

Instructional Technology Survey

January-February, 2008

Harvard University
Department of Romance Languages and Literatures
rl@fas.harvard.edu

Executive Overview

Project Mission:

As digital technologies become a more important part of students' lives both inside and outside the classroom, we investigate which teaching methods and tools the students find most helpful. We also seek to uncover differences between subgroups of the student population, such as undergraduates and graduates, and individuals in different academic divisions. For 16 electronic teaching methods, we asked students to vote on the usefulness of each and whether they have previously used each technology as part of a course.

Findings:

Across all concentrations and student levels, the posting of course materials online and interactive syllabi are rated as the most useful instructional technology tools. In their written responses, students expressed appreciation for technologies that make their access to course materials more convenient and the exploration of additional concepts easier. Many view the posting of materials online as an expectation for a course, rather than a bonus.

In some cases, opinions of undergraduates and graduates differ. The most significant example of this disparity is recorded lecture videos, which undergraduates valued more. Many cited the usefulness of videos for reviewing difficult concepts after class or studying for exams. Contrarily, graduate students used videos less (perhaps because of the nature of their courses) and lamented the fact that some undergraduates use videos as a substitute for attendance. Some proposed solutions included (a) taking attendance at lecture, (b) requiring class participation, or (c) restricting video access until the week before an exam.

The correlation between prior experience with higher perceived usefulness is strong. For nearly every technology, people who have prior experience with it value it more. This was most apparent at opposite ends of the complexity spectrum: simple tools like online reading lists and advanced tools like RSS feeds or podcasts showed the largest differences between users with and without prior interaction.

All academic divisions – humanities, social sciences and the sciences -- tend to fluctuate together in their usefulness rating of technologies, although some differ in absolute value. For example, students in the sciences value recorded lecture videos more than anyone else.

Benefits of Instructional Technology:

Students reported a number of benefits of using technology in education. They cited the convenience of having material in one place, the ability to review lectures, to engage in discussions with forums, to use blogs to connect material with current events and to view foreign video clips on sites like YouTube.

Negative Effects of Instructional Technology:

Students note that instructional technology provides a bounty of opportunities. The general consensus is that technology, when used properly, is wonderfully helpful and sometimes transformational; but there are areas of concern which ought to be addressed. Students are concerned about class attendance, distractive multitasking, "the ease of access to information taking the place of knowing or even processing information" and maintaining in-person dialogue with professors.

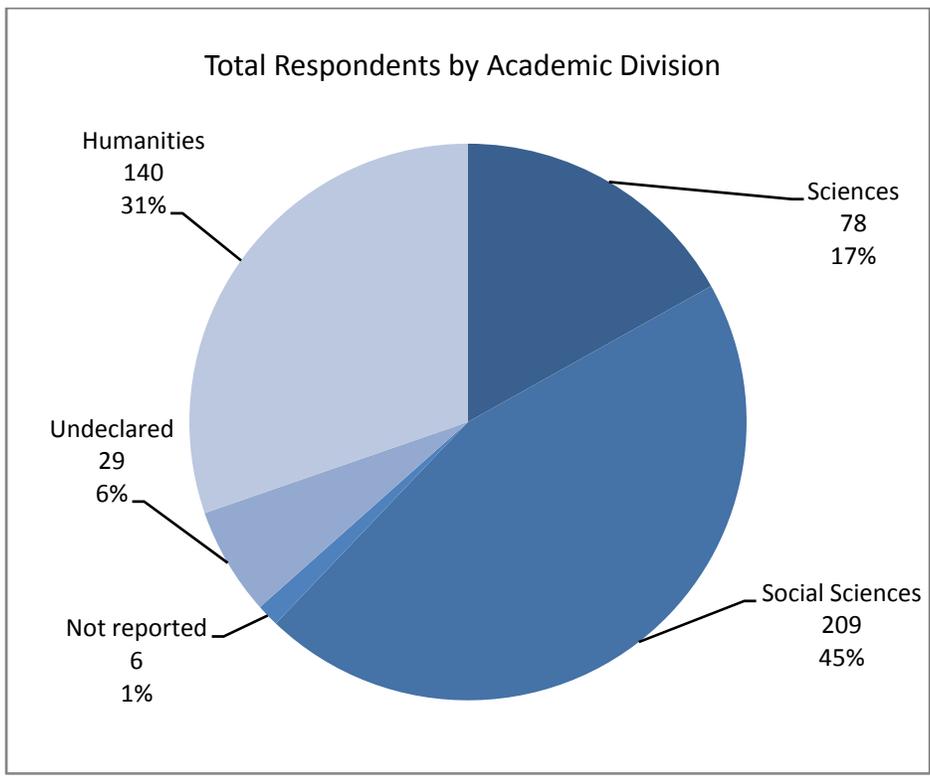
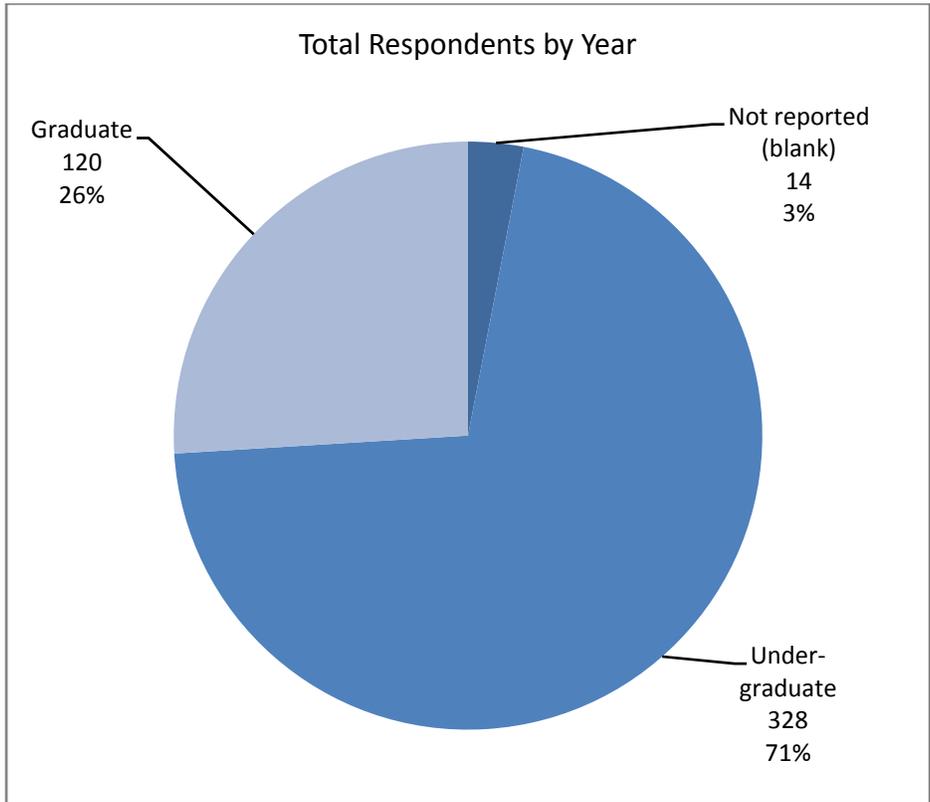
Conclusion:

We believe that instructional technology, when implemented properly and thoughtfully, provides enormous opportunities for active and engaging learning.

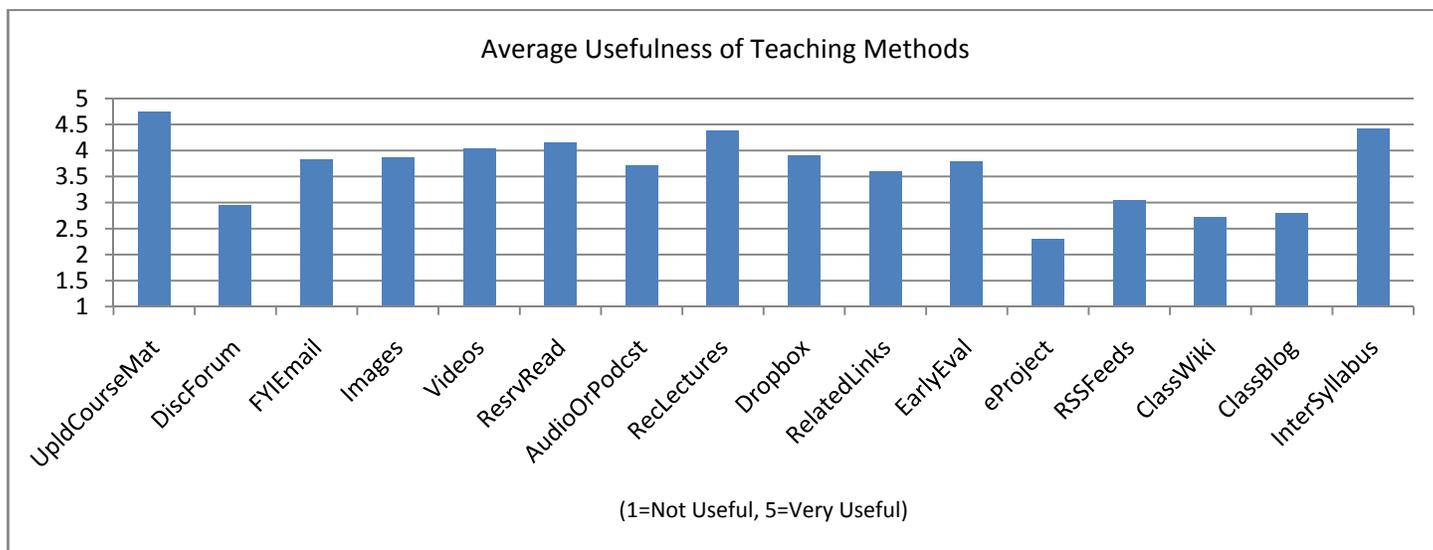
Overview of the Survey and the Sample Population

Key Demographics:

463 individuals were polled between December 7th, 2008 and December 20th, 2008.

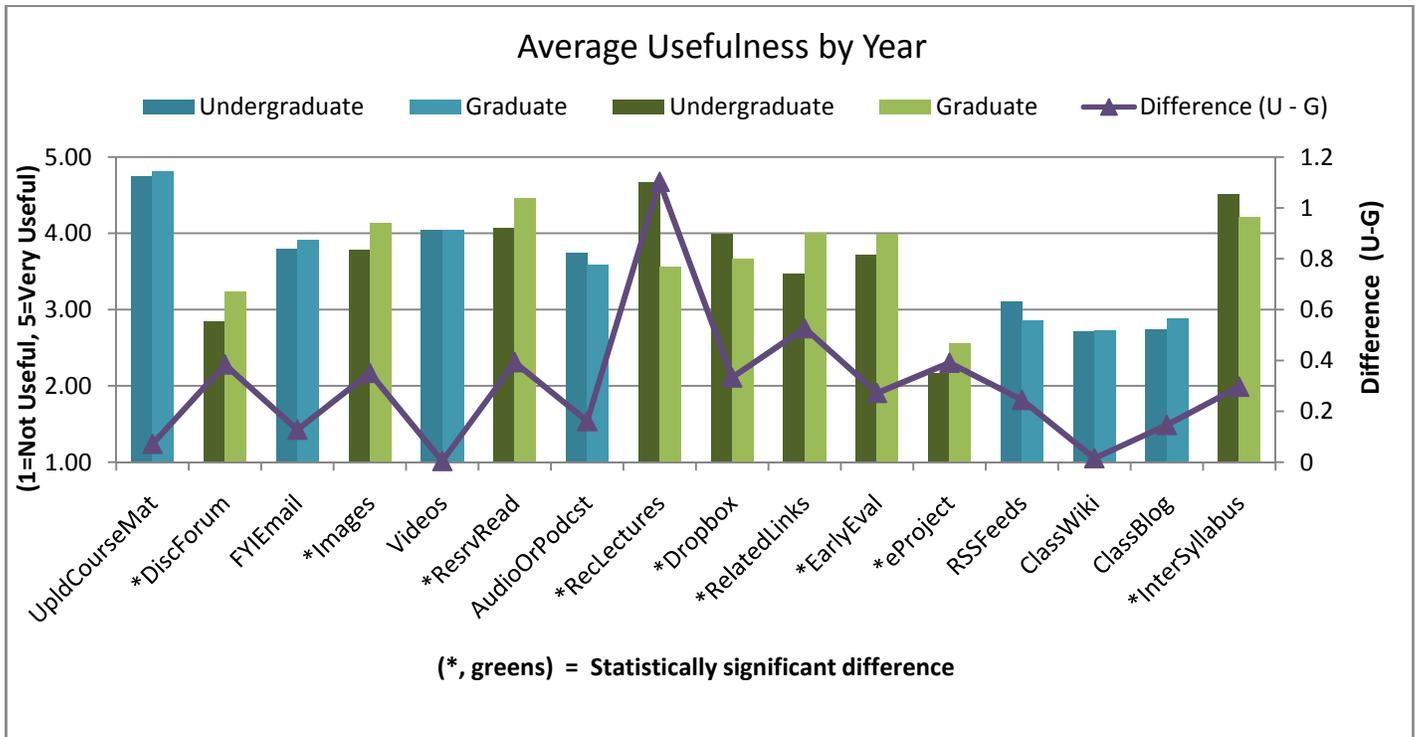


Average Rating of Usefulness of Teaching Methods of All Respondents



- UpldCourseMat** Uploading of course materials to the course website (e.g., readings/handouts/assignments for access by students).
- DiscForum** Discussion forums/reaction papers posted by students on the course website for viewing or comments by other students.
- FYIEmail** Informal or “FYI” email communications from the instructor on topics of possible interest to students or related to the topic of the course
- Images** Posting of relevant images (photos, paintings, etc.) on the course website
- Videos** Posting of relevant videos (movie clips, interviews, performances, etc.) on the course website
- ReservRead** Posting of reserve reading lists on the course website
- AudioOrPodcst** Posting of audio files or links/feeds to podcasts
- RecLectures** Posting of videos of lectures given in class on the course website
- Dropbox** Use of a dropbox with which students submit electronic copies of assignments
- RelatedLinks** Links to related, but not required, content online to supplement the main body of course materials (text materials, videos, audio files, library resources, etc.)
- EarlyEval** Early evaluations (students provide feedback to the instructor midway in the course)
- eProject** Use of an electronic project as a means of evaluation (e.g., create a virtual museum for an art history course, or a short movie for a visual studies course)
- RSSFeeds** RSS Feeds on the course website, with updated topical information relevant to the course
- ClassWiki** Class or project Wiki, in which students collaboratively edit a document
- ClassBlog** Class or project blog to which students collectively post
- InterSyllabus** Interactive syllabus, i.e., a chronology or outline of the course with active links to materials relevant to individual sessions of the class

Usefulness of Teaching Method by Year (Graduate v. Undergraduate Students)



Summary of Findings:

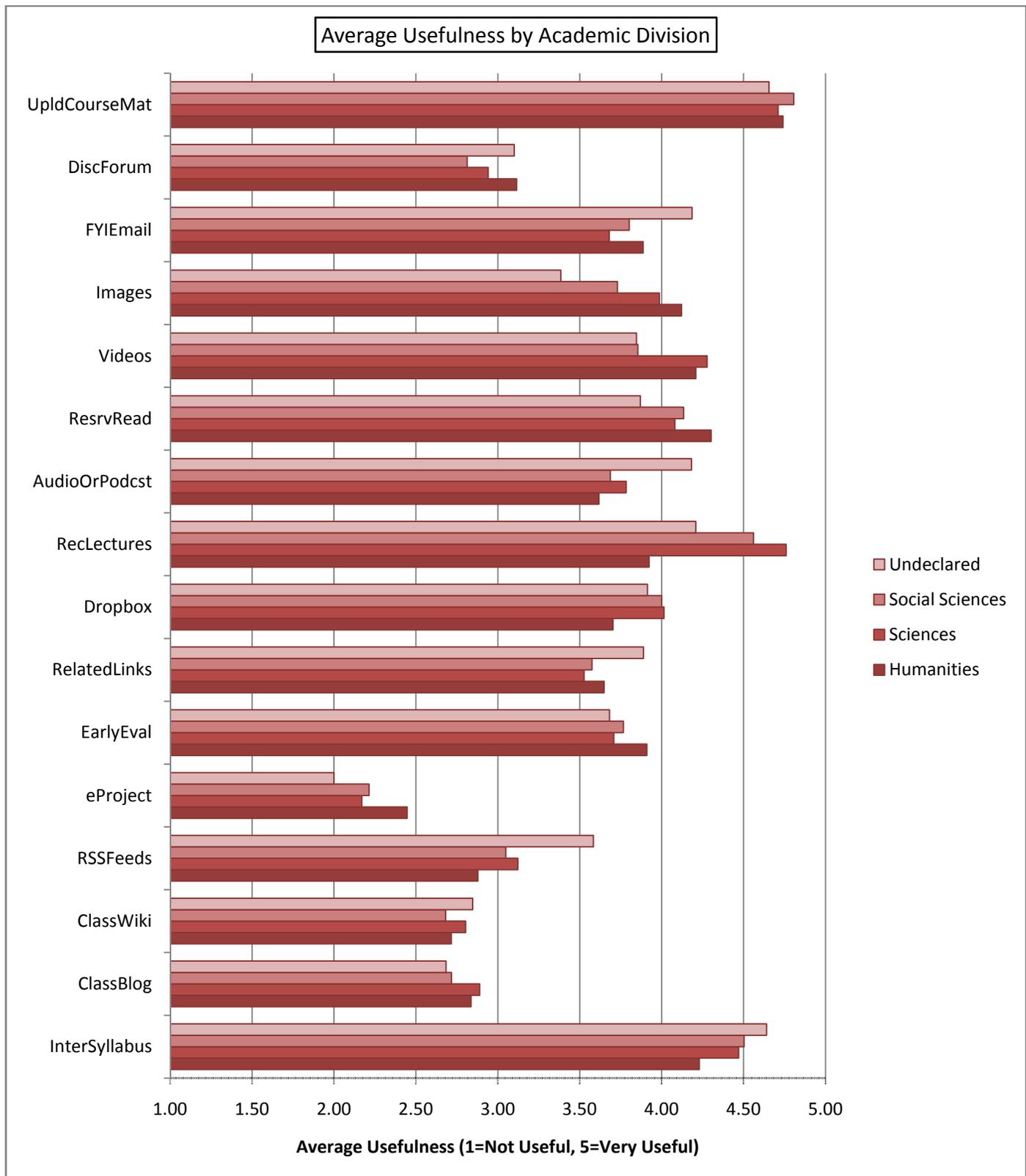
Graduate and undergraduates differ in their perceptions of how useful a teaching method is. Graduate students appear to value discussion forums, posting of reserve readings lists, links to related content, and early instructor evaluations marginally more than undergraduates. The greatest difference between the two groups is with recorded lecture videos, which undergraduates value significantly more than graduate students.

Analysis of the opened-ended responses (selected portions of which are found at the back of this report) suggests that graduate students who act as TFs for a class are concerned that lecture videos may encourage undergraduates to skip class. Undergraduates, meanwhile, extol the virtues of recorded lectures as study aides before exams and as a way to review difficult material after class.

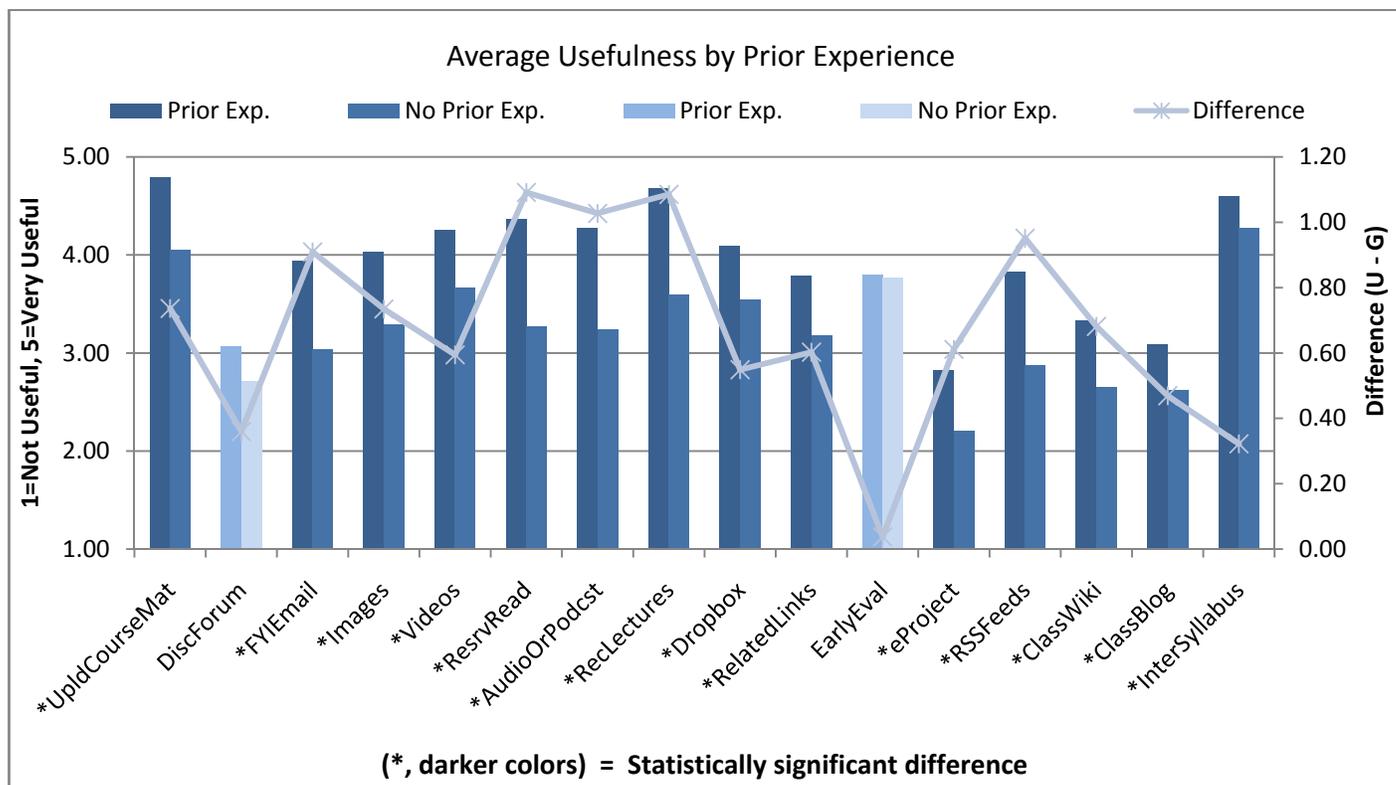
Rating of Usefulness of Teaching Method by Academic Division

Summary of Findings:

The ratings of a teaching method fluctuate in parallel across divisions. In some cases, however, there are differences in absolute ratings. The most prominent examples of this are recorded lectures, electronic projects, and RSS feeds.



Rating of Usefulness of Teaching Method by Prior Experience



Summary of Findings:

The findings in this analysis are non-trivial. For nearly all teaching methods, individuals who have used the technology perceive it as being more useful than those who have not.

With relatively new technologies, such as RSS feeds and podcasts, students appreciate them more once they gain exposure to them. Interestingly, the same applies to fairly mundane and straightforward features, such as an interactive reserve reading lists

This analysis implies that students may not be vocal about requesting certain teaching methods since they do not know just how helpful they may be.

Method	Prior Exp.	No Prior Exp.	P-value
*UpldCourseMat	4.79	4.05	0.001%
DiscForum	3.07	2.71	17.939%
*FYIEmail	3.94	3.03	0.000%
*Images	4.03	3.29	0.000%
*Videos	4.25	3.66	0.000%
*ResrvRead	4.36	3.27	0.119%
*AudioOrPodcst	4.27	3.24	0.000%
*RecLectures	4.68	3.59	0.000%
*Dropbox	4.09	3.54	1.918%
*RelatedLinks	3.78	3.18	0.000%
EarlyEval	3.80	3.76	64.781%
*eProject	2.82	2.21	0.003%
*RSSFeeds	3.83	2.88	0.000%
*ClassWiki	3.33	2.65	0.000%
*ClassBlog	3.09	2.62	0.730%
*InterSyllabus	4.60	4.28	1.770%

Selected Responses: Effective Uses of Technology

Of all the tools available to an instructor, which in your opinion are the most effective in engaging students in the learning process and generating enthusiasm for the material? If you have experienced them at Harvard, in what course?

“The visual and audio element that isites has brought into the classroom (pictures and audio clips that can be used, easily, in lecture!) has made the literature courses I teach more engaging.

“Lecture Videos! Often professors might think that posting lecture videos will result in lower lecture attendance rates. This is untrue. Lecture videos are a way for students to review material effectively. “

“Technology is awesome. Interactive syllabi and online library reserve lists and anything that serves as a reference guide are always useful, because of convenience. “

“The web can help people stay engaged outside the course hours. For example, posting a "quote of the week," or links to related activities in Boston.”

“I think that the most important thing for a professor to do is be an engaging lecturer and provide interesting outside readings/sources. The extent to which technology facilitates this (reserve lists, copies of otherwise unavailable reading and presentations, etc) is the most important.”

“Posting unrequired materials that are related to the course that students can read/visit themselves, used in CS50.”

“The most engaging tool for me has been the interactive syllabus. It helps me to keep track of what I'm doing and when things are due.”

“In my Italian language courses, instructors used online television programs from Italy to help us become familiar with culture and oral comprehension.”

“I like the use of blogs to replace weekly response papers. They are less formal, and equally effective. ”

“Using multimedia on the course website can be very engaging, allowing students to explore secondary material at their leisure. Picture, news articles, research articles, youtube, links to secondary text materials and hollis. All of these are great ways to engage the student online. ”

“Coming to Harvard from MIT was quite a culture-shock, as I was used to courses in the humanities making much broader use of emerging technologies. Specifically, I think that tools that allow students and instructors to organize, manipulate and explore diverse materials (images, documents, video, audio, numerical data, etc.) along with those that extend discussions beyond the classroom (interactive forums, email lists, collaborative web pages) are the ones most likely to impact teaching in our discipline(s).”

“Links, videos, audio: French 35, French Ca, French Cb”

“Use of websites e.g. dohistory.org or the Valley of the Shadow project in class immediately sparks students' interest.”

“PowerPoint presentations that are available after class on the website and handed out in hard-copy form before lecture.”

“I like connections made to real life. For example, in QR50 we saw short video clip at the beginning of the year which was a great way to introduce the course.”

“The best 'tool' is a good teacher in the classroom. The rest is absolutely secondary.”

“A link to author's biographical information through Hollis and Web-logs! “

“It's great for students to see connections between their world and the world of the course, so using a course website to post links to contemporary, non-syllabus material is useful. “

“Online drop boxes are convenient, though to my mind much the same as just emailing one's assignment to the instructor.”

“I sat in on Prof. Greenblatt's silk road course and was inspired by his use of Google Maps to help students conceptualize the geography they were being asked to consider. I also find that every-day course websites make learning and research more convenient and less tedious.”

“I'd like to see more professors engage in online blogging or choosing RSS content for a course. “

Selected Responses: Downsides of Technology

Are there any downsides that you see to the expanding use of digital technologies in education? If so, please describe them.

“Clearly, the availability of lecture material online -- whether videos or merely power points -- is decreasing student attendance to some classes.”

“I think that many instructors use email and course websites as a crutch, and no longer feel the need for personal conversations because the same questions can be answered quickly via email. I think this is really a shame and instructors should be aware of the effects of technology of distancing them from their students.”

“1) Students need to also learn to engage with scholarly material without constant visual input. I'm concerned that their attention span only continues to diminish.”

“Ease of access to information moves to take the place of knowing the information or even processing the information at all, which of course is in direct opposition to the purpose of such technology.”

“Quotas for posting on forums or replying by email amounts to busy work.”

“ A 2 page weekly reading response is appropriate, for example. A 150 word blog post is not.”

“So long as expanding digital technologies doesn't begin to replace the necessary human dialogue that makes learning most effective, I don't see any immediate downsides. In fact, if digital technologies enhance said dialogue then they are to be heartily pursued.”

“Certainly putting too many things on the website might end up being overwhelming for the student, especially if they come in many different formats. Perhaps a how-to briefing by TF or professor on the use of various digital technologies would go a long way to fixing the possibility of turning off the student.”

“They can decrease person to person interaction.”

“The use of entirely online notes without physical accompaniment is not helpful.”

“I do not see any downsides. Technology will only improve as time continues, meaning that any current issues will end up being resolved.”

“It seems that the only possible downsides to the expanding use of digital technologies in education would lie--as with any innovation--in their pedagogical application in a less than rigorous way. “

“Making students print out vast quantities of material that would otherwise be in a course pack. “

“There is a risk that students may not be as actively engaged in seeking scholarly knowledge; I think it is important to avoid spoon-feeding the students. “

“I'm not always sure that undergraduates are "multitasking" effectively when browsing Facebook, sending and receiving e-mails, using IM, etc. during lectures. “

“The substitution of interacting content for critical thinking and discussion. “

Notes:

Methodology:

Students were surveyed using the iCommons Poll Tool and were contacted through residential House lists and graduate coordinators in various departments in FAS.

Statistical Tests:

A two-tailed t-test was used to calculate p-values at the 0.05 significance level.

Without sampling the entire student population, we need to determine if differences in our sample group are significantly different enough to infer a difference in the student population as a whole. In order to determine the statistical significance of differences between usefulness ratings of two groups, we use t-tests, a common statistical tool, at the 0.05 significance level. The “P-value” of a given difference (say, between undergraduates and graduate students) is the chance that a difference as large or greater would be observed if the two groups had identical opinions in actuality. If this number is very small—that is, the chance of observing a difference such as ours is very slim—we conclude that the difference is statistically significant and, for example, that undergraduates find lecture videos more useful than do graduate students. The significance level, 0.05, indicates the p-value threshold. If the p-value is greater than 5%, the result is not statistically significant.

Acknowledgements:

Results were analyzed and this report was prepared by Anthony A. Pino '10, an Economics and Italian Studies concentrator in Leverett House, in collaboration with Kirk Kinder, Department Administrator in Romance Languages and Literatures.