Can You Hear Me Now? Pilot Study of Classroom Recording Technologies

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Available at: https://works.bepress.com/elizabeth_scheyder/2/
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Pilot Study of Classroom Recording Technologies
Elizabeth Scheyder and John MacDermott, University of Pennsylvania

Background / Motivation
- Interest in podcasting at Penn and in Higher Education in general
- Instructors often concerned about impact on attendance
- Some research on effects of podcasting exists, indicating:
  - Perceived as positive learning tool by students
  - No significant effect on attendance

Research Questions
1. Are cost-effective technologies available to make classroom recordings?
2. Are the technologies and procedures to make recordings reliable?
3. Is the outcome worth the cost and effort?

Methods
Piloted 3 low-cost means of making classroom recordings:
- Audio-only automated recording
- Instructor’s and students’ voices around a seminar table in a small room
- Audio plus screen capture using Symposium hardware

Surveyed students before and after semester
Tracked costs and labor

Results

Conclusions
- Costs for all 3 technologies were very reasonable
- Technologies that require the instructor to remember to bring hardware or do something were less reliable than automated installations
- Although the “buzz” is that students want to listen to lectures on iPods, relatively few do
- Using video formats not suitable for portable devices is acceptable.

Next Steps
- Continue the pilot test in Fall 2007
- Change setup of Symposium to improve reliability
- Install a second Symposium system in another room
- Deploy portable audio recorders with different faculty
- Repeat surveys, seeking ways to get higher response rates

Acknowledgments
This project was funded by an Instructional Technology Grant in the School of Arts and Sciences at the University of Pennsylvania in the Spring of 2007. This project was deemed exempt from oversight in its use of human subjects by the Institutional Review Board of the Office of Regulatory Affairs at Penn. For additional details, see http://www.sas.upenn.edu/computing/instructional/recordings/
Can You Hear Me Now?

*Pilot Study of Classroom Recording Technologies*

*By Elizabeth Scheyder and John MacDermott*

2007 NMC Summer Conference

Thank you for your interest in our poster presentation! This handout provides more details about the results of our pilot study, and a copy of the poster for your reference. The poster is also available on our website at http://www.sas.upenn.edu/computing/instructional/recordings/

If you’re interested in our research, we would love to hear from you. Please contact us at scheydec@sas.upenn.edu and macderm@sas.upenn.edu

To recap:

**Background / Motivation:**
- Interest in podcasting at Penn and in Higher Education in general
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**Research Questions:**
1. Are cost-effective technologies available to make classroom recordings?
2. Are the technologies and procedures to make recordings reliable?
3. Is the outcome worth the cost and effort?

**Methods:**
- Piloted 3 low-cost means of making classroom recordings:
  - Audio-only automated recording
    - Just the instructor’s voice in a large lecture hall with permanently installed hardware
  - Audio-only recording using a portable device
    - Instructor’s and students’ voices around a seminar table in a small room
  - Audio plus screen capture using Sympodium hardware
    - Created a movie of screen activity, including PowerPoint, with a synchronized audio track of the instructor’s voice

- Tracked costs and labor
- Surveyed students before and after semester

**Costs:**

<table>
<thead>
<tr>
<th>Method</th>
<th>Expenses</th>
<th>Staff Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto audio recording</td>
<td>Initial</td>
<td>$668</td>
</tr>
<tr>
<td>assumes existing mic system in room</td>
<td>Mac Mini w/ AppleCare WireTap software Audio interface</td>
<td>$19 $30 to $400</td>
</tr>
<tr>
<td>Recurring</td>
<td>None</td>
<td>Set recording schedule / server paths, per course 35 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prep/ deploy computer, per room 5 h</td>
</tr>
<tr>
<td>Portable audio rec.</td>
<td>Initial</td>
<td>$365</td>
</tr>
<tr>
<td>one recorder per instructor per term</td>
<td>Recorder kit</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Recurring</td>
<td>$15</td>
</tr>
<tr>
<td></td>
<td>Batteries, per recorder per term</td>
<td>Review recording / uploading procedures, per instructor 1 h</td>
</tr>
<tr>
<td>Sympodium screen capture</td>
<td>Initial</td>
<td>$2900</td>
</tr>
<tr>
<td>assumes existing mic system in room</td>
<td>Symposium sys, per room Audio interface to room mic</td>
<td>$400</td>
</tr>
<tr>
<td></td>
<td>Recurring</td>
<td>$35 h</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>Devise sys for auto file transfer / recompression Prep/ deploy Sympodium, per room 35 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prep/ deploy Sympodium, per room 8 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set recording schedule / server paths, per course Faculty support, per instructor 1.5 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 h</td>
</tr>
</tbody>
</table>
Some additional data that didn’t make it onto our poster:

**Pre-experience Survey**

**Response rate: 49% (373/759)**

Most students have an iPod or similar device, split about equally between audio-only and video-capable. Of students surveyed, 85% have an iPod or other portable device that can play digital media.

Of those students:

- 58% have audio-only devices
- 42% have video-capable devices

But whether or not a student owns an iPod didn’t seem to affect how many of the recordings they thought they would listen to:

![Bar chart showing the number of students who thought they would listen to recordings, divided by whether they have an iPod or not.](chart)

- Of the few students who said they might miss class frequently, most denied that this was because recordings of the class would be available.

  - Number of students who might miss class "4 or 5" or "more than 5" times = 27 (7% of 372 responses)
    - Of these, how many "much more likely" because recording is available = 0
    - Of these, how many "slightly more likely" because recording is available = 11 (41%)
    - Of these, how many "no more likely" because recording is available = 16 (59%)

**Problems During the Semester**

**Technical Issues:**

- Audio interface in the room where the Sympodium was installed was problematic, frequently requiring the user to go deep into Windows settings to make adjustments so that audio would be recorded
  - We plan to re-wire the system this summer to avoid this in the future
- Microphone batteries for the Sympodium system had to be replaced frequently. Locating spares somewhere that was accessible to the instructor but reasonably secure required extra coordination with staff
- One of the professors using the portable audio recorder for a seminar encountered technical difficulties, but "things came up and [he] didn’t pursue” a resolution, so only 2 of his 25 class meetings were recorded

**Non-Technical Issues:**

- One of the two professors who had signed up to use the Sympodium missed half of the semester because of medical issues, and the replacement instructor didn’t want to add the Sympodium to his already-increased responsibilities. These students were not surveyed after the semester, since they never had the opportunity to listen to recordings.
- The other professor who signed up to use the Sympodium also had an unexpected medical emergency that required him to miss 2 weeks of class meetings, and his replacement didn’t attempt to use the Sympodium
- One of the professors teaching in the room where automated audio-only recording was installed was not made aware of the system, so he did not let his students know that recordings would be available.
Some additional data that didn’t make it onto our poster (cont'd):

Post-experience Survey
Response rate: 29% (223/780)

<table>
<thead>
<tr>
<th>Quality and Usefulness of Recordings</th>
<th>Disagree strongly</th>
<th>Disagree somewhat</th>
<th>Neither agree nor disagree</th>
<th>Agree somewhat</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quality of the recordings was good enough</td>
<td>1%</td>
<td>2%</td>
<td>16%</td>
<td>24%</td>
<td>57%</td>
</tr>
<tr>
<td>I found these recordings to be useful in helping me learn</td>
<td>2%</td>
<td>4%</td>
<td>15%</td>
<td>21%</td>
<td>59%</td>
</tr>
<tr>
<td>I would recommend that we make similar classroom recordings available for other courses</td>
<td>1%</td>
<td>1%</td>
<td>7%</td>
<td>16%</td>
<td>78%</td>
</tr>
<tr>
<td>I would prefer that the recordings be available in a podcast format through iTunes</td>
<td>6%</td>
<td>3%</td>
<td>47%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>The recordings would be much more useful if I could see the teacher on camera</td>
<td>5%</td>
<td>8%</td>
<td>21%</td>
<td>30%</td>
<td>36%</td>
</tr>
<tr>
<td>The recordings would be much more useful if I could see what was written on the chalkboard</td>
<td>2%</td>
<td>3%</td>
<td>11%</td>
<td>28%</td>
<td>56%</td>
</tr>
<tr>
<td>(Students in classes with audio-only recordings) The recordings would be much more useful if I could see the Powerpoint or other computer presentation</td>
<td>2%</td>
<td>4%</td>
<td>19%</td>
<td>22%</td>
<td>52%</td>
</tr>
<tr>
<td>(Students in class with Sympodium recording) The recordings would have been useful even if they had only the instructor's voice, without any video (Note low response – n=10)</td>
<td>0%</td>
<td>20%</td>
<td>40%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>Do you think classroom dynamics (e.g., level of discussion, pace of presentation) were affected by the fact it was being recorded?</td>
<td>0%</td>
<td>3%</td>
<td>90%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>I was reluctant to speak up in class because I knew it was being recorded</td>
<td>75%</td>
<td>5%</td>
<td>18%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Effects of Recording on Classroom Dynamics

<table>
<thead>
<tr>
<th></th>
<th>Very negative effect</th>
<th>Somewhat negative effect</th>
<th>No effect</th>
<th>Somewhat positive effect</th>
<th>Very positive effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think classroom dynamics (e.g., level of discussion, pace of presentation) were affected by the fact it was being recorded?</td>
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</table>