



Memorandum

Provost Office

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TO: Senate

FROM: Anthony C. Masi, Provost

SUBJECT: Senate Discussion—Technology and Innovation in Pedagogy

DATE: February 16, 2011

DOCUMENT #: D10-43

ACTION REQUIRED: INFORMATION APPROVAL/DECISION

ISSUE: To engage with Senators in a discussion on technology and innovation in pedagogy at McGill University.

BACKGROUND & RATIONALE:

The teaching and learning environments at major research universities are increasingly subject to technology-based tools. Indeed, we appear to be experiencing a fundamental shift in the expectations of students about the willingness and capacity of professors to deliver learning in innovative ways. Given that a fundamental shift may be occurring in where and when “learning” happens, it may be incumbent on McGill to explore new teaching approaches.

Questions for serious consideration by Senate are listed below.

Please see Appendices A and B for some additional background information and data to help contextualise the conversation:

DISCUSSION QUESTION

1. Should (or must) teaching and learning approaches at McGill University be adjusted or adapted? How and by how much?
2. What place and impact do lecture recordings have in the current and coming context? Can large lecture format courses be modified to use these technologies appropriately and in full respect of McGill's standards? What if such recordings were accompanied by smaller teaching/discussion groups in adapted spaces? What other considerations must be taken into account?

APPENDICES:

- Appendix A: Data on Lecture Recordings at McGill
- Appendix B: Data on use of *myCourses* at McGill

Data on Lecture Recordings at McGill

Source: *Teaching and Learning Services and IT Services*

1. What we currently know about student learning indicates that:

- a) Learning requires students' sustained, engaged attention to tasks requiring mental effort and psychological investment.
- b) Approaches to teaching influence students' approaches to learning. 'Sage on the stage' approaches are linked to surface learning which results in less long-term knowledge retention. 'Guide on the side' approaches are linked to deeper learning which results in more long-term retention.
- c) Extensive research on post-secondary education emphasizes the importance of students' cognitive engagement and active involvement to achieve deep learning, especially in the early years of study. The NSSE encapsulates effective practice in higher education through five benchmarks: Level of academic challenge; Active and collaborative learning; Student-faculty interaction; Enriching educational experiences; and Supportive campus environment¹. (For more information on McGill's NSSE results: <https://home.mcgill.ca/studentlife/>.)

2. Teaching and learning occur both 'inside' and 'outside' the classroom.

'Inside' the classroom refers to physical space (e.g., classroom, laboratory) and the intentionally designed, scheduled and structured learning activities which take place there (e.g., lectures, labs, seminars), usually in 1 to 3 hour formats.

'Outside' the classroom refers to virtual and informal spaces and the learning activities which take place there. These may or may not be intentionally designed, scheduled or structured.

3. Technologies allow flexibility in where and when learning activities occur.

For example, activities that commonly happen 'inside' the class such as straight lectures, could equally be delivered by lecture recording. This presents an opportunity to redefine what happens in face-to-face time. Activities that commonly happen 'outside' the class, such as problem solving exercises, could be addressed in the face-to-face context where instructors can provide guidance and feedback to promote students' cognitive engagement and active involvement in their learning. This gives us an opportunity to rethink large lectures and consider alternate approaches to content presentation (e.g., lecture recordings and myCourses) accompanied by smaller teaching/discussion groups that foster active student engagement.

- **Lecture recording** is available in 39 rooms across campus and 360 courses used this function in 2010-2011. Additional courses use software based systems such as COOL and Camtasia. At McGill and in the literature, students report that they use lecture recording primarily for review, that they do not reduce their attendance in class and that recordings have a positive impact on their learning (See Appendix A). The following are commonly cited²:

- Re-listening enhances student understanding, "providing convenient, on-demand education"

¹ Weston, C., Ferris, J., & Finkelstein, A. (April 2010). *Teaching and learning space development: A new access point for enhancing teaching*. Invited presentation, University of Alberta.

² Newland, B., Dickson, C. & Galling, T. (2010). Enhancing the Student Learning Experience with Captured Lectures. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 1826-1834).

- Decreases note taking, increases listening: accommodates different learning styles
 - Supports different student needs, increases inclusivity in the classroom (visually impaired, hearing impaired etc.)
 - Encourages collaborative learning as content could be shared across academic communities
- In a 2007 survey at McGill, 92% of students reported that captured lectures had a positive impact on their learning; 70% of students said that captured lectures did not affect their attendance³. However, many professors have expressed concerns that access to lecture recordings cannot be adjusted according to instructors' pedagogical requirements, and further, that their immediate availability may result in reduced class attendance.
 - Lecture recordings do not exist in a vacuum. They are used within the framework of myCourses (the central IT application used to support student learning) which provides many complementary tools. Usage data indicate that all Faculties and 53% of courses have active myCourses spaces. The Discussion tool remains the most heavily used with consulting content second (Appendix B). In 2009, Educause Center for Applied Research (ECAR) surveyed McGill undergraduates (n=637) and 90% reported using myCourses in at least one course; 68% reported that using myCourses was positive or very positive (<http://www.mcgill.ca/it/system/files/ECAR09data.pdf>).
 - The Lecture Recording System is an automated system designed to record activity within a number of classrooms across McGill campus. Most rooms support recording of instructor audio synchronized with the image projected on the screen (computer, document camera, DVD, etc...). Recordings are available through myCourses in multiple formats for students to access.

Use of Lecture Recording System at McGill

39 Rooms supported with lecture recording

688 Sherbrooke Rm 1041	Leacock 26	Otto Maass 112
Arts W-120	Leacock 132	Raymond 2-045
Bronfman 151	Leacock 219	Raymond 2-046
Bronfman 340	Lyman Duff Theatre	Rutherford Physics 112
Bronfman 360	Macdonald-Harrington G-10	Stewart Biology N2-2
Bronfman 422	McConnell Engineering 13	Stewart Biology S1-3
Burnside 1B45	McConnell Engineering 204	Stewart Biology S1-4
Chancellor Day Hall 100	McConnell Engineering 304	Stewart Biology S3-3
Davis 3	McIntyre 1345	Strathcona 112
Education 129	McIntyre – Martin Amphitheatre 504	Strathcona M1
FDA Auditorium	McIntyre – Palmer Amphitheatre 522	Strathcona 2/36
Hosmer 102	McIntyre - Meakins Amphitheatre	Trottier 100
	Montreal General Hospital B3128/26	Wong 1020

³ Finkelstein, A. (2007, Oct). *Designing an Enterprise-Level Automated Classroom Recording and Podcasting System*. Poster session, Educause 2007. Seattle, WA. Available online: <http://www.educause.edu/Resources/DesigninganEnterpriseLevelAuto/162139>

360 courses using Lecture Recording System 2010-2011

Class Size	Fall 2010	Winter 2011	Grand Total	Total Course Sections offered Fall 2010	% of Fall 2010 Course Sections using Lecture Recording System
0-50	41	39	80	1950	2%
51-100	44	34	78	421	10%
101-150	26	24	50	112	23%
151-200	20	21	41	69	29%
201-250	29	15	44	14	207%
251-300	6	8	14	9	67%
301-400	11	6	17	13	85%
401-600	9	7	16	9	100%
600+	9	11	20	10	90%
Grand Total	195	165	360	2607	

Student responses from two World of Chemistry classes re lecture recordings (Winter 2011)

Source: Prof. David Harpp

- **First number** = 16 conflict writers (showing that even a very small sample gives a reasonably representative set of opinions) for the large course (777 students),
- **Second number** = full group (88% response, ~660 responding)
- **Third number** = smaller World of Chem course (198 students, 95% response, ~180 responding).
- Each class had about 3 and 1% ill for the exam. The numbers in bold and red are in percent of the group. Each of the courses has about 55% from Science, 30% Arts and 15% Ed, Music, Management and Engineering.
- The middle set (the largest group) shows, as expected, that when the sample is very large, there will be a small number at the opposite end of the response group (3 persons said "harmful").

75 **Re-charging laptops during the day is of importance. Looking at this realistically in terms of the expense of renovations to rooms/halls, how important is this activity to you for your day-to-day operations?**

- 1) Vital **(38, 30, 27)**
- 2) It would be good to have more outlets but I can navigate the day as it is at this time. **(56, 52, 58)**
- 3) Not really necessary for my use of my laptop. **(6, 18, 15)**

76 **How many of your courses are recorded?**

- 1) 5 **(13, 9, 11)** Subtracted ones who had only 1 course recorded
- 2) 4 **(6, 17, 17)** it would appear that the remainder of *these classes* have
- 3) 3 **(19, 20, 20)** ~55% of their *other* courses recorded.
- 4) 2 **(25, 26, 19)**
- 5) only this course **(38, 28, 33)**

77 **If you said "only this course" to # 76, do you**

- 1) Wish you had access to recordings for your classes? **(83, 82, 78)**
- 2) I am neutral to the need for recordings. **(17, 16, 21)**
- 3) I am negative to having recordings of classes. **(0, 2, 1)**

78 How much use do you make of recordings?

- 1) extensive (56, 59, 56)
- 2) moderate (31, 30, 34)
- 3) little (6, 9, 8)
- 4) none (6, 2, 1)

79 In classes that are recorded do you

- 1) attend every or nearly every class (31, 41, 41)
- 2) miss now and then (44, 38, 36)
- 3) go less than half the time (6, 7, 6)
- 4) rarely go (6, 9, 11)
- 5) never go (6, 5, 6)

80 In terms of helping you learn, you rate recordings

- 1) extremely helpful (63, 64, 64)
- 2) very helpful (25, 26, 25)
- 3) somewhat helpful (13, 8, 11)
- 4) not helpful (0, 1, 0.1)
- 5) harmful (0, 0.5 0)

Here the small sample rates 4.5/5.0, the larger two groups are both 4.52/5.00)

Use of myCourses at McGill

Source: IT Services

FACULTY	Fall 2009 Banner Sections	Fall 2009 myCourses Sections	% using myCourses
Desautels Faculty Management	172	115	67%
Faculty of Agric Environ Sci	162	109	67%
Faculty of Arts	607	429	71%
Faculty of Dentistry	26	21	81%
Faculty of Education	209	67	32%
Faculty of Engineering	288	115	40%
Faculty of Law	97	43	44%
Faculty of Medicine	188	35	18%
Faculty of Religious Studies	12	5	42%
Faculty of Science	378	248	66%
Schulich School of Music	115	36	31%
Graduate Studies	703	252	36%
Centre for Continuing Ed	380	287	76%
TOTAL	3337	1762	53%

FACULTY	Winter 2010 Banner Sections	Winter 2010 myCourses Sections	% using myCourses
Desautels Faculty Management	168	99	59%
Faculty of Agric Environ Sci	137	103	75%
Faculty of Arts	610	404	66%
Faculty of Dentistry	27	26	96%
Faculty of Education	162	64	40%
Faculty of Engineering	264	114	43%
Faculty of Law	97	33	34%
Faculty of Medicine	177	34	19%
Faculty of Religious Studies	13	2	15%
Faculty of Science	337	216	64%
Schulich School of Music	90	30	33%
Centre for Continuing Ed	360	269	75%
Graduate Studies	700	243	35%
TOTAL	3142	1637	52%

Tool Use in myCourses	Usage (# of views)
Discussions Read	29,711,447
Content Folders Viewed	3,185,405
Mail Read	319,876
Calendar Entries Viewed	175,319
Who's Online	168,783
URLs Viewed	157,110
Syllabus Viewed	150,654
Assignment Read	113,797