In the past several years, a series of influential conversations has elevated the importance of place, of space, of design principles, and of learning in the evolving IT infrastructure of higher education. Beginning in 2004, EDUCAUSE initiated discussions on learning spaces. The NLII (now ELI) Fall Focus Session in that year addressed the topic “Learning Space Design for the 21st Century.” The July/August 2005 issue of EDUCAUSE Review, featuring articles on the design of learning spaces, explored the changing nature of how we might define, design, create, and envision future learning spaces. In addition, the EDUCAUSE Learning Initiative (ELI) 2005 Fall Focus Session concentrated on the design of informal learning spaces. Attendees studied design elements associated with effective informal learning spaces, developed principles to guide the prioritization of design elements, and proposed how to involve essential stakeholders and invoke critical success factors for an effective informal learning space initiative or project.

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In his chapter in the book *Educating the Net Generation* (2005), Malcolm Brown defined *learning spaces* as encompassing “the full range of places in which learning occurs, from real to virtual, from classroom to chat room.” Today, the impact of emerging technologies, diverse learners, strategic campus issues, new course design methods, and recent findings in learning science continues to inform how we think about learning spaces—virtual and physical, formal and informal. Likewise, ideas continue to converge to create innovative and strategic design practices for building twenty-first-century learning spaces.

Innovative design thinkers such as Andrew Milne, Tim Brown, Dorothy Leonard, Jeffrey Rayport, and Jeanne Liedtka encourage us to apply design methodologies that align to higher education strategic issues, incorporate the newest findings in learning science, and adopt emerging technologies. For example, as we address the call for interdisciplinary research by the federal government, we need a new vision for shared and physical spaces. Experts are finding that conversations around emerging technologies and virtual learning environments can be catalysts for engaging stakeholders in the design process. Conversations about blended learning environments, mobile technologies, games, social networking tools, and holographics work best when stakeholders are involved from the inception of such initiatives.

As strategic issues drive conversations about the need for new learning spaces, they also drive conversations about the need to revisit the methods and processes used to design these learning spaces. Tim Brown suggests we use design thinking as “a human-centered, creative, iterative, and practical approach to finding the best ideas and ultimate solutions.” Jeanne Liedtka encourages us to move “beyond the sterility of traditional approaches to strategic planning.” Liedtka adds that those involved in strategic planning processes may find value in learning more about what design thinking might offer, since design processes “are more widely participative, more dialogue-based, issue-rather-than-calendar-driven, conflict-using rather than conflict-avoiding, all aimed at invention and learning.”

In light of these emerging trends and changing practices, ELI revisited learning space design at the September 2008 Fall Focus Session. Attendees probed how today’s emerging technologies, diverse learners, strategic campus issues, new course design methods, and recent findings in learning science have created new opportunities for the design of learning spaces. As experts led discussions throughout the two days, a key theme emerged: *It is critical to PAIR-up to design learning spaces.* Those involved in designing new learning spaces for higher education need to

1. **Partner to form an interdisciplinary, pedagogy-rich design team;**
2. **Assess how learning is influenced in new learning spaces;**
3. **Integrate ideas from many disciplines to innovatively design learning spaces; and**
4. **Revisit current views on emerging technologies, diverse learners, strategic campus issues, new course design methods, and recent findings in learning science.**

All the articles in this issue of *EDUCAUSE Review* explore and elaborate on the four PAIR-up elements. First, they each stress that successful learning space design emerges as a result of forming partnerships that engage the expertise of diverse team members, elevate discussions about design thinking processes, and place pedagogical issues at the core of such discussions. As these partnerships develop, team members should include faculty, students, construction managers, learning technologists, librarians, facility experts, capital planning experts, professionals from design firms, and learning science experts. Team members can leverage their diverse expertise to create value and develop the most creative ideas.

For example, Joan K. Lippincott’s article, “Learning Spaces: Involving Faculty to Improve Pedagogy,” highlights the need to integrate ideas from faculty as we plan formal and informal learning spaces. She lists the typical team members of a planning process for a major renovation or new construction project: academic administrators, campus planners, building and grounds personnel, physical plant professionals, information technologists, and faculty groups. And she highlights the critical need for tapping into faculty motivation and interest to ensure faculty use of the spaces and improved pedagogy. She encourages the use of creative design processes, such as anthropological methodologies, to understand students’ behaviors in informal learning spaces, and she proposes the adoption of a key innovative practice: to craft a holistic learning space design approach that includes consideration of ongoing services needed to support faculty and learners. Furthermore, Lippincott challenges us to foster partnerships that integrate ideas from many disciplines and work cultures to provide innovative support services for faculty and students as they learn in formal, informal, virtual, and physical spaces.

This issue of *EDUCAUSE Review* also acknowledges that learning space assessments are at a critical juncture. At the ELI 2008 Fall Focus Session, Malcolm Brown referenced an infamous Henry Ford quote: “If I’d asked my customers what they wanted, they’d have said a *faster horse.*” This quote lends perspective to the current state of assessment of learning spaces. Those of us presented with the opportunity to assess learning spaces must not fear its newness and must resist the temptation to hunker down in the complacency of mundane traditional research methods and mere satisfaction-based research questions. We must challenge ourselves, extend our knowledge, innovate, and elevate our assessment practices as a means to advance teaching and learning and best serve our constituencies.

In “Assessment: The Key to Creating Spaces That Promote Learning,” Sawyer Hunley and Molly Schaller offer clear suggestions on how to begin new assessment practices. They propose a set of criteria to determine measurable factors and a process to examine complex interactions between faculty, students, pedagogy, faculty communities of practice, learning outcomes, programmatic planning, and learning spaces. The authors find that students desire spaces where they can “run into” one another socially; in addition, students seek shared spaces with flexibility, adequate lighting, the availability of food and drink, comfortable/flexible/movable furniture, and an overall sense of empowerment and
comfort in the space. Early data analysis suggests that it is possible to use faculty-development strategies to make a stronger connection between learning space and program/pedagogical practices.

In addition, this issue of EDUCAUSE Review emphasizes that innovative practices are a result of dedicated team members’ willingness to integrate ideas from many diverse contexts that have context, legacies, political and social histories, specific management practices, and work processes for describing and visualizing spaces. Those involved in designing learning spaces understand the importance of integration and input from colleagues in diverse work areas; indeed, the language and practices of architects, engineers, facilities project managers, students, faculty, learning technologists, and librarians influence the innovation and sustainability of the learning space.

Philip Long and Richard Holeton’s article, “Signposts of the Revolution? What We Talk about When We Talk about Learning Spaces,” emphasizes the importance of an integrative design team. Long and Holeton look to inquiry-based learning and to Bloom’s taxonomy to suggest an innovative learning space design process. This process encourages team members to use the language of action—such as interpreting, naming, constructing, monitoring, blogging, mashing, tagging, and Googling—to define integral learning activities. This emphasis on “verbs of inquiry” creates a common language that allows an interdisciplinary design team to design innovative and effective learning spaces—spaces that allow learners to practice pedagogies of engagement.

Providing faculty and students these diverse learning spaces requires that learning space planners and designers constantly revisit the current views on emerging technologies, diverse learners, strategic campus issues, new course design methods, and findings in learning science. This invokes “uncommon thinking”—looking at challenges in new and different ways.” Indeed, EDUCAUSE members have identified the need to apply uncommon thinking and to revisit core values and ideas for creating learning environments that promote active learning, critical thinking, collaborative learning, and knowledge creation as number one in the list of the EDUCAUSE Top Teaching and Learning Challenges for 2009.

In “Space Strategies for the New Learning Landscape,” Shirley Dugdale challenges all of us to revisit our thinking about learning space design. Dugdale approaches learning space design from a campus-wide perspective that suggests specific strategies as key to improving learning space, stimulating campus transformation, and linking the campus with the surrounding urban and virtual landscape. Such revisiting can challenge campus planners to support multiple types of learning, mobility issues, commitments to healthy lifestyles, and sustainable practices integral to campus communities. Dugdale also challenges planners and designers to revisit the duality of centrally-versus-diffusely located service points as they recognize and navigate the power of place in creating community.

In 2009, amid the evolving IT infrastructure and the daunting array of recent economic crises, those of us in higher education need to PAIR-up as we design future learning spaces. To create sustainable learning spaces, we must create community, take a holistic approach, use a common language, apply core pedagogical knowledge, and explore emerging technologies as a catalyst to engage faculty and students while we partner with others for pedagogy-rich designs, assess learning in the new spaces, integrate ideas for innovation, and revisit design methodologies.

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