Chapter 14. Learning How to See

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"We spend a lot of time trying to change people. The thing to do is to change the environment and people will change themselve

When thinking about colleges and universities, what do you see? First and foremost, you see learners—students, faculty, and st learning—active, experiential, reflective, and collaborative. You see places—classrooms, laboratories, libraries, cafés, and virtua you see technology—computers, wireless networks, digital learning resources, search engines, and analytical tools. Yet, when a a learning space, we often revert to a mental image of the classroom—technology enhanced, perhaps—with all seats facing the committed to transforming learning, perhaps we should practice Da Vinci's *saper vedere*—knowing how to see.

What should we see?

We should see that space is important. Colleges and universities care about learning spaces, not just because of their function I embody the institution's philosophy toward teaching and learning as well as people. Space can attract potential students or dam Two-thirds of the respondents to a 2005 national survey indicated that the overall quality of the campus facilities was "essential" important" in their choice of a college.[2]

You probably see construction on campus. We are in the largest building boom higher education has ever seen. In the United S on new or renovated facilities is estimated to exceed $18 billion in 2007; approximately 70 million square feet of space will be ac and universities each year between 2005 and 2010.[3] You also see renovation. Buildings outlast all the components inside them. lifetimes are:

- 3 years for software systems
- 5 years for computer hardware and communications systems
- 10 years for cabling
- 15 years for furniture
- 25 years for mechanical and electrical systems
- 75+ years for building structures[4]

You might also see the impact of technology. The Internet has changed notions of place, time, and space. Historically, the place and students came together for formal learning was the classroom. Space is no longer just physical, however; it includes the virt networks, virtual worlds, mobile devices, and digital learning resources have become part of the environment. "Technologies use altering the experiences and aspirations of learners."[5] Driven largely by technology, the notion of a classroom has expanded an space need no longer be defined by "the class" but by "learning" unconstrained by scheduled class hours or specific room locati the notion is emerging of the entire campus—not just classrooms—as a learning space.

Design is a way of seeing things.[6] How you think about a subject depends, in part, on your culture, your experiences, and your expectations—how you see things. When most of us think of a "learning space," we think of a classroom with a professor at the and maybe blackboards, projectors, or interactive whiteboards. The presumption is of information delivered in a lecture format.

What if you "saw" something different? What if you saw learners rather than lecturers? What if you saw chatter rather than silen rather than stillness? What if you saw learning as something social rather than something cerebral? What would be different? E Learning spaces? Learning?

In the collection that follows you will find many examples of learning spaces that began with seeing things differently. The assum different—there is no front to the room, and learning doesn't happen at fixed times. The focus was different—often on groups ra individuals. And the desired outcome was different—successful learning rather than teaching.

This content collection is offered to help others "know how to see." As you review the examples, it will quickly become apparent learning spaces have a positive impact on people. Words such as *learning*, *engagement*, *interaction*, and *excitement* come to m

see patterns as well:

- Space shaped by learning rather than by instruction
- Socially catalytic space
- A shift from classrooms to learning complexes
- Service philosophy
- Technology integration
- Experimentation and innovation
- User involvement

Space Shaped by Learning

Historically, learning spaces were designed around teaching or maximizing the number of students in a room. The presumption teaching results in learning—a presumption that focuses on the instructor. What if the focus shifts to the learner and learning? S sessions result in greater discussion and more complex learning outcomes, for example.[7] Group problem solving works better th problem solving.[8] And students develop technical skills more efficiently and use them more readily when they have learned then during ongoing projects.[9]

We are learning to put pedagogy first. Ask what learning activities will lead to the desired learning outcomes, not which projectio install. Many of those effective learning activities are experiential and collaborative—and often IT-enabled. Using digital archives the tools of a profession allows students to engage in first-person learning. Rather than being told the conclusions, students buil understanding. Spaces that encourage first-person learning may involve project rooms, network access, or videoconferencing.

Classroom designs are moving away from a focus on the front of the room (and the instructor). In some cases students sit close or at small tables such as star clusters or circular tables. Small group conversations are encouraged, which improve learning.[10] North Carolina State University (see chapter 29) is an example of a space reconfigured for group activity using round tables and points. Even lecture halls can be designed to accommodate interaction, as LeBaron Hall Auditorium at Iowa State University (se illustrates.

Spaces that facilitate peer-to-peer and group learning such as information commons, learning resource centers, or cybercafés a The Information Commons at Northwestern University (see chapter 30) or the USITE/Crear Computing Cluster and Cybercafé a Chicago (see chapter 40) are examples. Small group spaces, such as Flyspace at North Carolina State University (see chapter learning as well.

Movable furniture and space that can be reconfigured for different learning modes is increasingly common. For example, many the University of Dayton (see chapters 3 and 4) are reconfigurable thanks to movable furniture. This is true in classrooms as we spaces.

Emerging patterns include:

- Creating multiple focal points in classrooms, not just a single focal point at the front of the room
- Grouping or clustering students rather than seating them in rows
- Establishing informal group work spaces
- Providing movable furniture
- Building reconfigurable space

Catalyzing Social Encounters

People learn from other people. If the environment limits random encounters, discourages conversation, or provides no comforta learning opportunities are lost. Many campuses have designed "socially catalytic" spaces.[12] According to a Joint Information Sys (JISC) guide to designing learning spaces, "Well-designed social spaces are likely to increase students' motivation and may eve on their ability to learn."[13]

Information commons (see chapter 7) provide spaces for interaction and exchange; silence is not required. Atria or cafés, such a

Café (see chapter 27), promote visibility and accessibility so that casual conversations can occur. Other institutions, such as Ind University-Purdue University Indianapolis (see chapter 21) or the University of Dayton (see chapters 3 and 4), have found ways space in hallways. External spaces equipped with tables, chairs, and wireless can become informal learning spaces used by ind groups. Not only do these types of spaces make interaction possible, they also provide students with space to work or relax betv

"If catering facilities, common rooms, even corridor space, are reconsidered as social meeting and group learning environments could…make a statement about their vision for learning as a pervasive and inclusive activity based on social interaction," advise wireless enabled, these spaces are not "set apart from learning."[15]

Emerging patterns include:

- Making people visible to each other using atria, cafés, or windows
- Providing movable furniture so that small groups can form spontaneously
- Offering wireless access
- Displaying artwork, artifacts, or research

Shifting to Learning Complexes

Learning is continuous; it can occur in any place at any time. There are different ways of learning, although most learning styles categorized as doing, conversing, or reflecting. Different types of spaces are conducive to specific types of learning.[16] (See Tab

Table 1. Type of Learning Space			
Type of Space	**Doing**	**Conversing**	**Reflecting**
Group teaching/ learning	XXX	XX	XXX
Simulated environment	XXX	X	
Immersive environment	X	X	X
Peer-to-peer and social learning		XXX	X
Learning cluster	X	X	X
Individual learning spaces	X		XXX
External spaces		X	X

With no single learning time, style, or space to guide planning, many institutions are shifting from classrooms to learning comple learning ebbs and flows depending on the need and circumstance. In learning complexes, informal spaces are adjacent to class spaces and atria serve as gathering spots. Group spaces are interspersed with areas for individual reflection. Faculty offices anc are often nearby. Technology is a ubiquitous enabler.

Buildings like Torgersen Hall at Virginia Tech (see chapter 43) link a three-story atrium, an electronic study court, classrooms, a spaces—making it a learning complex. Information commons are self-contained learning complexes. Multiple types of work spac in the Information Commons at Northwestern University (see chapter 30), the University of Chicago's USITE/Crear Computing C Cybercafé (see chapter 40), Duke University's Perkins Library (see chapter 17), and the Peter H. Armacost Library at Eckerd Cc chapter 18). Students move from one space to another, depending on the need. In its Center for Integrated Learning and Inform Michigan Technological University (see chapter 25) is linking its formal and informal learning spaces, not only to provide a seam environment but also to protect students from harsh weather. The Smeal College of Business at The Pennsylvania State Univer 33) and Sir John Cass Business School, City of London (see chapter 15), integrate classrooms, study areas, trading floors, and complex designed to bring people together. At the University of Dayton (see chapters 3 and 4), a learning center called Marianis residence hall.

Emerging patterns include:

- Interconnecting multiple types of spaces, such as individual and group space, or formal and informal spaces

- Clustering formal and informal spaces, such as computer labs or cybercafés near classrooms

- Locating faculty offices near student spaces

- Paying attention to passageways that link people, not just hallways

Developing a Service Philosophy

Learning involves researching, writing, thinking, critiquing, and conversing. Learners are pressured and time-constrained. Institu reconceptualized spaces and services from a user perspective are developing a service philosophy manifest in an integrated su Having all the tools—and people—readily accessible enables learner success.

Information commons (see chapter 7) and places such as the Cox Hall Computing Center at Emory University (see chapter 8) ha space, service, technology, and support. Whether users need assistance with research, writing, or a new application, help is rea

Faculty are critical to student support. Many institutions have made faculty offices more easily accessible, ensuring that answers about courses or careers—or just casual conversations—are never far away.

Support also is being designed into classroom buildings. If a faculty member encounters technical difficulty during class, a quick Institutions such as Arizona State University (see chapter 12) have relocated support personnel to classroom buildings to ensure accessible support. Stanford University (see chapter 36), for example, takes service a step farther, training support staff in peda technology.

Emerging patterns include:

- Integrating service centers

- Locating faculty offices near student areas

- Offering in-house IT support

- Training staff in pedagogy and technology

Integrating Technology

Technology has become part of the higher education landscape. Ubiquitous wireless access is increasingly common—and expe technologies range from projectors to audio and video capture. Tools such as student response systems or wireless keyboards students to become active participants and presenters.

Virtually all disciplines rely on technology tools. These tools are finding their way into learning spaces. For example, the Smeal (Business (see chapter 33) and the Sir John Cass Business School (see chapter 15) have trading rooms.

Technology is integrated in the operation of the buildings as well. Hamilton College's Science Center (see chapter 20) features a only explains many of the green features of the Science Center but also allows learners to monitor internal and external environ as well as the operation of the geothermal and heat-recovery systems.

Outside class, wireless networks allow almost any space to become a learning space. Whether in a hallway, an outdoor courtya students sit with their laptops, working and socializing.

New types of applications may promote greater student learning. Stanford's GroupSpaces (see chapter 35), for example, make i members of a group to share control of large displays, enhancing their ability to collaborate.

Emerging patterns include:

- Providing ubiquitous wireless

- Using disciplinary tools

- Offering group and collaborative tools

Designing for Experimentation and Innovation

Institutions are designing places for experimentation and innovation. Depending on the learning activity, a different combination space, and technology might be optimal. Learning innovations that have improved student success, such as SCALE-UP (see ch Math Emporium at Virginia Tech (see chapter 42), resulted from experimentation. Others, such as Stanford's Wallenberg Hall (s and the Ohio State University's Digital Union (see chapter 31) set aside space for prototyping and experimentation. The presenc furniture, screens, and wireless controls makes it possible to experiment with just about any space.

Locating different disciplines (for example, fine arts and technology) in the same space can catalyze innovation and experiment case of Denison University's MIX Lab (see chapter 16). In other cases, such as BOX at the London School of Economics (see c innovation comes from colocating academic and business personnel. Joint projects and problem solving encourage innovative t

It is increasingly common—and necessary—for institutions to integrate experimentation into the overall design process. Years m the time space planning begins and a facility's completion. In that time pedagogy and technology will change. And, with the lifesp exceeding 50 years and the half-life of many technologies being one to two years, flexibility and renewal must be an ongoing pa process.

Emerging patterns include:

- Setting aside space for experimentation

- Colocating different specialties in the same facility to stimulate innovation

- Displaying art work, exhibits, and artifacts to stimulate interest and creativity

- Using a portion of the budget for technology experimentation

Involving Users

Increasingly users—students, faculty, and staff—participate in learning space design. User perspectives are critical, as architect personnel may view space design quite differently. "In fact, 'expert' decisions are not necessarily better than 'lay' decisions," ass Sanoff. "Given the facts with which to make decisions, users can examine the available alternatives and choose among them."[17 facility is not the end of the process, however; it must be adapted to changing needs. Sanoff concluded that "Those most directly product—the users—are best able to assume those tasks."

Users' involvement in ongoing maintenance and management might also be valuable. This involvement could be directly on con indirectly through surveys or interviews, such as at the Manuel Pacheco Integrated Learning Center at the University of Arizona

Emerging patterns include:

- Getting input from students on different types of spaces, such as through photo surveys, rather than through committee

- Involving users in creating new designs

- Forming user councils that involve facilities, IT, academic affairs, faculty, and students

Conclusion

Learning space is a means to an end. Perhaps the focus on learning space will help us know how to see learners and learning r look carefully, active, social, and experiential learning happens continuously on our campuses and in the virtual spaces surround

Ultimately, the goal is to improve learner success. As Buckminster Fuller reportedly said, "Reform the environment. They will ref the environment is right."

Endnotes

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4. Ibid.

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11. Ibid., p. 8.

12. Kathleen Manning and George D. Kuh, *Student Success in College: Making Place Matter to Student Success,* Occasional Paper #13
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     <http://nsse.iub.edu/institute/documents/briefs/DEEP%20Practice%20Brief%2013%20Making%20Place%20Matter%20to%20Studen

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14. Ibid.

15. Ibid.

16. Alexi Marmot, "Spaces for Learning," presented at the Scottish Funding Council Seminar in Glasgow, Scotland, October 28, 2005,
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17. Henry Sanoff, *Community Participation Methods in Design and Planning* (New York: John Wiley & Sons, 2000), pp. 13–14.

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