

Issue Brief

Active Learning in Education

New technologies give students the tools and motivation to make the most of classroom time

Walk into any college classroom and you'll likely see some students concentrating intently on their note taking or on watching the instructor's presentation. You'll also likely see some students texting on their phones, checking Facebook on their laptops or whispering with their neighbors. And perhaps some students have that distant look of daydreaming or the droopy head that signals a nap.

All of these behaviors reflect what students have come to expect while in the classroom: slide after slide of content, with barely enough time to write it all down, much less understand it on the spot. Even raising a hand for clarification can sometimes be out of the question if the instructor has already moved on or if a student is too embarrassed to ask in front of the entire class. And so students cope by either scrambling to keep up during class or by tuning out and hoping to catch up on the content later.

This classroom experience is frustrating for students, instructors and higher education institutions alike. Today, improving that in-class experience is vital for attracting and retaining on-campus students, especially in light of increasing competition from online courses. The challenge has been finding the right tools for increasing student engagement in class without placing added burdens on instructors or restricting their teaching content and style.

But new "active learning" tools and solutions are emerging to improve student engagement and learning. They consist of classroom technologies, online applications and content; and simple adjustments in class design and lecture delivery that together increase the appeal and outcomes of the classroom experience.



Why Improve the Classroom Experience?

Although the traditional lecture class isn't in danger of disappearing, it's becoming harder to convince tuition-paying students of its value. After all, why pay to sit in class at a fixed time when much of the same content can be studied online (or confirmed in a competency test¹) at a much more convenient hour and often at a much lower cost?

For educational institutions at all levels, these changing student perspectives mean that courses must deliver a more interesting and differentiated learning experience. The changing expectations of students for how they interact with content and the desire of instructors to mitigate the impact of larger class sizes are additional factors to consider. And institutions know that whatever strategies they adopt for the classroom should also address needs for improving distance learning offerings and course accessibility, as well as supporting academic continuity during campus closures.

Yet in a traditional classroom session, especially a large-enrollment lecture course, it can be difficult to foster active student engagement because of factors such as:

- One-way, passive information delivery in a lecture that is often jam-packed with content in order to take advantage of limited classroom time.
- No way for students to easily correlate their note taking with the instructor's slides or to capture a complete lecture recording that can be reviewed again if needed.
- Limited time for Q&A during class and student reluctance to interrupt the instructor or to show that they don't understand the material.
- Difficulty in integrating classroom content with out-of-class reading, research and writing assignments; small group projects; and preparation for lab sessions or exams.

To overcome these challenges, institutions are finding ways to transform the classroom experience by adopting new technologies for active learning.

Energizing the Classroom with Active Learning

The core concept of active learning is to improve the learning experience for students and the teaching experience for instructors before, during and after class.

Before class

The instructor can use active learning tools to pre-record lecture videos and link to tutorials, electronic texts and relevant Web content for student preparation before the class session. As a teaching option, the instructor can adopt a flipped classroom model by requiring students to review recorded lectures online before class, then use classroom time for discussion and small-group activities.



Echo360

During class

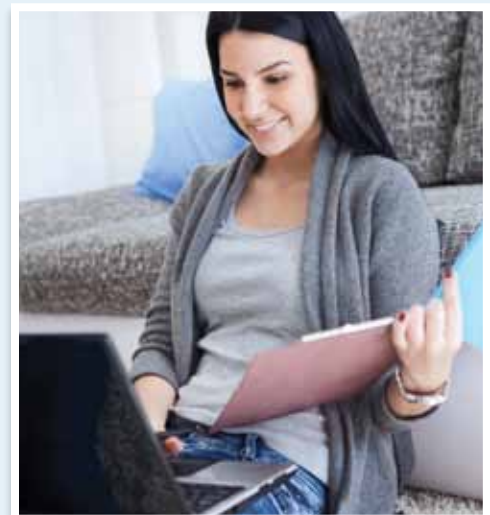
Active learning tools help instructors deliver dynamic lectures and interactive activities that adapt easily to the real-time comprehension and learning needs of the students in each classroom session. Instructors can broadcast live classes, adapt the flow based on immediate class needs, conduct instant polls (in a way that's more interactive than is possible with traditional clickers) and integrate student responses into the current presentation. Students have the freedom to submit online questions anonymously during class, with the answer from the instructor or teaching assistant made visible to everyone. The instructor manages the entire experience with automated dashboards that track student participation and performance, as well as the effectiveness of online and in-class activities.



SHUTTERSTOCK

After class

Students can download the instructor's slides to their laptop or tablet and add their own notes with annotation and drawing features. Recordings are also available for post-class review on student devices. Virtual instructor office hours give students and teachers more flexibility for asking and answering questions. Active learning tools also support participation in virtual study groups, where students can easily share resources and resolve questions through social learning and non-time-dependent interaction.



SHUTTERSTOCK

Benefits for Students: More Learning In and Out Of Class

Independent studies from the University of Michigan Center for Research in Learning and Teaching found that students in courses using active learning tools demonstrate much higher levels of engagement than in courses without the technology.²

The reasons? Students find it easier to engage and participate in a classroom session when they use their laptops, tablets or smartphones for active note taking; post questions for the instructor or other students; and become involved in interactive learning segments.

The appeal of active learning tools makes students less likely to be distracted by texting, social networks and unrelated Web browsing during class time. Outside of the classroom, the online content and active learning tools help students continue to improve their comprehension of the course material and prepare for the next class session.

Benefits for Instructors: Increased Teaching Impact

Integrated tools for active learning enhance and offer more options for an instructor's teaching process without requiring teachers to force-fit their instruction into a restrictive method or style. By using active learning technologies effectively, instructors enjoy an energized classroom experience as students increasingly interact with the content, thoughtfully participate in discussions and ask better-focused questions. Real-time and post-class analytics give instructors immediate feedback on the impact of their teaching.

Active learning technologies also reduce the teaching workload that occurs outside of class time. For example, virtual office hours give instructors more flexibility and convenience for responding to student questions. And student access to online lecture recordings and other content reduces requests for repeated explanations of topics already covered in the classroom.

Benefits for the Institution: Enhanced Competitive Position

Livelier classrooms, improved teaching and learning, and new ways to identify and support students who need extra attention are all key elements for improving retention and student perception of the education quality delivered by an institution. Advantages will continue to be delivered as higher education institutions search for the right balance of on-campus and online courses and the right competitive positioning for attracting on-campus students.

Active learning technologies can bring two other important benefits to colleges and universities. First is more efficient use of instructor time, even as class sizes increase and academic budgets remain tight. The second benefit is improved online capabilities to support distance learning courses, meet accessibility requirements and allow classes to continue if the campus must close.

Active Learning Technologies in Use

As the stories below indicate, the value of in-seat classroom time can be increased with active learning.

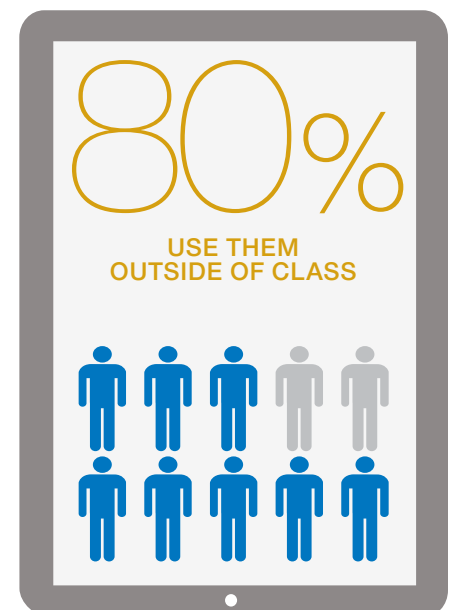
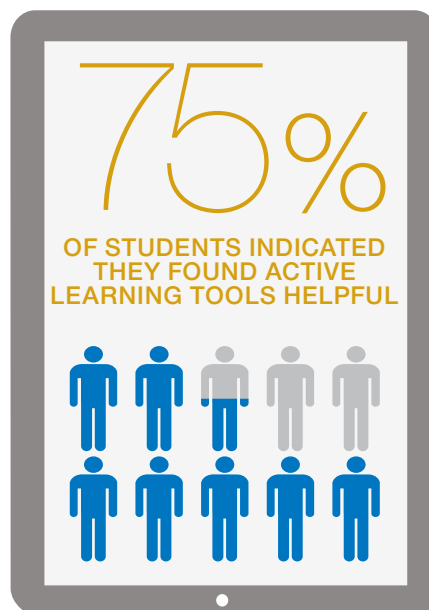
Developing Student Skills for Critical Thinking

Improved student understanding of class content and more student participation in class discussions are two benefits of active learning technologies realized by a faculty member at Elon University in North Carolina. Dr. Jim Barbour, associate professor and chair of the Department of Economics, has been using these tools in an introductory economics course.

By regularly inserting an interactive exercise between the content sections of his lecture, Barbour gets immediate feedback on whether students understand the material he just presented.

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An end-of-term survey, conducted by Dr. Jim Barbour, associate professor and chair of the Department of Economics at Elon University in North Carolina, shows that active learning tools are beneficial to students.



"If a lot of students are confused, I can easily change the next part of my lecture to present the material in another way, then give students another quiz to see if their understanding has improved," he says.

Barbour also mentions that the online, real-time student question section he uses is helpful by allowing the shy students to have a voice without having to make themselves known to the entire class.

Feedback from his students indicates that Barbour's approach is well received. In an end-of-term survey, 75 percent of students indicated they found the active learning tools helpful and 80 percent use them outside of class. The majority would prefer a course that uses active learning tools and would recommend it to other students.

Using active learning technologies does require some adjustments from instructors, Barbour notes. "But if you're willing to adapt your instruction during a class, active learning tools are wonderfully handy for improving your teaching."³

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COMMUNITY COLLEGE INSTRUCTOR

Better Presentation of Technical Content in the Health Sciences

"I'm done with the old model of being a talking head at the front and students taking notes then going home and trying to digest them without additional resources," says the instructor for a community college radiology program. Her students are finding it easier to see and understand detailed imaging slides by reviewing them with active learning tools on a digital tablet during class. And with the interactive exercises delivered by the learning tools, students have less reluctance to raise their hands and now enjoy participating in the more lively class discussions.

The appeal of the tablets and classroom interaction has also improved students' overall attentiveness. "We know students will want to multitask in class, but the active learning approach doesn't give them a minute to be doing something else," she says. "Instead, the tools help the instructor eliminate distractions and focus the students' attention on what they need to learn."⁴

Transforming the Lecture Class

Although it may be the fear of some and the hope of others, the traditional lecture class isn't, in fact, being replaced by technology — just being transformed by it. By delivering a better classroom experience, everyone wins — students, instructors and their institutions — with a vibrant, high-quality and high-value learning environment.

Endnotes

1. *The Wall Street Journal*, "College Degree, No Class Time Required," January 24, 2013, <http://online.wsj.com/article/SB10001424127887323301104578255992379228564.html>
2. "Use of Laptops in the Classroom: Research and Best Practices," University of Michigan Center for Research on Learning and Teaching, No. 30, 2011
3. CDE interview with Dr. Jim Barbour conducted January 11, 2013
4. CDE interview conducted January 22, 2013



More than one million students in 6,000 classrooms at 500 institutions in 30 countries rely on Echo360 active learning technology to enhance their educational experience before, during and after class. Developed for educators by educators, Echo360 increases in-class participation with digital polling, provides a rich out-of-class experience by recording and sharing course instruction, and delivers deep usage analytics to help instructors gauge student progress in a course. Students watch, collaborate and participate on smartphones, tablets and laptops, where ever, whenever they choose. Echo360 was recognized with the Product Line Strategy of the Year Award from Frost & Sullivan, is CSIA-certified for outstanding customer service, and was named a Visionary Vendor in Educational Technology by IT research firm Basex. Echo360 is backed by Revolution Growth led by Steve Case, Ted Leonsis and Donn Davis.