyre. About half of the students used the tool and 50 percent of those actively keyworded and mashed up the content.

The feedback from students using the tool was "eye-opening," says Mr. Lyons. "All of a sudden, students had a student-centred tool, so rather than highlighting a textbook they could do that with videos and lectures. They could pick apart pieces of the lecture that were important to them, and share the mashups with other students in their class." The tool also offers the potential to reveal how students are using the lecture. While it's still a "first generation" tool and requires some improvement, his department planned to roll it out in Dr. Burk's class this fall term.

Alyssa Wise, a professor of education at Simon Fraser University who

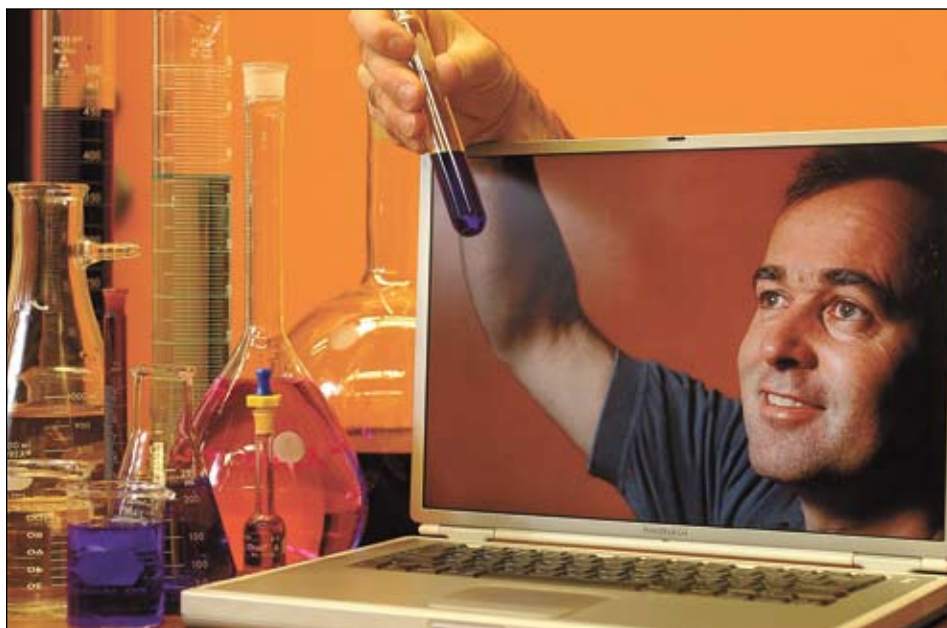
researches the design and use of online environments for learning, says that new learning models like these allow students to be active participants, whereas the traditional lecture relies on "a transmission model of learning" – the idea that teachers "can transfer our understanding and expertise to students who will simply receive it."

Perhaps one reason for some students' instant interest in the new mashup technology is that they promote "authenticity," another important concept in current learning models, according to Dr. Wise. She refers to MIT professor and artificial intelligence pioneer Seymour Papert, whose work describes how authenticity leads to greater personal involvement.

"Creating an artifact for a real purpose in the world adds to the weight it holds for you - you'll interact with it in a much different way," she says. Yet she cautions that technologies are only productive when they're used with a particular learning goal in mind, and not in a trivial way. "That's the tricky part, so you have to take these technologies that have the potential to be very valuable and make them realize that potential."

For some teachers, technology can help them achieve the goal of getting

The key for professors is to use the technology in a manner that adds to the learning experience and enhances communication.



Brigitte Bouvier

The videotaped lectures of Carleton University's Robert Burk have been downloaded a quarter-million times by students and chemistry enthusiasts alike.

closer to their students. Elizabeth Wells, head of the music department at Mount Allison University, has started creating her own short videos as a way to explain assignments and exams to her students. She thought the idea would give her an opportunity for more face time with a visually oriented generation, but even she seems a little surprised at the reaction.

"Students went crazy for these videos," says Dr. Wells. "Students from other classes watched them, and they asked for more."

In response, she put together "a day in the life of a musicologist," in which she went through her day from the office to lecture hall to the drive home talking about the field. This year she made a video on plagiarism, and another on professionalism. With her colleague Anthony Roberts, Dr. Wells gave a presentation about video in the classroom at this year's conference of the Society for Teaching and Learning in Higher Education. She stresses the need to keep the videos simple, unscripted and short. "Don't seek perfection," she counsels.

At York University's Centre for the Support of Teaching, academic director Ros Woodhouse promotes the ways technology can support classroom

teaching. She says the key for professors is to use the technology in a manner that adds to the learning experience. For example, the handheld devices known as clickers allow students to respond to the teacher's questions using buttons, and are a tool that she finds useful in enhancing communication between students and teacher.

Technology should also transform other aspects of teaching, like assignments, says Dr. Woodhouse. Some technologies really help students think about producing knowledge in ways that other people can use, she explains.

"Instead of writing an essay, people could assign students a project to develop a Wiki, as a way of encouraging students to make their work more visible and collaborative."

Using technology to support lectures is most effective when it makes the material more meaningful to the students. For example, York sociology professor Karen Anderson sends students to census websites for different countries to see how they define and classify race.

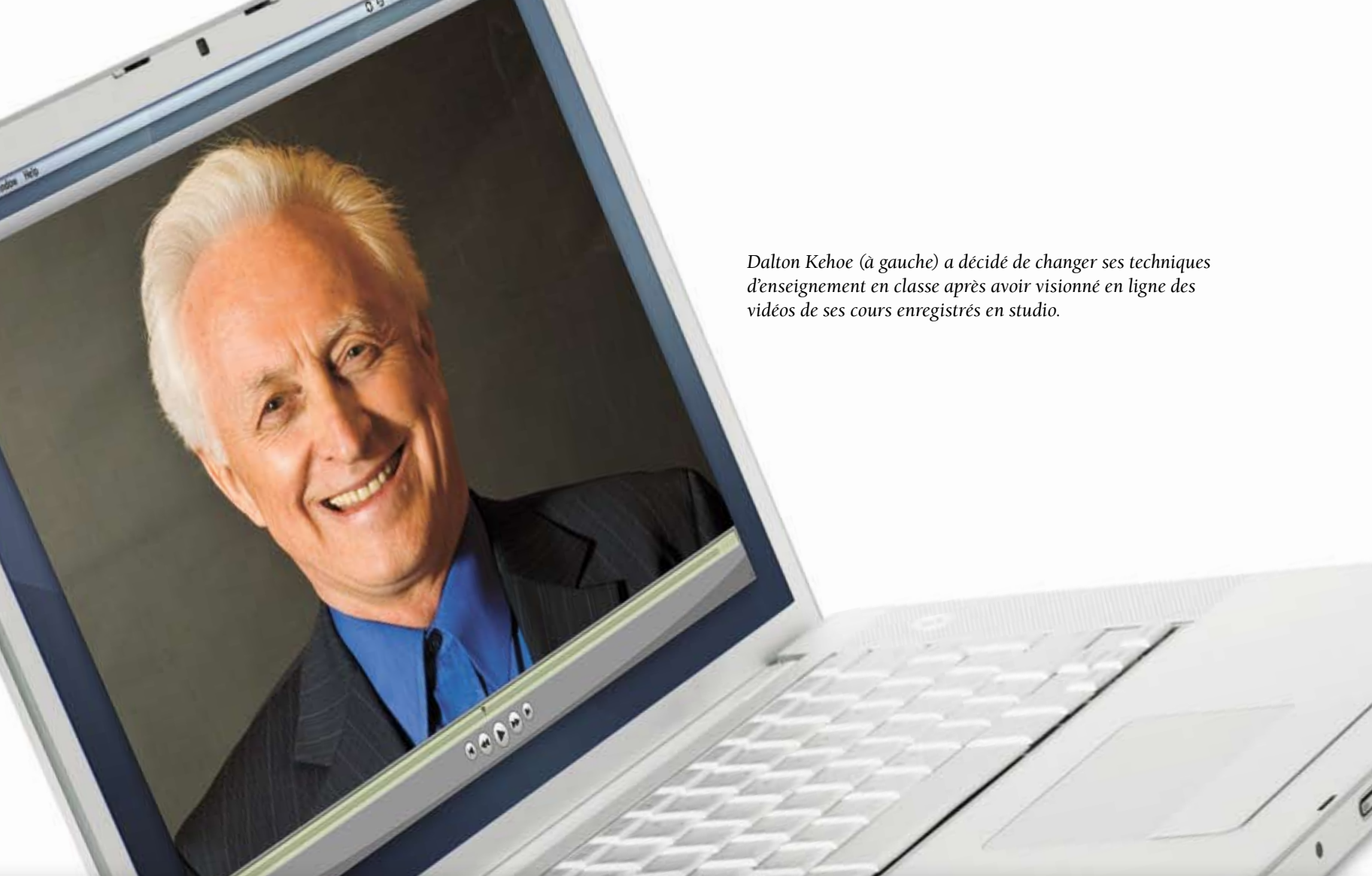
"It is done quite differently in India or the United States or Ireland than it is in Canada," reports Dr. Woodhouse. "So when students see websites and imagine filling in the census using classifications

that those other countries use, it takes the rather abstract notion that race is a culturally defined concept and makes it very real. And that's a more powerful learning experience than making that statement in a lecture."

Yet, as her York colleague Dalton Kehoe points out, the lecture has been the dominant form since the 18th century, so we shouldn't expect it to fall away entirely. Dr. Kehoe didn't simply cut his lectures in half when he shortened them to improve the learning experience. Instead, he reworked the lecture content to maintain the structure with a beginning, middle and end in a shorter time frame, making his content tighter and his anecdotes and illustrations more deliberate.

"I've learned to be a little more elegant in arguments and more focused in stories," says Dr. Kehoe. The insights that led him to revise his lecture format were not new.

"What's interesting about it is that the technology compelled me to look at lecturing by going back to something that I had seen and watched others do in the live classroom 25 years before," he says. "So I don't think it is anything new. Technology is reminding us to do something old." **AU • UA**



Dalton Kehoe (à gauche) a décidé de changer ses techniques d'enseignement en classe après avoir visionné en ligne des vidéos de ses cours enregistrés en studio.

Comment la technologie révolutionne l'exposé

Le présent article est un sommaire de l'article de fond présenté à la page 14.


par Suzanne Bowness

Dalton Kehoe, professeur de communications à l'Université York et lauréat de multiples distinctions, a eu l'occasion d'enregistrer ses cours en studio. Il en était enchanté jusqu'à ce qu'il sollicite l'avis de ses étudiants sur le produit fini. À la différence des vidéos filmées en classe qui avaient l'avantage du dynamisme du direct, les cours captés sous forme de conférence se sont avérés totalement ennuyeux.

M. Kehoe est donc allé un peu plus loin et s'est interrogé sur la manière d'améliorer sa technique. L'année suivante, après avoir sondé ses étudiants, il se rend compte que leur attention commence à faiblir au milieu des cours. Il décide alors de changer d'approche. Il cesse de faire des exposés de 50 minutes sans pause pour enseigner pendant 25 minutes, accorde ensuite une « pause rigolade » pendant laquelle il montre une brève vidéo divertissante sur YouTube. Il

continue son cours pendant 25 minutes, accorde une autre pause et termine par un exposé de 30 minutes. Les réactions à ces nouvelles techniques d'enseignement ont été extrêmement favorables.

Robert Burk, directeur du département de chimie de l'Université Carleton, porte une attention particulière à la façon dont les étudiants se servent de ses exposés. En 2006, M. Burk a été le premier à utiliser la baladodiffusion pour donner un cours au complet.



Cette méthode a instantanément attiré l'attention des médias. Des segments de son cours se sont retrouvés sur iTunes et YouTube et ont fait l'objet de 250 000 téléchargements par des étudiants et des passionnés de chimie.

Apparemment, les statistiques favorites de M. Burk sont toutefoies celles qui montrent comment les étudiants utilisent ses exposés : ils en visionnent 120 pour cent en moyenne!

« Vraisemblablement, les étudiants assistent aux cours et les visionnent ensuite, ou combinent les deux méthodes. »

La popularité croissante des cours filmés semble s'étendre à toute l'Amérique du Nord. De nouvelles recherches publiées cet automne par l'Université de Wisconsin-Madison, portant sur 7 500 étudiants au premier cycle et aux cycles supérieurs, ont indiqué qu'ils étaient 82 pour cent à préférer les cours qui sont aussi diffusés en ligne aux cours traditionnels sans diffusion Web. Selon le site Campus Technology, la plupart des étudiants ont expliqué leur préférence par « la possibilité de reprendre un cours, l'aspect pratique, la conservation aisée de la documentation, l'amélioration des résultats aux évaluations et l'occasion de réviser le matériel avant les cours ».

Pour sa part, M. Burk souligne que la technologie a une incidence positive sur le rendement des étudiants. Le rendement est directement lié au nombre d'exposés visionnés, au nombre de problèmes pratiques effectués et à la fréquence à laquelle les étudiants communiquent avec lui en dehors des heures de cours.

Bien qu'il n'ait pas tellement modifié sa méthode d'enseignement (ses exposés sont filmés en classe par deux personnes), M. Burk a *vraiment* modifié la façon dont il interagit avec ses étudiants. Sa démarche fondamentale s'inscrit dans ce qu'il appelle « leur espace », à savoir la création de groupes sur Facebook et l'instauration

de séances de clavardage sur MSN, un outil plus efficace que les courriels, car il peut ainsi cerner en direct les problèmes des étudiants. « J'ai 550 étudiants et je n'ai accès à aucun assistant à l'enseignement. Passer une heure sur MSN me fait gagner beaucoup de temps. »

Patrick Lyons, directeur adjoint des technologies éducatives à l'Université Carleton, fait partie du système de soutien qui a aidé M. Burk à se convertir au numérique. « La baladodiffusion étant maintenant populaire, la prochaine étape consiste à offrir aux étudiants des outils qui les aideront à utiliser des éléments comme les cours sur fichiers balados de façon encore plus efficace », affirme-t-il.

Les technologies qui l'enchantent au plus haut point sont les applications composites : elles permettent aux utilisateurs d'amalgamer du contenu (généralement vidéo) provenant de différentes sources puis de le partager. Alors que le processus nécessitait auparavant des logiciels vidéo onéreux, son département met actuellement à l'essai des programmes qui permettront aux étudiants de tout faire en ligne : insérer des étiquettes et des mots clés sur le fichier vidéo, séparer et rassembler des vidéos pour en créer de nouvelles et même extraire des concepts importants pour en faire des vidéos distinctes. Le projet a été mis à l'essai dans le cours d'introduction à la psychologie de Dan MacIntyre, aussi professeur à l'Université Carleton.

La rétroaction des étudiants a été révélatrice, indique M. Lyons. « Soudain, il existe un outil axé sur l'étudiant, qui permet de cibler des passages de vidéos et d'exposés, plutôt que de surligner du texte dans un manuel. » L'outil offre également la possibilité de découvrir comment les étudiants utilisent l'exposé.

La technologie permet à certains professeurs de se rapprocher de leurs étudiants. Elizabeth Wells, directrice du département de musique à l'Université Mount Allison, a commencé à créer

de courtes vidéos pour expliquer les travaux et les examens à ses étudiants. « Ils en ont raffolé! », affirme-t-elle. En réponse à leur engouement, elle a créé une vidéo sur « le quotidien du musico-logue » et, cette année, sur le plagiat et le professionnalisme. Elle insiste sur le fait que les vidéos doivent être simples, improvisées et courtes.

Ros Woodhouse, directrice du Centre for the Support of Teaching de l'Université York, indique que la clé du succès pour les professeurs consiste à se servir de la technologie pour améliorer l'expérience d'apprentissage. Par exemple, un professeur de sociologie demande aux étudiants de consulter les recensements de différents pays sur le Web pour voir comment ils définissent et classifient les races. Cette classification varie considérablement d'un pays à l'autre; lorsque les étudiants consultent les sites et s'imaginent faire le recensement en fonction de la classification du pays, « la notion plutôt abstraite de race en tant que concept défini par la culture devient très réelle », affirme Mme Woodhouse, ajoutant que c'est aussi beaucoup plus efficace que d'écouter simplement un exposé.

Pourtant, comme le souligne son collègue, M. Kehoe, le cours magistral est la méthode d'enseignement dominante depuis le XVIII^e siècle, et on ne devrait pas s'attendre à la voir totalement disparaître. Lorsque M. Kehoe a raccourci ses exposés pour améliorer l'expérience d'apprentissage, il les a remaniés de façon à conserver la structure d'introduction, de développement et de conclusion, mais dans un temps réduit, afin d'y insérer systématiquement anecdotes et illustrations.

« Il est intéressant de constater que la technologie m'a forcé à envisager le cours magistral comme mes professeurs le donnaient il y a 25 ans, explique-t-il. À mon avis, ce n'est pas nouveau; la technologie nous rappelle seulement de remettre une bonne vieille technique en pratique. » **AU • UA**