

Adventures in Podcasting

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It all started with a scheduling conflict. Because of a Model United Nations conference, one student let me know that she would need to miss our research methods class the coming week. As hands popped up around the room I realized I would be missing almost a third of my class. Unfortunately they were going to miss crucial lectures on measures of significance and measures of association, without which they could be considerably lost when it came to the semester research paper.

I could hope that students would fall-back on their textbooks; however, only certain learners can successfully master stats from reading about them. At the same time, it would be impossible to condense the content of two 75-minute class periods into a brief 15-minute office visit, as at least one student would certainly ask me to do. And while I could rely upon other members of the class and their notes to serve as tutors, doing so would place a third of the class at the mercy of how well their friends had paid attention that day.

As a potential solution to my problem, I turned to the nascent technology of podcasting. My initial experiences with that methods course in fall 2005 became an ongoing quasi-experiment in which students in my courses could listen to recorded versions of our class lectures using their personal computer or MP3 player (see Miller 2006; Sampson 2006 for similar accidental introductions to podcasting).

What is Podcasting?

Podcasting stormed the world in 2005 so dramatically that the *New Oxford American Dictionary* declared it “word of the year” (Balas 2005; Eash 2006; Ractham and Zhang 2006; Skiba 2006). The term was coined in 2004, a combination of the “pod” from Apple’s popular iPod music player with “broadcasting.” The idea itself stretches back to the year

2000, and represents not so much a new and innovative technology as it does a new and innovative combination of existing technologies (see Hargis and Wilson 2007, 3; Schlosser and Burmeister 2006).

One component is RSS, or Really Simple Syndication, a technology that allows the creators of Web content to provide a separate “digested” version that can be read in news reader programs. One common use of RSS is on the customizable home pages offered by Yahoo and other sites, which assemble in one place news headlines from a variety of sources. Extensions to the RSS system have allowed updates to include multimedia content, such as images, audio, or video files. Enter the podcast.

In its current form, a podcast consumer uses a special podcasting client program (such as Apple’s iTunes music player¹) to locate available podcasts and subscribe to them. At that point, the magic of podcasting takes over. Periodically, the client program—what some users call a “pod-catcher”—checks to see if any of the user’s podcasts have been updated. New episodes are usually downloaded immediately, and the user is notified. Audio podcasts, the most common kind, can either be listened to on the computer or transferred to an iPod or other personal music player. Users can watch video content on a computer or on a suitably equipped MP3 player.

Adventures in Podcasting

As a result of recording and podcasting a few lectures at the end of the fall semester in 2005, I chose to conduct an informal experiment by podcasting each and every lecture from two of my spring 2006 courses, one an introductory American politics course (POLS 101), the other a section of our department’s methods in political analysis course (POLS 251). For every semester since then I have also provided a course podcast. While focusing only on lectures barely scratches the surface of how podcasts could enrich college instruction, my choice was motivated by the belief that podcasting lectures alone was a beneficial start. First, many students regularly struggle with a course for reasons unrelated to the content itself; some might be poor note takers, while others have difficulty seeing the big picture in the

different topics they learn. Even the best students find themselves at some point confronted by a baffling topic. Providing easy electronic access to lectures offers all students additional opportunities during the regular flow of the course to refine their understanding, reinforce material they struggled with, or correct deficiencies in the notes they took during class.

A related benefit for the student comes when preparing for an exam. Most students likely follow one or more common strategies in their review process: rereading their textbooks, reading through their notes, and drilling themselves on particular content items. The presence of a lecture podcast could serve as a valuable supplement, especially for those students who find themselves unclear on a particular topic that was covered during our time in class (see James 2006, 4; McLaughlin 2006, 10; and Windham 2007, 54).

Finally, a lecture podcast benefits the instructor as well. On the one hand, it provides a relief from students’ numerous requests for “mini-lectures” to review material they should have already learned. Perhaps more significantly, though, instructors can rest assured that the student who does happen to miss a class session for whatever reason is not disadvantaged by the absence (James 2006, 4; Miller 2006). Podcasted lectures also allow faculty a chance to reflect on their own teaching practices and effectiveness in communication (see Card et al. 2006, 138, for other possible benefits to faculty).

The obvious drawback of making lectures available online on a regular basis (as opposed to storing them up to release all at one point) is the potential negative impact on student attendance. A lecture available online could significantly impact a student’s decision to attend the actual lecture. My opinion on such matters is that students will take seriously those elements of a course that you imply are important by way of grading (see Baranowski 2006, 42). Consequently, to emphasize the importance of class attendance, I doubled its value in my 101 course and added an attendance grade for 251. Table 1 records the average attendance for the classes I have offered with a lecture podcast. Because I did not previously record attendance in

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Table 1
Course Attendance Before and After Podcasts

Prior to Podcast	POLS 101	95%
<i>Spring 2006</i>	POLS 101A	96%
	POLS 251A	93.6%
<i>Fall 2006</i>	POLS 101C	96.72%
	POLS 101D	92.72%
	POLS 251A	99.2%
<i>Spring 2007</i>	POLS 101A	91.8%
	POLS 251A	100%

my 251 classes, I do not have a baseline for comparison. However, the relative similarity of attendance averages before and after suggests that the availability of a podcast did not prevent a noticeable number of students from coming to class.² Table 2 reports answers to the question “Have you ever chosen to skip a class (for whatever reason) knowing that you could listen to the podcast later?” While responses to such a question should clearly be treated skeptically, they seem on the whole fairly acceptable. Whether steady attendance comes from the increased size of the attendance grade or, whether the podcasts themselves might spur increased interest in classroom time, my results seem to mirror other anecdotal research that podcasts do not necessarily remove students from the actual classroom (Windham 2007, 54).

Nuts and Bolts

Many hesitate to adopt instructional technologies because they are uncertain about how much time is required. After several semesters of experience, my general observation—presuming that we focus on a scenario in which the instructor podcasts without support from college IT staff—is that preplanning and choices about the complexity of the podcast itself dictate how much time will be required. I will discuss these factors as they impact the five separate phases of the podcasting process: recording, digitizing, editing, encoding, and uploading. My goal is to talk generally about the process of podcasting, not to offer a hands-on tutorial for how to do it. While I personally use an Apple Macintosh computer, the same process would work on Windows PC, albeit with different software programs.

My first attempts at podcasting were somewhat spur of the moment. As such, the limiting factor proved to be the actual recording of the course content. Our

Table 2
Response to “Have you ever chosen to skip a class (for whatever reason) knowing that you could listen to the podcast later?”

Course	Yes	N
POLS 101A, Spring '06	10.7%	28%
POLS 251A, Spring '06	7.7%	13%
POLS 101C, Fall '06*	15%	13%
POLS 101D, Fall '06*	27%	11%
POLS 251A, Fall '06*	10%	10%
POLS 101A, Spring '07	16.6%	30%
POLS 251A, Spring '07	21.4%	14%
<i>Average for POLS 101</i>	17.3%	
<i>Average for POLS 251</i>	13%	

*Surveys from fall 2006 were partial mid-semester surveys with limited participation.

college’s AV department offers the use of cassette recorders with lapel microphones. As the fastest and potentially most reliable way to easily record my lectures, cassette recording was the obvious first choice. The major drawback, however, is that before they can be used for podcasting, analog audio recordings must first be digitized—essentially recorded again onto a computer. While college staff could have helped with the process, I chose to go it alone figuring that what I would lose in terms of my own time would be gained by not having to depend on another individual’s workload. In general, digitizing audio content requires as much time as the recording itself. After every 75-minute lecture, therefore, I had to wait an additional 75 minutes. This solution might have been convenient, but it was not optimal. In addition to doubling time on the front end, most audio recording programs record audio into very large files that take up a significantly larger amount of storage space than they do when compressed into the common MP3 standard. This format can reduce 75 minutes worth of audio from the better part of a gigabyte down to 20 megabytes or even less, depending upon compression settings and choices about audio quality (see also Branzburg 2006). Reducing file size can be very important at institutions where network storage space is at a premium. While some might choose to delete old episodes after a certain period time, doing so decreases a student’s ability to review them later in the semester. However, storing a semester’s worth of audio recordings can take a fairly large amount of space.

After these first attempts, I chose to combine the recording and the digitizing

into one step so that as I delivered the lecture it was automatically saved onto my computer in a more useable format. The answer was a small microphone headset identical to the ones used by millions of individuals to make cellphone calls hands free. The \$40 version I purchased has proved reliable and effective, though the audio quality is not as good as one would find on a headsets costing over \$100. When paired with a shareware audio program, I was able to record my lectures as they happened.

By editing a podcast, I refer to time spent doing a variety of different tasks: removing extraneous silences or irrelevant content in the recording, as well as adding music, sound effects, or

other audio content. In this area, skill and planning can have a large impact on the time required. Polish and professionalism may certainly be a virtue in podcasting, but too much time devoted to selecting intro music or including radio-style sound effects can dramatically lengthen the time required for producing an episode. The faculty member who records a lecture directly into the standard MP3 format and who chooses not to edit or embellish the recording could bypass this stage entirely.

One aspect of editing that should be mentioned involves what are known as *enhanced podcasts*. Podcasts played back on Apple’s iPod music players or iTunes music software can include additional features, the most prominent of which is the ability to subdivide the podcast into numerous named chapters, making it very easy for listeners to jump to specific points in the audio. Chapter markers can also be accompanied by clickable links or image files (e.g., slides from a PowerPoint presentation). While enhanced podcasts might truly be useful, they have two drawbacks. First, their unique file format may not be playable for every student. Second, enhancing a podcast represents an additional investment of time in the form of reviewing the podcast itself in order to properly place the images or links, though programs to automate this process are now becoming available.

Depending upon the programs used to create the podcast, one may be able to bypass the encoding stage entirely. If, however, a program stores its files in a format other than MP3 those files will need to be converted before they can become part of a podcast. Depending on the length of the recording and your

computer's processing power, encoding could take the length of the recording itself or longer, especially if you attempt to use your computer for other tasks while encoding.

The final step of the process is uploading the podcast. Various software programs exist to ease this process, including the creation of the master podcast file that contains all the details about the podcast itself (necessary for users to find and download the content using their podcast clients). Most programs allow this information to be saved for later use so that uploading subsequent episodes is as easy as adding your new recording to an episode list, providing a title and description, and then pressing an upload button. For podcasts stored on campus-owned servers, uploaded from campus computers, most files should take no longer than a few minutes to upload. Content management systems like Blackboard are also beginning to offer podcasting components, though they still require you to separately create and upload the audio files to the server.

This process may sound complicated, and faculty members with limited technological skills may find it daunting enough not to proceed. After a few episodes, though, the procedure becomes routine. My typical day was as follows. Recording and digitizing occurred as I lectured. Once I returned to my office, I would open my audio editing program. To save time I used the previous episode as a template; doing so meant that my introductory music and my closing copyright notice were already in place. I would then insert the new lecture audio, trimming the ends as necessary to remove extraneous material. Recording a brief intro line with the date would bring my total editing time to perhaps 15 minutes total. I would then begin the encoding process as I continued the rest of my work. An hour or so later I would have the final version of my podcast episode, which I would then upload in a matter of minutes. On most days if I was not interrupted or otherwise occupied during the hour after class, my podcast would be updated within hours of the end of class.

Results of a Quasi-Experiment

What follows are some of the results of the anonymous web survey that I have given to students in the courses I have podcasted over three semesters at a private, religious, residential liberal arts college located in the midwest. The questions focus on gauging both students' actual use of and their reactions to

Table 3
Course Demographics

Course	% First Year Students	% Sophomore	% Upper Class	% Female	% Majors
POLS 101A, Spring '06	25%	50%	25%	57%	11%
POLS 251A, Spring '06	0%	60%	40%	31%	77%
POLS 101C, Fall '06	23.1%	53.8%	23.1%	53.8%	15.4%
POLS 101D, Fall '06	45.4%	27.3%	27.3%	36.4%	9.1%
POLS 251A, Fall '06	0%	30%	70%	50%	100%
POLS 101A, Spring '07	56.6%	26.7%	16.7%	60%	6.6%
POLS 251A, Spring '07	0%	42.9%	57.1%	50%	85.7%

Table 4
Responses to "During an average week, how much use would you say you made of the class podcast?"

Course	None	Not Much	Some	A Lot	Don't Know
POLS 101A, Spring '06	39.3%	42.9%	17.8%	0%	0%
POLS 251A, Spring '06	38.5%	15.4%	38.5%	7.7%	0%
POLS 101C, Fall '06*	46.2%	30.8%	23%	0%	0%
POLS 101D, Fall '06*	63.6%	27.3%	9.1%	0%	0%
POLS 251A, Fall '06*	40%	50%	10%	0%	0%
POLS 101A, Spring '07	63.3%	26.7%	6.7%	3.3%	0%
POLS 251A, Spring '07	14.3%	50%	35.7%	0%	0%

*Surveys from fall 2006 were partial mid-semester surveys with limited participation.

the availability of the podcast. Some general demographics are provided in Table 3.

One set of questions tapped the use of class technology on a day-to-day basis. As Table 4 shows, most students used the podcast sparingly. For each semester and course, the majority of students reported using the podcast either "none" or "not much." When asked about their podcast usage in reviewing for exams, the picture did change (see Table 5). More than half of students used the podcast either "some" or "a lot," suggesting that students saw the value of a podcast for review purposes. A full quarter of intro course students reported using the

podcast "a lot." Students were also asked to gauge how many of the podcasts they had listened to over the course of the semester. These results, found in Table 6, generally mirror the weekly results in being heavily weighted towards the low end.

For most courses I make my in-class presentations available on a web site as a separate set of downloads. However, since video podcasts (or vodcasts) are becoming more common and have seemingly eclipsed the enhanced podcasts described above, I asked students what their podcast usage would be if I made a vodcast featuring lecture slides synchronized with the lecture audio.

Table 5
Responses to Question about Podcast Use in Exam Review

Course	None	Not Much	Some	A Lot
POLS 101A, Spring '06	32.1%	10.8%	32.1%	25%
POLS 251A, Spring '06	38.%	7.7%	46.2%	7.7%

Table 6
Responses to “Roughly what percentage of all class podcasts would you say you have listened to this semester?”

Course	0–25% of All Podcasts	25–50% of All Podcasts	50–75% of All Podcasts	75–100% of All Podcasts
POLS 101A, Spring '06	82.1%	10.7%	7.1%	0%
POLS 251A, Spring '06	69.2%	7.7%	15.4%	7.7%
POLS 101C, Fall '06*	76.9%	15.4%	0%	7.7%
POLS 101D, Fall '06*	72.7%	18.2%	0%	9.1%
POLS 251A, Fall '06*	80%	20%	0%	0%
POLS 101A, Spring '07	90%	6.7%	3.3%	0%
POLS 251A, Spring '07	64.3%	35.7%	0%	0%

*Surveys from fall 2006 were partial mid-semester surveys with limited participation.

Table 7 shows quite clearly, and somewhat to my surprise, that students were dramatically in favor of a video podcast. This preference does appear to be conditional upon what the video content happens to be. Only lecture slides themselves received enthusiastic student support. A similar question asking about a video recording of the class session itself garnered almost no student interest.

Given the many comments made about podcasting as a tool to reach out to a generation increasingly tethered to their personal music players, perhaps the most interesting results (Table 8) come from a question that asked students how they most frequently listened to the class podcast. Of the seven courses, only three had more than 20% of students reporting their MP3 players as their principal mode of receiving podcasts; in no course did that percentage rise above one-third. These results are reported without control for actual MP3 player ownership.

For my spring 2007 courses I did include a question of player ownership. Interestingly, while more than half of my students had an MP3 player of some kind, students with players were no more likely to use them for my podcasts.³ This serves as something of an antidote to the podcasting literature’s dreams of students loading up their iPods with class lectures before they head to the gym for a workout.⁴ It is also in keeping with other studies that show that roughly only 20% of podcasts are actually consumed on a portable music player (Read 2007).

A Taxonomy of Instructional Podcasting

While podcasts are still the “bleeding edge” of the academic use of technology, their prevalence is growing. In some places, individual enterprising faculty members are pursuing podcasting. In others—Duke, Drexel, Purdue,

Allegheny College, the University of Chicago—podcasting has received an institutional push, in part because podcasting allows schools an additional public outreach opportunity (Skiba 2006, 54; see also Harkness 2006, 16). For example, an enterprising institution could use podcasts as a tool for recruiting new students, for maintaining contact with alumni, or for making other resources and assets available to the community, such as a special lecture series. Along those lines, Apple’s popular iTunes music store has added an iTunes U area that allows institutions a fairly easy way to bring their podcasts to a large audience.

Focusing on the narrower use of podcasting for instructional purposes, the first and most basic type of podcasting is that which I described above: the recording of class lectures for distribution online. This *coursecasting*, as many refer to it, is really podcasting “as an afterthought.” It represents a marginal investment of additional time and effort on the part of faculty, and for that reason it is an attractive first option for those beginning to podcast (see Windham 2007, 62). Coursecasting, however, barely scratches the surface of what is possible. At least three other types of uses are suggested by the rapidly growing literature.

A more ambitious and purposeful approach to podcasting would be what I call the *fireside chat* method. Just as many news outlets are using the web to offer materials that supplement their traditional coverage, podcasts represent an additional opportunity for delivering course content or reaching

Table 7
Students’ Likely Usage of a Video Podcast with Lecture Slides Synchronized to Audio

2006 Course*	Use Audio Only	Use Both Audio and Video	Use Video Only	Would Not Watch Video	No Response
POLS 101A, Spring '06	7.1%	25%	46.4%	17.9%	3.6%
POLS 251A, Spring '06	0%	15.4%	84.6%	0%	0%
POLS 101C, Fall '06	0%	7.7%	76.9%	15.4%	0%
POLS 101D, Fall '06	0%	18.2%	63.6%	18.2%	0%
POLS 251A, Fall '06	0%	10%	80%	10%	0%
2007 Course**	Use Audio Only	Usually Use Audio	Usually Use Video	Use Video Only	No Response
POLS 101A, Spring '07	6.7%	26.7%	46.7%	20%	0%
POLS 251A, Spring '07	0%	28.6%	64.3%	7.1%	0%

*Surveys from fall 2006 were partial mid-semester surveys with limited participation.

**Starting with spring 2007, I am using a refined version of this question.

Table 8
Principal Mode for Podcast Consumption

Course	Personal Computer	School-Owned Computer	MP3 Player	Computer and MP3 Player Equally	Not Relevant
POLS 101A, Spring '06	60.7% (89.5%)	3.6% (5.3%)	3.6% (5.3%)	0%	32.1%
POLS 251A, Spring '06	46.2% (66.7%)	0%	23% (33.3%)	0%	30.8%
POLS 101C, Fall '06*	46.2% (85.7%)	0%	7.7% (14.3%)	0%	46.2%
POLS 101D, Fall '06*	27.3% (60%)	9.1% (20%)	9.1% (20%)	0%	54.5%
POLS 251A, Fall '06*	50% (62.5%)	0%	20% (25%)	10% (12.5%)	20%
POLS 101A, Spring '07	43.3% (92.9%)	3.3% (7.1%)	0%	0%	53.3%
POLS 251A, Spring '07	85.7% (92.3%)	0%	0%	7.1% (7.7%)	7.1%

*Surveys from fall 2006 were partial mid-semester surveys with limited participation.

Note: The numbers in parentheses represent percentage of students who did not respond "Not Relevant."

course objectives.⁵ Campbell offers several examples of this form of podcasting, many of which center on preparing students for upcoming class sessions by exploring in detail some piece of course content, for example a particular poem in a poetry class or an academic article in a biology class (Campbell 2005, 34, 42).

The major benefit of this approach is that faculty members can expand the amount of time they have to deliver course content to students (see Boulos, Maramba, and Wheeler 2006, 3; Card et al. 2006, 138; Lee and Chan 2007, 92; Low and O'Connell 2006; Miller 2006; Schmit 2007, 15; Seitzinger 2006, 9; *Science Scope* 2006). And when this time is used for modeling valuable professional skills, such as interpreting a poem or critiquing a journal article, faculty can add significantly to their students' learning experience—though faculty must carefully weigh how large a burden to place on students' time outside of class (Lee and Chan 2007, 91). When asked about the optimal length of podcasts featuring additional course content, approximately 75% of students in my spring 2007 courses said that podcast episodes should last no longer than five to 15 minutes. Fireside chats also have the disadvantage that they require additional planning and time to prepare supplementary course content. Some evidence exists, though, that this loss of time might be offset by time that is freed up during class sessions (Ashman 2006, 9).

A third possible use would be "podcast as assessment." Seen as a form of oral or multimedia presentation, students

could be required to prepare brief podcasts as part of their grades. Campbell offers the hypothetical although creative example of a philosophy course in which groups making in-class presentations on various philosophers were required to pre-release a podcast teaser in order to whet students' appetites and prepare them for class discussion (Campbell 2005, 33; see also Flanagan and Calandra 2005, 21; Frydenberg 2006, 4; Harkness 2006, 23; Lee 2006, 28; Lee and Chan 2007, 99; Schmit 2007, 16; Warlick 2005; Windham 2007, 56).

While such podcasts have exciting potential, they belie two important potential problems. The first is that the success of technologically driven assignments depends on the particular students and their skills. A class of computer science students may have no problem creating their own podcast episodes. A class of political science majors, however, might require remedial technical instruction, something that the instructor should not overlook. While our students may have increasing levels of technological literacy, what is most needed for podcasting assignments is productive literacy—not simple "consumptive" literacy.

The second potential problem is a more philosophical one. At the beginning of his hypothetical example, Campbell refers to the way in which student-created podcasts would likely lead to an "informal, good-natured podcasting competition" centered around creating the most polished and "exciting" production possible (Campbell 2005, 34; see also

Frydenberg 2006, 5). While he seems unconcerned about such issues, Campbell's quip points out a very real downside to students' use of technology. Increasing scores of students are able to put together a PowerPoint presentation or film digital videos, but few of them may be able to make consistently positive choices about how to present content without overwhelming it with the chosen medium's design possibilities.

To use Campbell's examples, a student trying to create a "movie-trailer-style" podcast about Nietzsche, working "to combine the sound effects with the readings and commentary," will most likely be spending much more time worried about the sound effects than about Nietzsche. To be fair, this criticism applies to faculty and members of the professional or business community just as equally (see Glasner 2002; Madigan 2006; Oakes 1998; Tufte 2003). In this regard, perhaps the real need is not for greater technological literacy among our learners, but for an increased emphasis on how to leverage design so as to best illuminate content—what could be called *critical literacy*. Though his focus was digital recording equipment and not podcasting per se, Donald French echoes this concern when he notes that his biology students could easily record dissections but struggled with how to study effectively from such aids (French 2006, 59).

A final use of podcasting focuses not so much on the content as on the emotional effect that podcasts can have. Certainly useful in distance education but just as valuable for technology-enhanced

face-to-face courses, podcasts can serve as community enhancers. By offering a forum to respond to student concerns, either about course content or requirements, podcasts can draw students further into the educational process (Chan and Lee 2005, 65). Miller has effectively deployed podcasts in his psychology courses to “make a very large class feel “psychologically’ smaller”; students who helped produce fireside chat podcasts gained an excitement from their involvement, and those who listened found themselves attracted to the more intimate, informal mode of learning (Miller 2006). Discussing his pre-podcasting experience, Carmichael describes a student in a contract law class who told him that the use of specialized audio made her feel “loved” (Carmichael 2005).

Table 9
Student Reactions to Possible Podcast Content

POLS 101A, Spring '07 (N = 30)	Not at All Interested	Somewhat Interested	Interested	Very Interested	Mean
Lectures	20%	50%	26.7%	3.3%	1.13
Weekly Reviews	10%	30%	36.7%	23.3%	1.73
Current Events	26.7%	36.7%	36.7%	0%	1.1
Summaries of Readings	16.7%	33.3%	23.3%	26.7%	1.6
Previews of Future Classes	53.3%	33.3%	6.7%	6.7%	0.67
Guest Interviews	23.3%	46.7%	20%	10%	1.17
Student Roundtables	43.3%	26.7%	20%	10%	0.97
POLS 251A, Spring '07 (N = 14)	Not at all Interested	Somewhat Interested	Interested	Very Interested	Mean*
Lectures	0%	0%	64.3%	7.1%	1.5
Weekly Reviews	0%	0%	50%	50%	2.5
Current Events	0%	42.9%	42.9%	14.3%	1.71
Summaries of Readings	0%	14.3%	35.7%	50%	2.36
Previews of Future Classes	50%	14.3%	21.4%	14.3%	1
Guest Interviews	21.4%	64.3%	14.3%	0%	0.93
Student Roundtables	21.4%	50%	28.6%	0%	1.07

*Means are calculated based on the following coding: “Not at all interested” = 0; “Somewhat Interest” = 1; “Interested” = 2; “Very Interested” = 3

Observations

While this paper offers a broad description of podcasting’s potential, its empirical results are more limited. Far from being a comprehensive test of the instructional impact of podcasting as a whole, my own experience only covers the results of a limited trial using podcasts in one particular way, in one particular student body, by one particular instructor. However, I believe that important conclusions can still be drawn, ones that partly support the current interest in podcasting while offering a few correctives to untested presumptions about student behavior.

Observation 1: Content matters

Very few students report voraciously consuming podcasted lectures. There is good reason to believe, though, that a large percentage of students will use the podcast occasionally. Various comments offered by students suggest that they perceive a podcast as one of the many resources available to them. In all likelihood students will use podcasts (and other course resources) strategically in order to meet their own perceived needs. These needs will usually coincide with those a faculty member might anticipate; student comments highlighted the utility of the podcast for correcting deficiencies in notes, reviewing for exams, and making up absences. Despite the novelty of the podcast, the fact that students ap-

proached it from a practical point of view suggests that the success of instructional technologies lies more with their actual ability to improve the educational experience than with their “wow factor.”⁶ Still, faculty may want to be attentive to ways they can guide students in making the best use of available resources. Just as many students need to be taught how to take good notes and to use notes in studying, so too might they benefit from some guidance on when and how to use podcasts.

In thinking about how to transition my podcasts to include more fireside chats, I asked my spring 2007 students about their interest in seven content types frequently discussed in the literature. These results are displayed in Table 9. Some understandable differences do appear between the perspectives of students in my introductory American politics and my upper level methods course. However, students in both reported a particular interest in two specific types of

podcasts: brief (five to 10 minute) reviews of important points and concepts from the week, and summaries or discussions of class readings.

Observation 2: Context matters

Examining student usage of the podcast aggregated by type of course (Table 10 and Table 11) suggests that the podcast proved somewhat more successful in the upper-level course. Many faculty and even institution-level decisions about deploying instructional technology tend to focus on higher-enrollment intro courses. While my experience does not contradict “bang for the buck” reasoning, it does suggest that upper-level courses with noticeably harder content should not be ignored (see also Jham, Duraes, Strassler, and Sensi 2008). Students in such classes might actually derive greater benefit from additional technological resources.

Table 10
Weekly Use of Podcast, Aggregated by Course

Course	None	Not Much	Some	A Lot
POLS 101	53.1%	31.9%	14.2%	0.8%
POLS 251	30.9%	38.5%	28.1%	2.6%

Table 11
Overall Use of Podcast, Aggregated by Course

Course	0–25% of All Podcasts	25–50% of All Podcasts	50–75% of All Podcasts	75–100% of All Podcasts
POLS 101	80.4%	12.8%	2.6%	4.2%
POLS 251	71.2%	21.1%	5.1%	2.6%

Observation 3: Sound is not enough

Despite the extra space they require and the extra time necessary for downloading them, students appear eager for video podcasts incorporating lecture slides. My suspicion is that this preference is driven by at least three factors. First, for most students a video podcast is no more cumbersome than an audio podcast. High-speed campus networks, the background downloading offered by most podcasting programs, and the fact that few students consume a large number of coursecasts all mask the added size of vodcasts. Second, for many students the desire for lecture slides in a vodcast probably reflects a general interest in having printed or electronic copies of in-class presentations to ensure they had the important points from each class's lecture. Third, whether students realize it consciously or not, a podcast containing lecture slides would make it easier to navigate to specific portions of the lecture, something that several students mentioned as necessary for their continued use of the podcast.

While students may be for video podcasts, faculty might not. The rise of consumer video editing software and increasingly powerful desktop computers certainly make professorial video-editing feasible. Creating a vodcast, though, requires a noticeably greater amount of time and attention than does an audio-only podcast. Faculty may need to turn to information technology staff or student assistants to help offset the costs of deploying video podcasts.

Observation 4: Podcasting alone does not improve instruction

If all one does is record the events transpiring during class sessions, podcasts will do little to enrich teaching or the learning process. In fact, this form of coursecasting will probably shape the instructor's choice of classroom activities towards those that are easiest to capture electronically. While several students in my classes regularly enjoyed the chal-

lenge of getting their voices onto the podcast, in general classroom discussion is captured very poorly. Long stretches of uninterrupted dialogue from one speaker—in other words, a lecture—tend to be the easiest for the layperson to capture and manipulate. The use of extra microphones, one for the instructor and others for the class itself, would help record discussion. Doing so, however, would complicate the process sufficiently that it might slip beyond the technological ability or interest of most faculty members.

However, podcasted lectures tend to inherit the worst pedagogical aspects of lectures themselves, including an over-emphasis on transmission theories of learning that assign students a passive role in the learning process (Swann 1998, 211). While almost no one recommends doing away with lectures entirely, a sizable body of research argues that the most effective learning is active learning. Under such theories students bear some responsibility for constructing knowledge, not just receiving it passively from educators (see Brock and Cameron 1999; Brown 2000; Duffy and Cunningham 1996; Henry 2002; Salomon 1998). To realize the benefits of this perspective requires adopting a variety of strategies that go beyond simple straight lecturing. Podcasting class sessions will itself benefit learning only to the extent that the class sessions themselves do. A strategic use of podcasting, though, could have the potential to reduce the amount of time spent in the classroom lecturing so that more time is available for true active learning opportunities.

Conclusion

Podcasting is not for everyone. Faculty who are uncomfortable with computers, audio hardware, or non-standard software applications may not find podcasting worth the effort. However, individuals with adequate skills or those whose institutions offer sufficient support services must still remember that podcasting should be part of a holistic pedagogical strategy. On the other hand,

given the evidence that students perceive a podcast to be one of many resources available to them, podcasting may make a great deal of sense in some cases. Students might in fact avail themselves of a podcast more than they would of faculty office hours. The podcasting decision also depends on the academic setting. Larger schools are more likely to have the technological resources available to support podcasting, and it is the mob-sized introductory class at such schools that often are targeted for podcasting. Smaller liberal arts schools with seminar-sized classes might feel differently.

My presumption throughout this article has been that instructional podcasts would only be available to the students taking a course. A whole new dimension of the issue appears if one thinks about making these podcasts available to the public at large. Doing so raises a host of questions about the ownership of intellectual property, the commodification of faculty, and institutional control of education. When done successfully, though, public podcasts create a potential way for faculty members—and by extension, their sponsoring institutions—to build interest and possibly increase enrollment in courses themselves (see Jade 2005; Klowden 2006; see also Savel, Goldstein, Perencevich, and Angood 2007 for non-academic applications). For an excellent treatment of the institutional aspects of podcasting, including intellectual property issues and how schools attempt to make podcasting easier for professors, see Read 2007.

Despite some of the negative observations made above, I have continued podcasting. Lecture podcasts have their place but their use will quite logically be limited, since few students can afford to effectively double their in-class time by listening to each lecture twice (see Frydenberg 2006, 3; Long 2007). Fortunately, podcasting's real educational benefit very likely lies in the medium's ability to augment and not simply duplicate existing course aspects. Students might be far more likely to take advantage of a podcast that offered a series of short, easily consumable, optional segments that complemented the rest of the course—illuminating difficult course content, relating it to contemporary issues, and modeling for students the skills, interest, and professional behavior we hope to instill in them. While they might take more of our time, it is in preparing these fire side moments that we can leverage technology to meet our true ultimate goal: providing rich educational experiences that benefit as many students as possible.

Notes

1. Though Apple makes its own line of personal computers that compete with Windows PCs, Apple's iTunes program, and iPod players also support Windows.
2. My average attendance grades should be taken with a grain of salt. I assign students a set number of points for each class period they attend, and adjust the total points possible each semester so that students can miss several classes without it affecting their grades.
3. Adding a technology-dependent component to a course, such as podcasting, does start

to raise broader questions of economic access to technology. My experience might be very different from that of someone teaching at a small community college without much institutional investment in student computing resources and whose students generally do not own personal computers or music players.

4. For a longer discussion about students' ability to listen to audio podcasts while performing other tasks, see French 2006 and Lim 2006.

5. While I began using the term "fireside chat" on my own, subsequent research has shown that John Carmichael has long used a

number of audio technologies to offer students fireside chats (Carmichael 2005).

6. Readers interested in such questions should examine the running debate between Robert Kozma and Richard Clark about the role that instructional media play within the instructional process (see Clark 1994; 2001; and Kozma 1994 among many others). Weighing the authors' respective arguments is complicated, though, by the extreme difficulty of creating rigorous testing environments that separate out the impact of technology from other influences on student learning (Joy and Garcia 2000).

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