

The New Imperative for Lecture Capture Systems in Higher Education

**How Competition, Affordability, and
Business Benefits are Driving Adoption**

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Executive Summary

Technology in higher education is rapidly changing based on constant technological innovation and more incessant demands from learners and faculty alike. As a result, the “refresh rate” on technology deployments in recent years has begun to narrow. Put simply, technologies often now are purchased with a shorter time frame in mind, and the knowledge that they may be supplanted, supplemented, or expanded upon sooner rather than later. The pressure this fast rate of change places on institutions contrasts with the need to be methodical in selection of what to deploy. Colleges and universities must be savvy as never before about making wise investments in technologies that are “need-to-have,” not “want-to-have.”

Lecture capture now falls into the “need-to-have” category. The relatively new breed of lecture capture solutions, which refers to any technology that allows instructors or presenters to record what happens in their lecture hall and make it available digitally, is changing how higher education thinks about technology while also changing the competitive landscape. This is for two major reasons: 1) Lecture capture enhances and extends existing instructional activities, whether in face-to-face, online, or blended learning environments, thus extending the reach of an organization, and 2) lecture capture is so easy to use and manage, it offers unique and visible return on investment not often found in many more complex or similar technologies (such as Course Management Systems). That ROI can be seen in improved learner outcomes, reduced attrition, and even reduced travel costs. And because learners increasingly expect to encounter technologies that can assist them in their learning environments, the ROI can be seen in the ability to attract learners based on lecture capture as a component of a university or college’s suite of offerings.

Based on survey work conducted by Wainhouse Research and described in this paper, at least three out of five (60%) respondents believe their budgets are sufficient to allow them to roll out and support lecture capture solutions. That number will increase as pricing models are better understood and colleges and universities come to understand the ROI provided by lecture capture solutions. Additionally, the competitive environment is evolving such that new entrants are bringing solutions to market that are more affordable than ever before.

The ability to improve student successes / learning outcomes and increase student retention are the most cited reasons for adopting lecture capture solutions, and they point to the pressures faced by every college and university: the need to successfully educate students, and keep the students enrolled long enough to successfully graduate them. These are followed by learner-driven expectations and requests for technologies like lecture capture, as well as the ability to achieve greater reach to remote learners and campuses, and to be able to generally improve existing online / distance learning / continuing education offerings.

As borderless online universities, enabled by digital distribution, continue to roll out programs that attract students to undergraduate and graduate degree programs, and as public and private colleges and universities expand their online offerings, schools are hard-pressed to understand if and how they may be losing potential learners to far away and regional competitors. Yet educators surveyed for this paper are loud and clear that lecture capture plays a role in institutional competitiveness. In fact, four out of five respondents (79%) believe that lecture capture is a somewhat, very, or highly competitive offering for

their schools – one that differentiates them from those institutions of higher learning that lack lecture capture capabilities.

The data described in this white paper show that lecture capture has come of age. It not only is well accepted. It also is affordable, easy to use, and becoming expected – especially by students who have grown up immersed in the flexibility of digital media – the *digital native* generation. Unlike some technologies, lecture capture is experiencing rapid growth because it both enables and leverages many mainstream technologies (the World Wide Web, PC's, streaming video, podcasting) and has come to market with a clear set of benefits for institutions of higher education.

The promise of going digital – the ability to capture classroom content and deliver it on demand to students via the Internet (or other networks) – holds the potential to truly transform the educational process. Until recently the digital revolution, which has transformed our lives in so many ways, has been largely missing from the classroom. Thus lecture capture solutions are true game changers, as this white paper explores and demonstrates.

Overview: Transformative Educational Technologies

Much has been written about the evolution of educational technologies, from the adoption of pen and paper and mass produced books to blackboards to digital technologies like PC's, electronic whiteboards, personal productivity software, online learning, and rich media. Many of these technologies (whether analog or digital) have contributed in some way or another to educational processes. And each of these technologies has played its own role in contributing to the heart of the educational process: the relationship between educator and learner, and how the educator fosters a relationship between learner and subject content. Less often discussed is how educational technologies can have a transformative impact on institutions of higher education, leading to new ways of doing business, reaching learners, and supporting educators. This may be because technologies that hold the potential to truly transform the educational process are few and far between.

The promise of going digital, the ability to capture professor- and learner-generated content – which holds the potential to transform the educational process – until recently has been largely missing from the classroom. Learners traditionally have taken pen to paper or more recently fingers to keyboard to capture their notes from a class, relying on their own ability to capture information while also trying to comprehend and learn. And for many years now higher education has relied on what we call “analog bootstrapped” approaches, often creating their own methods of recording classes or research collaborations using various audio/visual technologies like cassette tapes or videotapes, CD's, and DVD's – with minimal, *typically manual* management, organizational, and distribution capabilities.

This is rapidly changing as a result of lecture capture solutions, which already are beginning to transform how universities and colleges think about technology. This new breed of platforms capitalizes on developments in digital technologies. “Lecture capture” refers to any technology that allows instructors or presenters to record what happens in their lecture hall and make it available digitally. Lecture capture enhances and extends existing instructional activities, whether in face-to-face, online, or blended learning environments. It works especially well in subject areas where students benefit from repeated viewing of content, such as mathematics, medicine or science. The video on-demand aspect of lecture capture allows students to closely examine the steps of a demonstrated procedure or stop to focus on important actions in a complex process.

For the purpose of defining terms, lecture capture should not be confused with streaming video, which also is in use at many universities. Lecture capture offers substantially more publishing, production, management, and other capabilities than are found in traditional streaming video, while to the professor using the technology, the experience is simpler and easier to use. (To the learner, the experience is far more utilitarian because of the greater breadth of review tools.) In effect certain tasks are automated for the academic so he or she can focus on teaching, while learners have the ability to focus on the instructor during a class and then review material later at their own pace.

Most colleges and universities vary in pace of technology adoption; some are early adopters, some wait until technologies are tried and tested by others. Typically they have a business or pedagogical need, however, and they typically share certain desires: improved learner outcomes, improved retention, delivery of applications that relate to subject matter or skill set development requirements, and technologies that make teaching or managing learner needs easier. These expectations concerning the

benefit of educational technologies apply whether one is discussing the traditional classroom, online learning (which may or may not have a distance education component), or distance education programs – which themselves often are predicated on an even greater quantity of technologies for delivery to remote learners.

Yet lecture capture appears to be entering the realm of higher education faster than have many other technologies in the past. While learners are clamoring for lecture capture solutions at many colleges and universities, how are educators assessing and acknowledging the value? To find out, Wainhouse Research recently conducted a survey for TechSmith, sponsor of this study, to examine the perceived benefits to institutions of higher education today and in the future. The results are contained in this white paper.

Survey Background

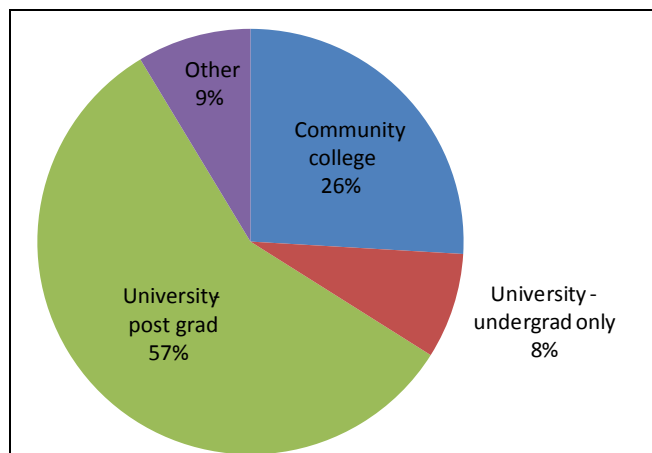


Figure 1 - Educational Institution Type

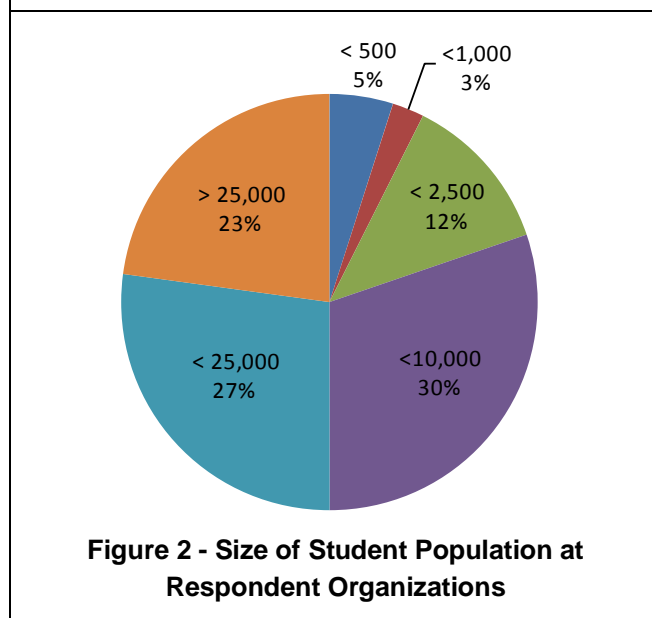


Figure 2 - Size of Student Population at Respondent Organizations

Invitations were sent to distance education professionals and affiliated IT/support staff primarily at higher education institutions inviting them to complete a survey exploring educational technologies and lecture capture solutions. The survey, which was fielded between 28 July and 5 August, 2009, resulted in a total of 162 valid responses

Slightly more than nine out of ten (91%) respondents are affiliated with community colleges, undergraduate, or full universities with graduate programs. Of the remaining 9%, some self-identify as “other” but nonetheless are involved in some type of higher education (online-only programs, technical college, or university-affiliated organizations like teaching hospitals). Figure 1 demonstrates the mix of respondents, with 57% representing universities with post graduate programs, 26% from community colleges, and 8% from undergraduate-only institutions.

The mix of respondents, shown in Figure 2, represents a broad cross-section of institutions by size. About one quarter (23%) represent institutions with greater than 25,000 student enrollments. Slightly more (27%) represent institutions of 10,000 to 25,000 student enrollments. Almost one third (30%) represent institutions with 2,500 to 9,999 enrollments.

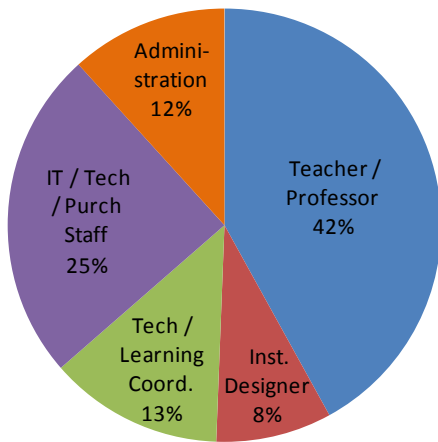


Figure 3 - Respondent Roles Within Their Organizations

Another 12% represent institutions with 1,000 to 2,499 enrollments. The remaining 8% consist of schools with fewer than 500 enrollments (5%) or those with 500 to 999 enrollments (3%).

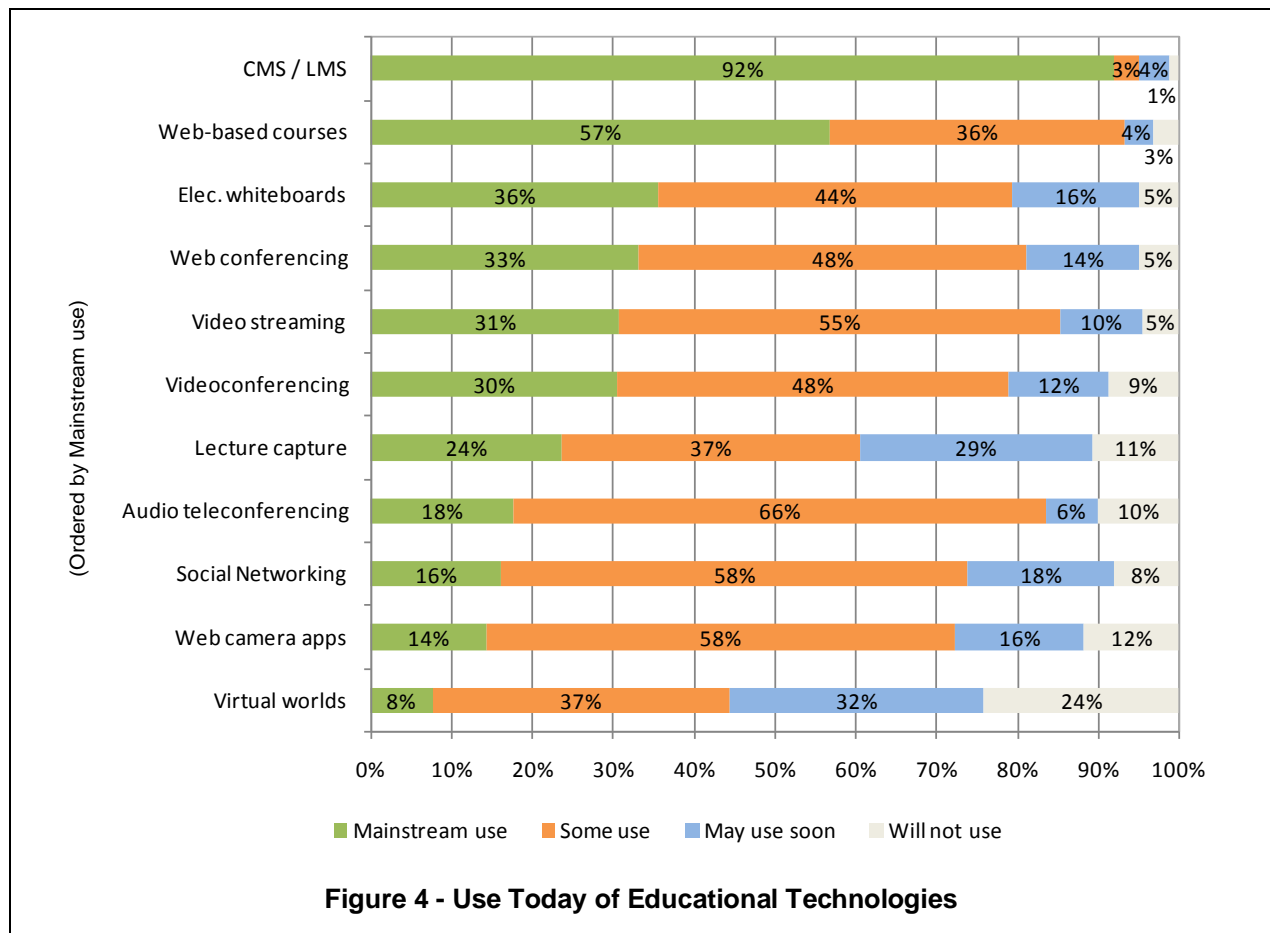
Two out of five (42%) of those surveyed are directly involved in the classroom as teachers/professors. One out of four (25%) are IT/technical/support/purchasing staff. Another 13% are technology/distance learning coordinators, and 12% are involved in administration at some level. A total of 8% are instructional designers.

Online Distance Education and On-Demand Technologies in Use

The mix of technologies used for distance education and on-demand services among those surveyed is described in Figure 4. Course Management / Learning Management Systems (CMS/LMS) are the most prevalent based on mainstream use, with a total of 92% using these in a “mainstream” fashion and another 3% indicating “some use.” When discussing mainstream use, web-based courses are #2, used by 57%, followed by electronic whiteboards (36%), web conferencing (33%), video streaming (31%), videoconferencing (30%), lecture capture (24%), audio conferencing (18%), social networking (16%), web cams (14%), and virtual worlds (8%). Most of these also see a good deal of “some use” among many of the respondents as well.

We invested in lecture capture to improve upon online video we were already offering. We have expanded lecture capture to give students a better lecture review option (as opposed to audio-only recording which we have been doing for years).
 -- University with post-grad programs

The relatively newer field of lecture capture is used by 61%, or three out of five institutions surveyed. Another 29% – almost one out of three – indicate interest in the technology, reflecting just how likely lecture capture will grow as a tool for higher education. Lecture capture has moved from the exotic to begin to gain a foothold in increasing numbers of institutions of higher education.



This particular mix of technologies addresses learner management and real-time and on-demand delivery of course content. Almost all of these technologies are being used to support constructivist, interactive learning in both traditional, blended, and purely remote learning environments. They help universities and colleges reach remote learners while also increasingly being used to support local learners, particularly when they add interactivity with professors and other learners, or on-demand access to review content. And they enable educators to enhance their teaching styles with new tools and new ways of reaching students.

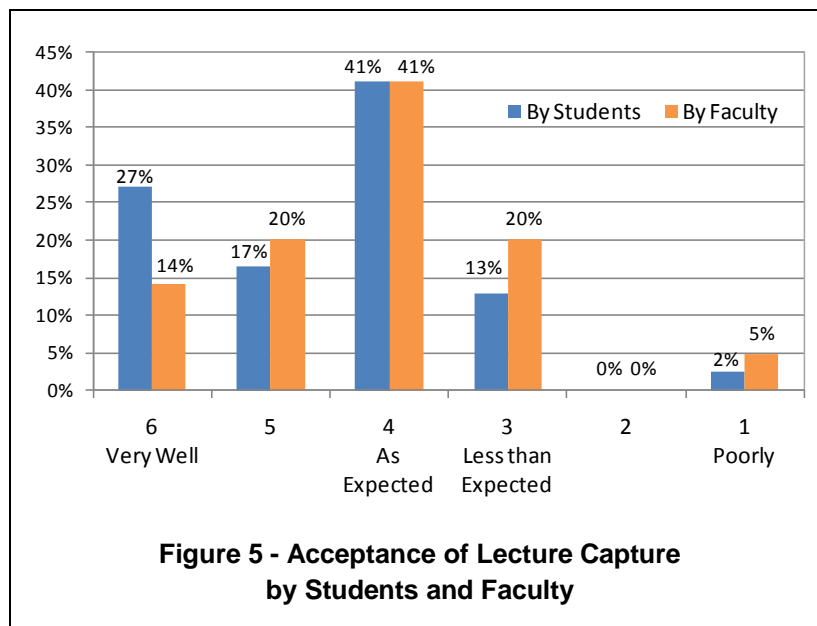
Attitudes towards Lecture Capture Solutions

For this survey we explored attitudes towards lecture capture solutions in-depth to better understand perceived and expected benefits in higher education.

Lecture Capture Acceptance

Lecture capture solutions have been well or very well accepted by almost half (44%) of students and about one third (34%) of faculty. In addition, about two out of five (41%) report that lecture capture is reaching acceptance as expected. Only 2% of students and 5% of faculty feel that it is poorly accepted based on expectations.

Due to the proximity to other institutions it becomes a selling factor for commuters and returning students.
 – University with post-grad programs

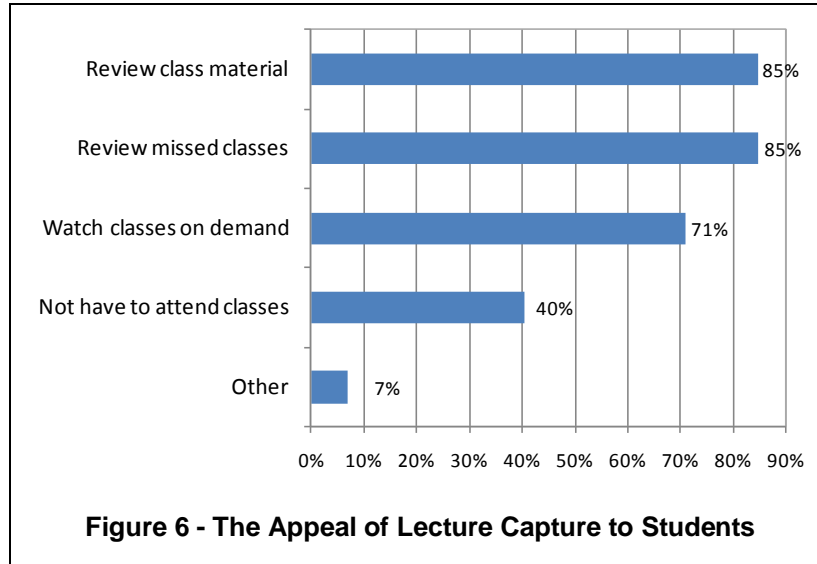


Lecture capture is a sufficiently new technology to require a curve of adoption and acceptance, so one would expect that it might require some time before it would be well accepted. Nonetheless, acceptance rates are remarkably positive. New teaching methods – even if they require only a simple press of a button – always require time to go mainstream – and the fact that almost half of students and one third of faculty well accept the technology is no small feat. (Add the 41% of faculty who describe lecture capture as “accepted as expected” and you reach a total of 75% of faculty

who are finding it useful.) Wainhouse Research predicts that by 2012 – within three years – a large percentage of those who rate the technology “4” – as expected – today will have shifted to “5” or “6.”

The Appeal to Learners

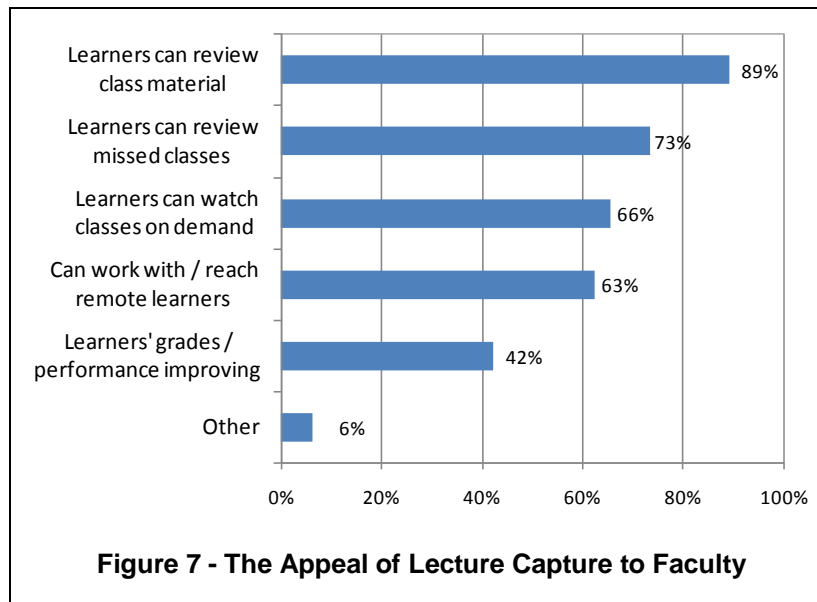
Asked to describe why their students like lecture capture, survey respondents provide a very clear set of benefits (see Figure 6). The ability to 1) review class material for increased retention, or 2) review missed classes are the top two reasons students like lecture capture according to those involved with the technology (cited by 85%, respectively). Another top reason cited by almost three out of four (71%)



is the ability to watch classes on-demand to fit student lifestyles and schedules. Two out of five (40%) state that their students may use lecture capture solutions to mitigate the need to attend classes in person, but note that this figure includes those who wish to avoid travel or long commutes. Educators throughout higher education are noting that the ability to shift to digital delivery methods is changing learner expectations.

The Appeal to Educators

Of the 75% of those academics and administrators who say their faculty find value in lecture capture, the benefits are high in a number of ways (Figure 7) – and echo benefits described as felt by learners. The



ability for learners to review class material to improve retention is tops, cited by 89%. This is followed by the ability for learners to review missed classes (73%) and watch classes on demand to fit their schedules (66%). The ability for the educator to work with and reach remote learners is cited by 63% -- almost two thirds of this group. Finally, two out of five (42%) indicate that learners' grades and performance are improving based on the availability of lecture capture solutions.

This data is consistent with a June 2009 U.S. Department of Education report¹ regarding online, face-to-face, and blended learning. This meta-study came to some far-reaching conclusions regarding online learning. “A systematic search of the research literature from 1996 through July 2008 identified over 1,000 empirical studies of online learning. Of these, 46 met the high bar for quality that was required for the studies to be included in the analysis. The meta analysis showed that ‘blended’ instruction had a larger advantage relative to purely face-to-face instruction or instruction conducted wholly online ... The report noted that the blended conditions often included additional learning time and instructional elements not received by students in control conditions.”

Two out of five indicate that learners’ grades and performance are improving based on the availability of lecture capture solutions.

The additional learning time makes sense, as does the notion that additional instructional elements are not received by students in control conditions such as face-to-face classrooms. (These elements likely represent resources like the Web, lecture capture solutions, and real-time tools). The Department of Education analysis points to one of the side effects of distance education and on-demand technologies: because educators must overcome the challenges of time and space, and compensate for the fact that learners are not face-to-face with them, they may find ways of engaging with learners that exceed traditional pedagogical methods. Whatever the case, the fact that 42% of those surveyed believe lecture capture is contributing to improved grades and performance is a very telling data point. Educators typically want to see improvements.

Lecture capture is a strategic differentiator, (giving us) re-use of media in diverse classrooms and even providing us with some administrative applications. – University with post-grad programs

Overcoming Obstacles

Only a *handful* of those surveyed indicated that learners do not like lecture capture. Because of the limited set of responses (remember, most respondents are satisfied with their lecture capture solutions), we offer the rank order of reasons respondents believe their ability to reach students with lecture capture is “below plan” or not acceptable:

1. The faculty is not supportive of the technology and/or place a heavy emphasis on attending class
2. The solution is not easy to use
3. The solution is not effective in capturing the lecture content
4. Resistance to new technology

Lack of faculty support can be an important obstacle to adoption and to successful programs, as Wainhouse Research has observed in both distance education and locally-based on-demand deployments. If a technology is not embedded in the culture and deployed widely, it often has trouble achieving mainstream status. Some educators who place an emphasis on attending class find that over time they learn new strategies for establishing relationships with learners, and often appreciate that some learners become more engaged outside of the traditional classroom specifically because their unique learning styles make them feel more comfortable using a lecture capture system.

¹ <http://www.ed.gov/news/pressreleases/2009/06/06262009.html>

Ease of use and lack of effectiveness are two areas that any new technology may struggle with until it achieves critical mass among users. Often lack of bandwidth, which can affect the quality of a user's experience, is an underlying factor that leads some to indicate that a solution is lacking in ease of use or effectiveness.

Because most educators as well as learners are relatively satisfied with their lecture capture solutions, we offer the rank order of reasons respondents believe their faculty response to the technology is "below plan" or not acceptable:

1. They want students to attend class
2. Resistance to new technology
3. They do not want their course materials to be made widely available
4. The solution is not easy to use
5. There is a fear they will be made obsolete

Again, *only a handful of those surveyed indicated these are issues*. Some educational cultures are built around the traditional classroom and less likely to evolve quickly; some are resistant to new technologies; and some fear that wide distribution of materials and their own captured content will make them obsolete. These sorts of fears are not unusual, though over time they almost always fade as professors learn that the technologies are additive, not substitutive. Keeping in mind the academic's role here as guide, mentor, and assessor of student performance is crucial, as that role should not be confused with what is essentially a delivery mechanism, or tool, that enhances learning and student performance. Textbooks did not make the college professor obsolete; why should lecture capture? Meanwhile the march to digital content is steady; lecture capture is an enhanced digital content delivery system that actually improves learner-educator interactivity.

The academic's role as guide, mentor, and assessor of student performance is crucial, and that role should not be confused with what is essentially a delivery mechanism, or tool, that enhances learning and performance.

Policy will vary by institution, but some other ways of addressing faculty concerns include:

- Ensure that learners do attend classes, or certain numbers of classes, in person, and ensure that faculty are familiar with strategies for interacting with alternating attendance patterns
- Offer proper training
- Limit availability of course materials to enrolled students via security mechanisms
- Be certain the selected lecture capture solution is easy to use.

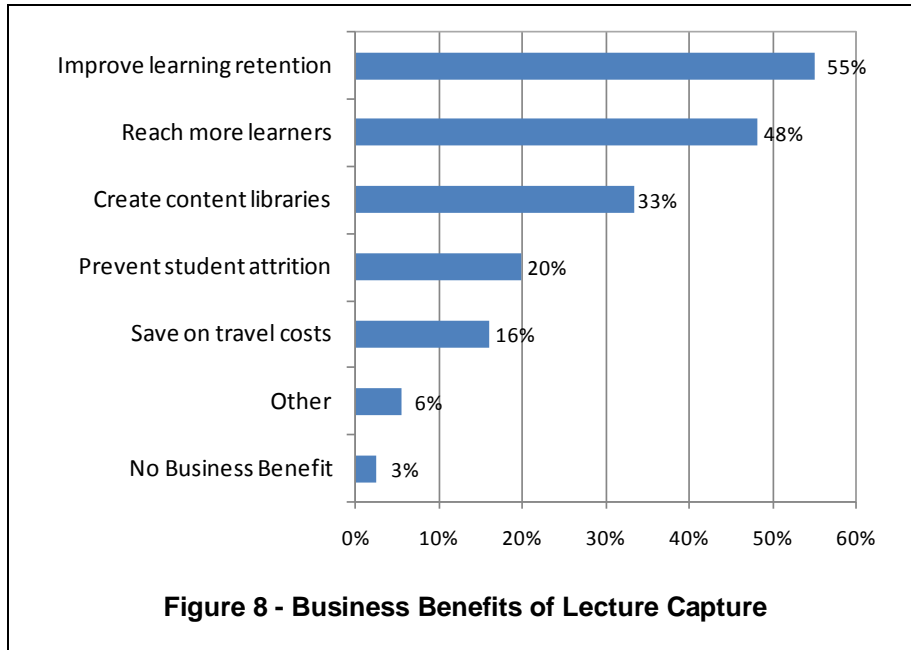
Professors traditionally fear that new technologies will make them obsolete, yet it has never happened and is not likely to do so given the need for interactivity, engagement, and assessment with and of learners.

Top Business Benefits of Lecture Capture

Quantitative View of Benefits

Those involved with educational technologies are clear about the benefits to their institutions, and we captured both quantitative and qualitative attitudes concerning benefits users see today and in the future. From a quantitative perspective (see Figure 8), more than half (55%) cite the ability to improve learning retention as a benefit, while reaching more learners is cited by almost half (48%). Exactly one third (33%) cite the ability to create content libraries, and 20% cite the ability to prevent student attrition (less important here than in the verbatim comments). Saving on travel costs is a benefit to 16%.

We invested in a lecture capture solution because it is the logical next step in standard pedagogical strategies. Benefits include asynchronous learning, greater retention, and possibly more course offerings which will lead to a higher turnout of graduates. – University with post-grad programs



Qualitative View of Benefits

The following table provides a ranking of unprompted, top-of-mind mentions of a wide variety of rationale for investing in lecture capture solutions, and expected benefits. Note the consistency between this table and the quantitative results contained in Table 1 regarding benefits.

Rank	Rationale/Benefits
1	Increased student learning outcomes / success
2	Increased student retention
3	Students are asking/demanding
3	Reach rural students, more students, or branch campuses
3	Improve online / distance learning / continuing ed offerings
6	Professors are requesting
6	More efficiencies / improvements in processes
8	Pedagogically sound
8	Increase enrollments
10	Ability to reuse content / “can” presentations
11	Competition with peer institutions
11	Fits our online and blended programs
11	Cost savings
14	Enhancement of online courses
14	Enable review / self-paced learning
16	Improved learner retention of material
16	Externally funded
18	Improve teacher review
18	Back-up for in-class lectures
18	Stay cutting edge
18	PR value

Table 1 - Top-of-Mind Benefits of Lecture Capture, Rank Order

The ability to improve student successes / learning outcomes and increase student retention are the most cited reasons for adopting lecture capture solutions, and they point to the pressures faced by every college and university: successfully educate students, and keep the students around long enough to successfully graduate them. These are followed by the learner-driven expectations and requests for technologies like lecture capture. Achieving greater reach to rural / off-campus / branch campus students, and to be able to generally improve existing online / distance learning / continuing education offerings, point to the need for competitive marketing. Reach is about learners and matriculations, and serving learners who otherwise would be challenged to participate in degree and non-degree programs.

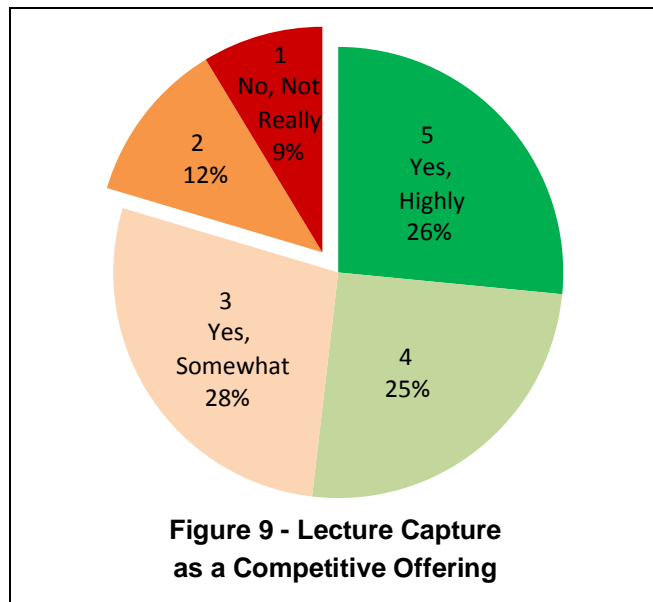
We invested because we have more blended courses and wanted to maximize use of lecture time (cost savings was the main factor). We hope to see cost savings as well as increases in student performance – University with post-grad programs

Part of the appeal of lecture capture exemplified by the *collection* of benefits ranked in Table 1 has to do with its overall flexibility. Lecture capture can address local learner needs just as well as it can address distance education needs. It can be used to address a specific problem (for instance, the need for medical students to review complex procedures on demand) or an overall institutional need (such as the need to recruit remote students or enhance online offerings). The net result for any organization that embraces this technology is a competitive differentiation that likely will help it stand out when recruiting and attempting to retain well qualified learners.

The New Imperative for Lecture Capture Solutions: Competitive Positioning

Without a doubt lecture capture has become a key element of the new imperative in higher education – the movement to the digital era. As borderless online universities, enabled by digital distribution, continue to roll out programs that attract students to undergraduate and graduate degree programs, and as public and private colleges and universities expand their online offerings on a national and even international basis, schools are hard pressed to understand how they may be losing potential learners to far away and regional competitors. Often the belief that they are losing students is based on anecdotal evidence that, as it accumulates (and short of actual assessments of lost learners) comes to represent the truth. Learners tend to select their colleges and universities based on a large number of factors, most notably goals, affordability, and program offerings – but we also know that learners are drawn to schools that appear to them as advanced and forward thinking. Thus educators are loud and clear, as shown in Figure 9, that lecture capture plays a role in institutional competitiveness.

It will quickly become an expectation of students and not a perk. Institutions that do not offer this tool for learning will be considered technology challenged.
 – University with post-grad programs



Four out of five respondents (79%) believe that lecture capture is a somewhat, very, or highly competitive offering for their schools over those that lack lecture capture capabilities. This is based on a total of 26% who call it highly competitive, 25% who score it 4 (very competitive), and 28% who see it as somewhat competitive.

The ability to help learners learn – which includes the ability to address various learning styles – is seen as the top competitive differentiation provided by lecture capture solutions (see Table 2). (A sub-benefit for online programs consists of the ability to better engage learners with the particular delivery mechanism provided by lecture capture.) In concert with

this benefit is the ability to offer greater flexibility and options to learners. Institutions believe lecture capture makes them appear more advanced and more competitive, and appear to care more about their learners. Tied with this competitive driver is a simple statement of modern fact: students like and expect it.

Table 2 ranks the top ten reasons individuals in higher education believe lecture capture helps make their institutions competitive.

Rank	Competitive Differentiation
1	Help students learn / review / enhance competitive position over other schools
2	Offer more options / flexibility to learners
3	Makes the institution appear more advanced, more competitive, or more caring of its learners
3	Students simply like it as an option
5	Supports reaching larger audiences, outreach, and remote learners
6	We attract more learners / enrollments
6	Student expectations
8	Learning now occurs anytime / anyplace
9	Reduces costs, saves institutional and learner resources
10	Additional way to deliver instruction / courses

Table 2 - Why Lecture Capture Solutions Make Institutions More Competitive

If a college or university is not thinking about adopting lecture capture solutions, typically it is because the idea has not yet been proposed and no one is providing direction/leadership, or the perception exists that lecture capture solutions are too expensive. (This perception is inaccurate, as we discuss in the next section.)

The New Affordability of Lecture Capture Solutions

Institutions of higher education traditionally have tended to deploy premise-based products, often for the sake of minimizing costs, maintaining control, ensuring integration, and maintaining security. Of those surveyed, almost two out of three (63%) deploy premise-based lecture capture solutions; another 21% use provider-hosted services only, and 17% use both premise-based and hosted services.

About one third (31%) can state with certainty that they pay based on number of software / server / appliance units; 13% by concurrent users, and 10% by student enrollments. Wainhouse Research believes this will change over time, evolving away from student enrollments and towards capacity / appliances / concurrent users. Some vendors, such as TechSmith, sponsor of this white paper, now charge a one-time fee with no required contracts and no per-seat licensing. Licensing based on size of student body or numbers of learners accessing content will go away because buyers wish to (and should) pay for what's actually needed (from a capacity standpoint) and being used, not based on an arbitrary student demographic count. The model, instead, can be built around how many classes a college is likely to wish to put online, how many hours of content are involved, and how many multimedia formats will need to be supported. This will offer a greater return on investment because pricing will be based on true need, not on arbitrary headcounts. (Some solutions place no limitation on recorder licenses, which can create a somewhat "viral" effect where anyone can become comfortable trying the capability and being a presenter.)

Another factor contributing to affordability has to do with the cost of training users and IT staff, and having IT staff on hand to support technologies. With lecture capture systems built to be easy for educators to use, the costs of IT staff should be relatively lower when compared to the costs of supporting more complex technologies.

Thus while a very few of those surveyed believe lecture capture solutions are too expensive for their schools, at least three out of five (60%) respondents believe their budgets are sufficient to allow them to roll out and support lecture capture solutions. That number will increase as pricing models are better understood and colleges and universities come to appreciate that starter packages can range from as little as \$5,000 to \$15,000 or more, depending on number of encodings and number of simultaneous servers deployed, plus an optional maintenance fee for ongoing support. The days of believing that a lecture capture solution requires well in excess of \$100,000 for a large university are slipping away fast.

Future Outlook for Lecture Capture Solutions

The survey results show that lecture capture has come of age. It is not only well accepted. It also is affordable, easy to use, and becoming expected – especially by students who have grown up immersed in the flexibility of digital media. Unlike some distance education and online technologies, lecture capture is experiencing rapid growth because it both enables and leverages many mainstream technologies (the World Wide Web, PC's and Macs, streaming video, podcasting) and has come to market with a clear set of benefits for institutions of higher education. Yet the timing is right to address a bigger need: the new threat of competition as universities and colleges echo the business world and become globalized players in the business of higher education. Organizations already using lecture capture know that it has offered them a keen method of differentiating themselves – and is making a competitive difference in student recruitment, retention, and achievement. For these reasons Wainhouse Research predicts very rapid adoption in the next few years. We encourage readers just learning about the technology to try, explore, develop plans, and determine the feasibility of lecture capture for their institutions.

Students are demanding it, and faculty need these services to be more efficient educators. Our campus has a very large catchment area and we need this to reach our students or they will go to private programs that offer it. – University with post-grad programs

About the Authors

Alan D. Greenberg is Senior Analyst & Partner at Wainhouse Research. As consultant, analyst, and strategist, Alan has worked in the telecommunications, videoconferencing, software and services, and multimedia arenas for more than 25 years, holding positions with Texas Instruments, VTEL, and several Austin, Texas-based startups, and consulting to many organizations. He is distance education and e-Learning practice manager at Wainhouse Research, and co-lead analyst on WR's [WebMetrics](#) web conferencing survey program. He has conducted research into dozens of distance learning networks, was product marketing manager for a set of turnkey classroom packages, and led a number of educational and training initiatives, including serving on the Keystone Conference Steering Committee. Most recently he authored the three-volume segment report *The Distance Education and e-Learning Landscape* and authored the white papers *The 2009 Update: Taking the Wraps off Videoconferencing in the U.S. Classroom*, *Best Practices in Live Content Acquisition for Distance Learning Networks*, *Mapping the Sea of Research into Video-Based Distance Education*, and *Super-Size Bandwidth and Two-Way Video in the Classroom*. He also has consulted to many states, universities, and regional educational consortia on distance education strategies. Alan holds an M.A. from the University of Texas at Austin and a B.A. from Hampshire College. He can be reached at agreenberg@wainhouse.com.

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About Wainhouse Research

Wainhouse Research, www.wainhouse.com, is an independent market research firm that focuses on critical issues in the Unified Communications and rich media conferencing fields, including applications like distance education. The company conducts multi-client and custom research studies, consults with end users on key implementation issues, publishes white papers and market statistics, and delivers public and private seminars as well as speaker presentations at industry group meetings. Wainhouse Research publishes a variety of reports that cover all aspects of rich media conferencing, and the free newsletter, *The Wainhouse Research Bulletin*.

About TechSmith Corporation

Founded in 1987, TechSmith Corporation provides practical business and academic software tools and services. TechSmith's solutions enable users to capture, record, and enhance digital content from their computer screens so they can share information and knowledge in compelling multimedia formats, and allow others to observe, analyze and learn from their experiences. TechSmith products are used by 99 percent of the Fortune 500. Visit www.techsmith.com for more information.