

LearnLab™ Environments

Imagine a classroom that improves the transfer of knowledge, dramatically enhances collaboration, and engages multiple learning styles.



Finally, a classroom that not only keeps up with today's college curriculum, it's ready for the next chapter.

The LearnLab™ Environment actively supports the many ways students learn today. In any teaching mode — lecture, discussion, or group work — this new approach to learning space lets users reconfigure the classroom easily and quickly, and offers multiple ways to display and share content. It lets faculty teach the way that best suits the material, the class, and an increasingly diverse and demanding student body. This is a classroom that improves knowledge transfer and better engages students.

Most importantly, the LearnLab Environment has proven its value in actual college classes.

This innovative design is grounded in years of Steelcase research at institutions across the U.S. and Canada. Building on a deep understanding of the higher education profession, we developed critical hypotheses, tested them in a working prototype, and created this unique LearnLab Environment.

User-Centered Design Process

The LearnLab grew out of a user-centered design process developed by Steelcase's WorkSpace Futures group. The process begins with research to clearly understand end users and their specific needs. These defined needs become design principles through a six-step process:

College classrooms today must support frequent collaboration and communication, easy transfer of information between individuals and groups, the effective display of content, and the need for teams to constantly reconfigure and switch between different ways of working. These are demands the LearnLab Environment was designed to meet.

1 Understand

A thorough review of market research, secondary research, and industry trends and relationships to develop a clear view of current theory and practice and how they're evolving. WorkSpace Futures researchers identify decision makers and those affected by their decisions. They learn what the key concerns and issues are, and look for untapped opportunities for innovation.

2 Observe

Field observations, interviews, video ethnography and photography, surveys and questionnaires, plus ongoing observations of users at work, are next. Researchers discover how people interact and behave in their work or learning environments, what their goals, needs and desires are, how they really use their tools and technology. They explore the flow of information and people within the space, and to what degree those spaces are being effectively utilized.

Observation reveals additional insight into students' different learning styles:

- Visual Imagist: Learns through seeing pictures.
- Visual Verbalist: Learns through seeing words.
- Auditory Oral: Learns by talking and hearing themselves talk.
- Auditory Aural: Learns by listening to others.
- Motor Mechanic: Learns through the use of fine motor muscles.
- Motor Kinesthetic: Learns through the use of gross motor muscles.

3 Synthesize

In this stage, behaviors across the organization are compared, patterns are gleaned from the stories and images, including discoveries about user values, needs, and desires. Research findings are analyzed and integrated to create design principles for the space at hand. Every design principle is a way of meeting underlying user needs.

As part of the research and design process in higher education environments, specific hypotheses were developed for testing. For example: How would students react to a classroom they could easily change from lecture mode to group work mode and back again? How would the instructor use a mobile lectern and the ability to project information on multiple surfaces? How readily would students use presentation technology and tools to simulate professional practice?



4 Realize

Next, the design principles are translated into strategies for the space, experiences that users might embrace products and environments to improve the flow of information, enhance communication and collaboration, etc. This step typically includes sketches of concepts, scale models, and foam core mock-ups.

5 Prototype

Concepts are tested in real work settings with full scale models. Different iterations are tried, tested, refined, repeated. Design ideas are modified to address specific user needs and client constraints. Protocols and practices are developed for spatial experimentation.

A prototype learning environment was built and used to test our hypotheses in actual college classes. The test covered two different courses, an introductory course and an advanced course, over one 16-week semester. During the classes in the LearnLab, researchers recorded 90 hours of video and 250 still photos to document how well the classroom performed.

6 Measure

How well do design ideas play out in the work environment? What modifications might increase effectiveness? What would be the impact of the space on the user? Typical metrics include effects on the business, user satisfaction levels, physiological changes, and outcomes from the designs tested.

Findings

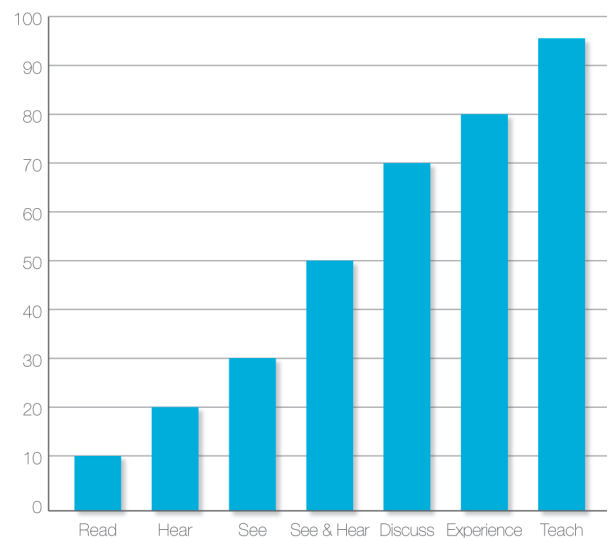
The LearnLab sets a new standard for higher education environments. Compared to traditional classrooms, the LearnLab:

- Fully supports the entire learning process: information access, understanding, transfer, and assessment.
- Dramatically improves student engagement.
- Easily supports multiple teaching and learning styles.
- Facilitates collaboration and teamwork for large and small groups.

Key learnings from the LearnLab research and development process include:

- Classrooms more than ever need to support multiple teaching and learning styles
- The *application* of the products and tools in the classroom is critical to how well students and teachers use them.
- Better display of information translated into better retention for students.

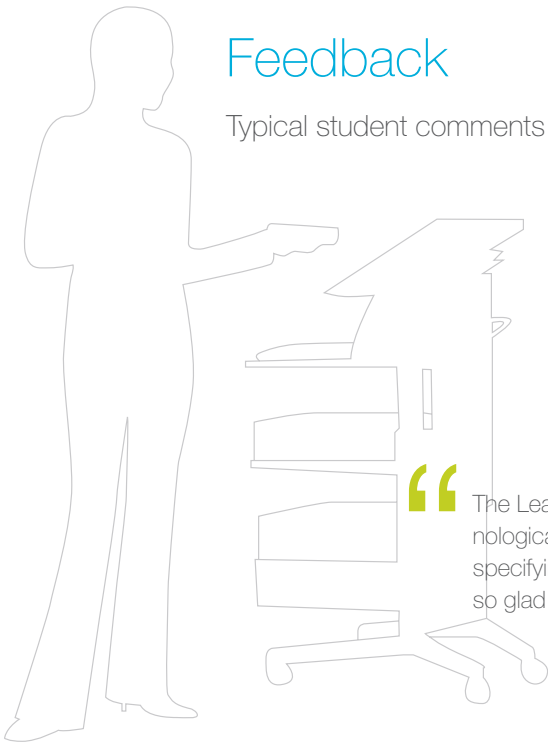
Another key learning: multiple stages for students and instructors help keep students engaged. As demonstrated by this graph, engagement increases as students move from just receiving information to discussing and experiencing it, and peaks when students in turn convey the information to others.



(Source: NTL Institute for Applied Behavioral Science, The College of Charleston, SC, Department of Academic Computing)

Feedback

Typical student comments from the LearnLab class' online Facebook page:



“ It was unreal when I first walked in. We had seen in Rob's presentations that this was almost like a futuristic room, and I'll be honest I didn't think it was possible. When I arrived I was just awestruck though, to think that I was going to be able to use this. I still haven't gotten to the point of thinking, that when I do a project I don't have to limit my technology. That in itself is pretty unbelievable. ”

“ The LearnLab is unbelievable. It is so amazing. I like the technological aspects of the LearnLab and the way it's set up, not specifying the front of the room. It is truly remarkable and I am so glad that I was given the opportunity to enroll in this course. ”

“ I look forward to class because it's more interactive. I feel that I get more from it... pay attention better. ”

Products

LearnLab achieves its higher performance through an innovative design, flexible furniture and information work tools. Products used in the LearnLab include:

- Werndl Flip Top™ tables by Vecta
- Rocky multi-purpose chairs by Vecta
- PolyVision Huddleboard™ portable marker boards with mobile easels/cart
- PolyVision CopyCam™ copyboard
- PolyVision TS Lightning™ interactive whiteboard
- PolyVision Thunder™ Virtual Flipchart™ system
- PolyVision Walk-and-Talk™ Cordless Lectern
- LCD projectors and screens



Steelcase®

Considering College & the Classroom

Enrollment increase in degree-granting institutions, 1994–2004:	21%
Graduate school enrollment increase, 1985–2004:	57%
Last year the number of men in grad school exceeded the number of women:	1983
Average cost of undergrad tuition, room & board at a public college, 2004–05:	\$9,877
Average cost at a private college:	\$26,025
Average salary for a full-time college professor:	\$68,505
Expenditure on every student, each year, by a four-year college:	\$30,625
Value of construction completed by colleges in the US in 2006:	\$15.1 bil.
Historical ranking of that amount as an annual total, in U.S. history:	1st
Area of the LearnLab:	780 sq. ft.
Size minimum required for a high school classroom in South Carolina:	720 sq. ft.
Number of students the LearnLab will comfortably accommodate:	32
Number of ways the LearnLab can be configured:	8
Feature of the LearnLab that university officials comment on most:	Keeps everyone "in flow"
Feature of the LearnLab that students comment on most:	Not a bad seat in the house

Sources: 2004–05 survey by the American Association of University Professors, reported by the US Dept. of Labor, Bureau of Labor Statistics; National Center for Education Statistics; College Planning & Management "2007 College Construction Report" published January, 2007; Greenville County Schools Facilities Plan; RitzCarlton.com; WorkSpace Futures LearnLab research