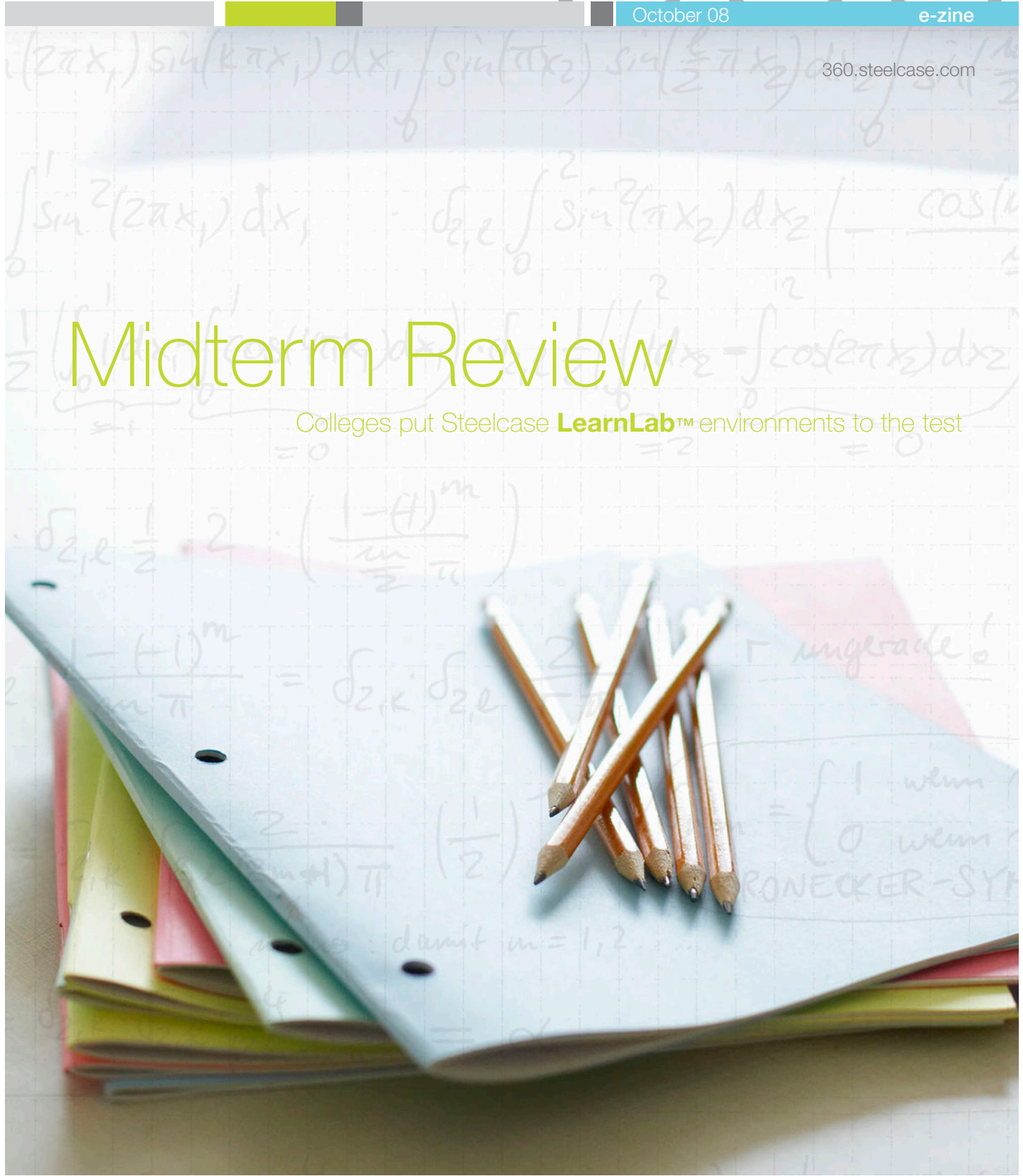


## Midterm Review

Colleges put Steelcase **LearnLab™** environments to the test



## Something strange was happening in Ricardo Rodriguez's math class.

There was an entire month to go in the semester, but the college instructor had already covered all of the material in his trigonometry course at Eastfield College in Dallas, Texas. Covered it better than ever.

"Not only did I finish the material a month early, but the students' grades had improved compared with other semesters," Rodriguez says.

80% of Eastfield's students are first-generation college students, and Rodriguez's course is not an easy one, which makes his experience all the more impressive. "I also had fewer students drop the class. Three dropped this semester; I've had as many as eleven drop in previous semesters," he says.

He says the difference is the LearnLab™ environment he used for his class that Fall, 2007 semester. Developed by Steelcase, LearnLab includes furniture and worktools integrated with architecture in a new design for higher education classrooms. Alpha test results were reported in 360 last year ("A new learning curve").

LearnLab Environments are based on research by Steelcase's WorkSpace Futures group into the changing nature of the college classroom, or rather its non-changing nature. Most college classrooms today are equipped just as

they were ten, twenty, even fifty years ago: rows of tablet arm chairs for students, a podium up front for the instructor, and a writing board fixed to the wall.

Yet today's classroom, and colleges in general, face a whole new set of challenges. They must teach skills needed in the 21st century workforce: collaboration and teamwork, creative problem solving, and critical thinking skills. The traditional classroom isn't designed to support that instruction.

When students have a role in the process, learning improves. The instructor evolves into a facilitator and guide, or as educators put it the "sage on the stage" becomes the "guide on the side." Students readily respond to such newer teaching strategies, and indeed bring high expectations to college with them. So instructors are implementing new, collaborative learning methods in the classroom.

As a result, classrooms hold much more than just lectures; students spend nearly three-quarters of class time in group discussions, and nearly a quarter of the

time in group work. Students expect classrooms to employ and support the technology they have grown up with and use every day. A tablet arm can't support a laptop, books, papers, and other materials students use today, and doesn't support collaborative learning.

Studies show that students learn better when they discuss class material with their peers, and that more interaction between instructors and students outside of classes dramatically reduces drop out rates. "It's to the student's advantage to learn in a collaborative environment," says Edward Baum, a chemistry professor in the honors college at Grand Valley State University, Allendale, Michigan. "Collaborative learning sections of general chemistry always outperform the lecture sections. That's been shown at Wisconsin, Berkeley, Georgetown, and several other schools."

As knowledge increases exponentially, it changes what's required of an education today, says Eastfield president Dr. Carol Brown. "You're not just teaching content anymore, you're teaching a process for people to be lifelong learners. Because the reality is, whatever subject it is—computer science, American history, go down your disciplines—that knowledge in eighteen months is archaic. How you teach students to learn, their ability to go out and understand that process, is as important as the content."

To address these changes, Steelcase designers developed a new approach to the college classroom, one that reflects input from students, faculty and administrators. Elise Valoe, a WorkSpace Futures researcher, says designers set

out to create a space with the best education stages for the instructor and student, a space that not only supported communication and collaboration but really encouraged it.”

### Learning in three-part harmony

Many Steelcase dealerships are working with colleges and universities to install LearnLab environments. The dealership that worked with Eastfield, BKM Total Office of Texas, in Dallas, has worked closely with leaders of colleges for several years and hosts a one-day symposium each year that presents new concepts in higher education to area architects, designers, and college officials. “The presidents and chancellors and deans of schools ‘get it.’ They’re willing to be challenged, they appreciate the knowledge and they’re willing to take a chance and apply the knowledge. They understand the link between what they’re doing in their world -teaching students- and how that teaching will influence the future,” says BKM co-owner Carlene Wilson. “We didn’t set about to sell the LearnLab concept to Eastfield. We said, ‘if you’re building the classroom of the future, we think you need to know about this’ and we shared the knowledge that Steelcase Research had developed, and the LearnLab principles.”

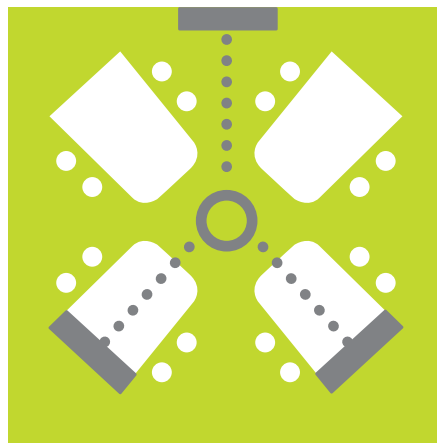
LearnLab environments use a patent pending design to better support both teaching and learning, based on three essential strategies:

**Unique geometry** Eschewing rigid rows of table arm chairs facing one direction, a LearnLab classroom offers team clusters or rows of tables, giving students continual eye contact with the instructor and other students, without craning necks or moving furniture. Everyone is more engaged. Mobile tables, swivel tilt chairs and portable marker boards make for quick changes between lecture mode, small group work, and large group

discussion. Ceiling-mounted projectors show content on three different screens in a triangulated layout that ensures every student can see the board from any place in the room.

**Content immersion** Students are surrounded by readily accessible content through display, discussion, and interaction. Portable marker boards, electronic copy boards, and interactive whiteboards not only display content, they record it and disseminate it to student email addresses or a web site. Display screens can show the same content, or different content. Ergonomic chairs swivel, tilt and roll so students can huddle quickly, reference content in any direction, and stay comfortably focused in any posture.

**Support for different learning styles** Since people learn differently, the LearnLab works in multiple ways to support different learning styles. Some students learn best through seeing pictures, others by words. Some learn best while listening, others by articulating information. Some learn through the use of fine motor skills, other through gross motor skills.



**Power of the Triangle** Students are immersed in content in a LearnLab. Triangular display ensures there’s no front or back of the room, and every student has a great seat.

LearnLab features content creation tools, display tools, and furniture that moves easily to support individuals and groups, in the various ways people learn.

Rodriguez configured his math class with tables set on a diagonal from each corner. “So from the center I can always walk to any part of the room. Wherever I stand, that’s my spot. To me that’s great. It makes me feel more in touch with the students. Their chairs swivel so they can follow me. I can see everyone and everyone can see me, and it’s easier for me to approach each table.”

He displayed different content on each screen: a PowerPoint presentation on one, a class homework web site on another, and one to display math problems as he worked them out with a marker. “It was just fabulous. I didn’t have to erase anything, or close windows. The students enjoyed having it all up at once, and retention was great.”

With portable Huddleboard™ whiteboards at each table, “I’d give them a problem to work on in groups and they’d grab a board and work on it.” Peer interaction was noticeably improved. “Students got to know each other faster and made study groups easier. All of this plays a role in keeping students in class.”

Finished with a semester’s worth of material a month early, Rodriguez turned students into teachers to reinforce their learning: students presented content to the others. “A lot of the students wanted to try the technology themselves, use the CopyCam, send their notes to the rest of the class.”

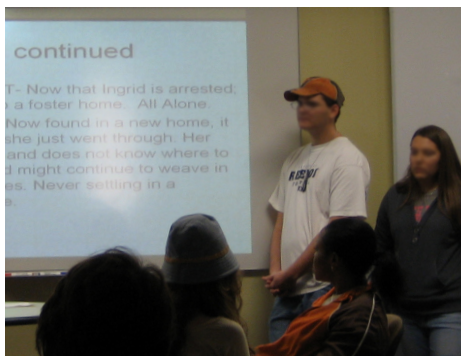
The students quickly picked up how to operate the technology, something Rodriguez had learned in a two-hour training session at Eastfield.

Clark Rachesky, director of education for BKM, taught many Eastfield instructors



A LearnLab environment gets everyone more involved. Instructors engage students more easily. Eye contact and interaction are improved. Students shift from passively receiving information to actively participating in the learning process.

the nuances of the LearnLab's technology and tools, and frequently sat in on classes the first semester. "One day the professor gave Huddleboards to groups of four students and walked around the room as the students were writing on them. She could literally see their thinking on those boards and she was able to ask 'why do you use that word?' and other questions that got right to the issue. She engaged with every student in the room, just moving easily from table to table. Many classes use the CopyCams to copy what's written on the boards and then distribute the notes via the class website. The bottom line is, it's almost impossible for someone to say 'I wasn't in class and couldn't get the notes.' There's no reason you can't stay up on what's happening in class."



### It's all about collaboration

Not everyone, however, is eager to embrace new teaching methodologies. "The people most resistant to anything other than lecture formats are university and college professors," says chemistry professor Baum. "The undergraduate teaching of science is in the dark ages. Most research scientists are never taught how to teach. "We were taught by attending lectures. It is what we know best. That doesn't mean that anyone taught us how to lecture. We don't have education certificates."

Baum experienced the advantages of collaborative learning, also called active learning or inquiry-based learning, as a post-doctorate student in England. "We had a number of faculty living in the dorms on campus so students had access to them on a social basis and in a teaching environment. It goes a long way toward building a community of inquiry."

"The whole idea is to build community. You get students focused on intellectual

and scholarly things if you can build a community of scholars. That's our intent with our new residential honors colleges and its two LearnLabs."

This past summer, Baum used the LearnLab for a series of workshops for college and university teachers of chemistry and physics, to explore the subject of collaborative learning and how it can be applied in the classroom.

LearnLab fully integrates technology into the learning environment, but Baum was first struck with the power of a simple analog device, the Huddleboard. "I hadn't used them before; now they're a major part of my repertoire in the LearnLab. It's low tech, but it's a way for each group to record what they're doing for the rest of the class, then put it all up and compare and contrast and discuss, and get students to work out their ideas as a group. The technology comes in when you photograph this stuff and send it to the web to students. That's amazing. That's terrific."

He believes the classroom's high tech tools, "depending on how they're used, can really make a difference" in collaborative learning. For example, the classroom is "set up beautifully for PowerPoint" presentations, but he cautions that it needs to be used effectively.

"All the electronic display and collection devices make it much easier to work in there. I'd of never guessed that the LearnLabs would have that much advantage, but I really do think they make a difference."

The two LearnLabs at GVSU are "booked 8 to 8 during the week." Two more LearnLabs will open with the completion of the new honors college. Eastfield College has four more LearnLabs under construction.

## The balance sheet

The newer learning spaces allocate more real estate per student, 32 sq. ft. in a LearnLab vs. 15-17 sq. ft. on average in a traditional classroom, yet faculty and administrators have seen the pay-off on the investment. “It isn’t just the money to put it in, it’s the issue of retention. Not only that semester, but ongoing. We watch retention rates, and it’s amazing,” says Eastfield’s Dr. Brown. “We have a fiduciary responsibility to our tax payers. When I look at cost, how many heads per classroom, and we know that we retain 75–80% or higher, vs. 40–50% for math, that’s the balance sheet for me. I’m putting 32 people in there and they’re getting this enormous, quality educational experience, and we’re going to retain them and get them down that educational pipeline. That’s the rationale.”

“What happens is not only on the cognitive side, it’s the affective side of learning. Students feel comfortable not only asking questions, but believing that they become mentors to each other. The energy you see in the ethnography (video captures during class periods) whether it’s biology, math, criminal justice, the energy is just amazing. Students tell us ‘we love it, it’s great, it’s the most comfortable way to learn.’”

The school’s students have joined the conversation about how to change the space to fit particular needs. “That’s the conversation we’re hoping for,” says Ed Roy, higher education sales manager for Steelcase. “The LearnLab environments are one solution, and we’re looking for feedback from students, faculty, and administrators to make it more robust, more flexible, more adaptive to the changes happening in higher education.”

“It’s one more way to prepare students to be successful,” says Brown. “We’re

not going to be able to do this in every room. We can retrofit rooms with one CopyCam and some Huddleboards, for example. What’s more important is thinking about what you can learn from this that you can take into a 50-or 100-seat room.”

Eastfield offered the LearnLab to all faculty and had 87 attend the training session. 90% returned for the second semester. “We had some faculty, three or four, who thought they’d like it but then second semester didn’t come back. We said ‘fine, then let’s talk about what

you need in your classroom.’ Our bigger problem is we had more people wanting the room than we could schedule.” Students are spreading a message about the value of the LearnLab, while receiving a subtle yet important message from the college. “It means we value who you are, and we’re going to give you an environment, but some of this is on your shoulders,” says Brown. “We do family orientations. We take the family in the LearnLab, ‘this is how your spouse, child, significant other is going to learn.’ It’s made a really big difference for us.”

## Don’t lecture me...

**“Our failure rates in the sciences are enormous: 30% or more in general chemistry classes,” says Professor Edward Baum of Grand Valley State University. Changing those numbers requires change on many fronts. One he’s addressing is how learning happens in the classroom.**

**Baum learned the value of collaborative learning during his post-doctorate work in England, and he has conducted studies at GVSU on teaching methodologies.**

**“We did two studies of general chemistry classes. Three sections, 100 to 200 students per section, each taught in lecture format by faculty members with different ability. We also did a common exam.”**

**In both trials, the class grade average of the students was the same. There was no difference. Class average was the same, the drops were the same, the number of A’s, B’s, C’s, etc., were the same. In the lecture format, it didn’t make a difference who was lecturing. If the students could learn on their own, they did. The lecture format doesn’t help students very much. It doesn’t matter how good you are as a lecturer.**

**Collaboratively learning, also called active learning and inquiry-based learning, involves students in the process of inquiry, testing, and evaluating. “They’re building on their own knowledge base, working in teams, doing something rather than just listening to a lecture. The lecture format didn’t accomplish much in teaching critical concepts.”**

**He sees the results sitting in his classes every semester. “You don’t need to teach collaboratively to get students to memorize the periodic table, but you do need it to get them to understand the periodic table.”**

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