

LEARNING SPACES COLLABORATORY RESEARCH INITIATIVE

Synthesis: Learning Spaces Roundtables

Why Spaces Matter

1. Permeability

- People and spaces have an impact on one another. As a person passes through a space, both can be changed.
- Spaces can be transformative—the space can impact how people use the space (how people learn), and how people develop a sense of a space's potential.
- How can libraries rethink their image/marketing to increase use of the space as a makerspace that allows for messy/dirty/informal/shabby/nonprecious learning and creativity?
- How do we create spaces that are both flexible and memorable? Comfortable and homey?
- Spaces that allow coming and going stimulate creativity and student imagination, and can integrate attention to a healthy body, mind, and spirit. How can spaces enhance the integrated life of our learning community? (atmosphere is an important element here—visuals, sound, etc.) What are the acoustic implications of open spaces? In particular, for easily distractible individuals?
- What makes an environment in which students feel engaged and energized? How do learning spaces impact student behavior?
- What kind of opportunities can we create for students to feel free in learning spaces (not cloistered or hemmed in) and able to move between spaces/use them in concert with one another, including “real-world” non-institutional spaces?

2. Design Thinking

- Bringing in expertise from the outside equips students for future experiences in the workplace. How can we use learning spaces for this kind of preparation?
- Does describing spaces as “active learning classrooms” or other specific labels limit how they are used?
- New spaces/buildings are not the end of the planning process. We should be asking what next—and in fact it should be asked much earlier in the process.
- What kind of space attracts students? (Flexible spaces with movable furniture, white boards, technology, outlets, etc.)
- Is change outpacing the ability of our spaces to adapt to change?
- The problem with planning is it takes too much time. Sometimes pedagogical thinking has moved beyond an

envisioning of a space by the time it is built. How can buildings adapt for future use of space and what current use? How do we anticipate in our planning what kind of flexibility is needed to account for how the students will be using the spaces in ways that we cannot imagine? Our planning needs to be agile.

- What can we learn from previous redesign/designing new spaces?
- What about a space makes people want to do X, Y, Z?
- How, in the process of planning spaces, is it possible to address the challenge of faculty change and to identify effective strategies for faculty in different kinds of spaces?
- What kinds of spaces should we be designing and creating so that students, all students, want to enter into them and to stay?
- How can we design borderless learning spaces, interconnected and interdisciplinary environments?
- How do we design with the health and well-being of the human in mind?
- How do we efficiently design spaces that serve the potential of varied pedagogical requirements for instructors that span multiple generations?
- How can institutions leverage outdoor spaces to support informal learning and inspire learners beyond classroom walls?
- How can learning spaces provide a place for students to fail safely? Where students are willing to try things that may not work, or to try something that is difficult at first, knowing they have the space and support to keep trying and learning? Where students can take ownership in their work and learning? How will we break down the barriers of “you do not know the right stuff” to enter this space? How will we create spaces that signal to all learners that they are welcome, and that they will have some agency in these spaces?
- At campuses with space limitations, how do we make better use of existing spaces? How can spaces be repurposed to fulfill the needs of teaching and learning? Using existing spaces may be better stewardship of both building and maintenance budgets.
- How can appropriately designed and equipped spaces promote problem-oriented participatory learning for both undergraduates and graduates in the same spaces/at the same time?
- What do we do with aging facilities for ourselves and the surrounding community? How do we construct/reconstruct spaces so that there is a two-way revolving door moving people back and forth between the community and the campus?
- How do we determine who goes into the new spaces that are intended for new kinds of pedagogies?

- How can the spaces we are thinking about and those we are constructing help students broaden their sense of self, gain a broader sense of the world in which they will be living and working? If we graduate people who are “broader,” how will this impact the world?
- What would learning spaces look like if we removed the labels? Would the spaces be different? Would students become something different? Would we be designing a different curriculum?
- How do we create a better sense of the value of learning spaces—that collaborative and active learning spaces have greater value?
- What does a learning space sufficient for the future look like? How is it flexible? How is it sized, proportioned, divided and designed?
- How do we free campus systems from the concept of “classroom” and rather create administrative systems that allow for more dynamic booking of spaces?
- How can the entire learning space ecosystem most effectively enable student learning during the class period, during the day, during the term, during all their time on campus?
- What would institutions look like if spaces were created under the motto, “learning happens everywhere here?”
- How do we leverage existing strengths, find pockets of interesting ideas, and leverage our planning to make a difference across campus?
- How can libraries (and their advances as learning spaces) inform development of classrooms?
- Should learning spaces be prescriptive? How can we talk about and describe less fixed, less programmed learning? Can we talk about “frameworks for learning” instead of “formulas for learning?”

3. Institutional Issues & Bureaucracy

- It is important when planning learning spaces to pay attention to assets already in existence.
- Are institutions really ready to innovate when they take into consideration the idea of risk management and the cost of prototype spaces to find out what works or does not?
- Faculty champions can be important motivators for change
- Is it practical to create an endowment as part of the plan for funding a project?
- How can we suggest new ways of thinking about when funds should be spent in the process of planning and using and maintaining the physical infrastructure for learning?
- How do we consider cost and still create flexible spaces that can serve generations of learners?

- How, why, and in what ways do senior administrators pay attention to student outcomes?
- How do we meet the challenges of breaking down silos?
- What is the barrier to getting buy-in across campus for makerspaces?
- Is it possible to move forward with no champion? And if you do have a champion, what happens after that champion moves on?
- How do you mix non-traditional spaces with traditional on a campus? How do you set up the process, who has oversight, when the space is not department-specific, where does it belong and who will be responsible for the space? Decisions and conversations about space ownership are important.
- Why do we not often show things in admission tours that speak about the “why and the how” of our spaces and showcase our strengths?
- How do spaces reflect the institutional mission?
- What are the costs/investments and benefits of learning spaces? Costs/investments include building, faculty development, technologies. Benefits/ROI include lower student failure rates, visible differences in success of women/minorities/underrepresented students, acquisition of transferrable skills (self-directedness, self-reliance, self-regulated learning, metacognition) and evidence that faculty are using what they are learning in these spaces in other courses they teach. Calibrate ROI from the human perspective. How do we design to support these investments and benefits?
- How do we address bureaucracy, and bureaucrats that do not see the value in new learning spaces?
- How do champions contribute to social innovation and change? How can we better develop champions in higher education?
- Why are some campuses interested in undertaking projects that do not take a truly integrated approach to aligning the curriculum with the pedagogy? Campus planners expect the building to solve more mundane problems without attention to an integrated approach to planning.
- Pay attention to assets already in existence
- When planning spaces, the mission of a project should reflect the mission of the institution, but be more tangible, dynamic, and to the point.
- How can institutions move from pockets of innovative teaching and learning here and there, to wide-scale transformation of the environment?
- How can we ensure that the ecosystem fosters buy-in from administration on makerspaces? How are such spaces important to the university?

4. Assessment & Evaluation

- How should stakeholders be involved in planning and assessment? What stakeholders should be involved, and how do we make this process meaningful?
- Adequate assessment of the current need, and estimation of future need are both important.
- Assessment should measure not the brick and mortar, but how behaviors change.
- We need robust follow-up to the questions we ask when planning.
- Post-occupancy assessment is often done by firms and campuses do not want results. This should be done in partnership with campuses and should assess learning outcomes and other aspects of usage.
- How can we collect and use data to support institutional change? We need to develop systems to create change. What data should be collected?
- Data helps in finding out how spaces are used and experienced. Students should be partners in this process.
- In the process of planning spaces, we should start with asking about our goals, about what we are trying to improve, about which outcomes will enable us to measure success, and how do issues of diversity impact our thinking?
- Post-occupancy should also think about/track/research how spaces change/evolve/grow.
- How do we demonstrate the value of learning spaces—about hoped for and targeted deliverables?
- Planning and assessment what should be stakeholder involvement, does this involve the wider community, parents – How do we make this process 'meaningful'?
- How do we evaluate/assess/measure whether or not a space will be welcoming at first glance? What does the space say? Does it communicate that a person is welcome/belongs there? Does it communicate this to everyone, or only certain groups/individuals?

5. Students

- How do we develop a culture of student ownership of learning spaces—where students are comfortable using, and the student culture is to use, various spaces for learning?
- It is as important to pay attention to preparing learners as it is to preparing faculty. Do students know how to learn in an active learning space?
- How do we change the behavior of students as we change the spaces (e.g., transforming the traditional library space)?
- How can we create spaces that exalt the status of students as learners rather than demean them? Do our offices,

administrators, etc., create a sense of being valued and belonging for students?

- How can we build learning communities in spaces other than residence halls?
- How do we engage student leaders across campus in planning the programming and preparing students to use spaces?
- What do students dread about classes? (Large classes were mentioned, and it was noted that in fact they dread these more than hard classes.)
- How do we make existing learning spaces work for current students? Are we gathering stories and data about their experiences now?
- How does limited access (like library hours, cafeteria hours) impact student learning and experience?
- How can/do learning spaces contribute to student resiliency? Also, how do we create learning spaces that are resilient for the future?
- We know that students want multifunctional formal and informal spaces that can be used privately and with groups, for various kinds of activities.
- How do we make students partners in learning, and in creating learning spaces?
- How can we create flexible, future-proofed spaces (featuring technology) in which students feel comfortable? Students must feel comfortable to interact with the space, and “put their hands all over everything.”

6. Technologies

- How can technologies be leveraged to increase access and improve learning without compromising the important social/cultural experience of higher education? What will it mean to plan learning experiences in an increasingly data-intensive world?
- In renewing and repurposing our spaces, how can we be sure that technology does not become a hindrance? What is the balance of “most-highest tech-active” learning spaces with spaces with no technologies at all?
- How can technologies be planned to act in the service of the learner? How do learners come to understand how to use the technologies? How do technologies play a role in inviting learners in? How can technologies lead learners down their path of choice?
- “Technologies allow the (physical) space to become a digital space.” How do digital and physical spaces interact and coexist? Do digital spaces have equal status to physical spaces? How/why is this important and what does it mean/what would it look like? How does participation differ? Flexibility and adaptability of the space?

7. Planning Teams & Inclusive Planning

- Clear directions are needed of what you want to accomplish and of the funds and time needed to do it right.
- There need to be passionate people involved – visionary, but also rational and process orientated – different from a champion.
- Design of the space is just one piece of the process. Broad discussion must take place so when the designer comes on board the concept of the building should already exist.
- Team-based infrastructural approach to planning – adapting team-based learning model to team-based planning.
- Learning space should encourage the inclusion of experts, students teaching one another.
- How do we establish, in the planning process, a time and space for a risk-free zone, a place where we can come to understand what is possible, to understand how to envision change?
- What are we messaging in our planning? As planners, do we always fall back on what is comfortable unless there is an explicit message from campus leaders to change? What are the levers that enable change to happen?
- How do we create a learner-centered learning environment and educational experience that is inclusive, that reflects an understanding of the cognitive development of students?
- What do we really know about students? Questions that could be asked of students and faculty during planning include: What does a space designed for creativity afford? Are those physical affordances? Is it a virtual space? What kind of content or product or services might emerge from the experiences of learning in this space that reflects an answer to the question about why such spaces are important to the university?
- How can the academic environment take on a design that actively reduces learner stress?
- How do we create spaces that support students with cognitive challenges? How do we optimize these spaces for all students?
- What are the inherent barriers in maker spaces – structural inequities
- How do we engage students in the planning, design, and building of makerspaces; and programming for these spaces? How do we involve students in educating us about works for them?
- How do we create a safe space for learning? One that is safe for diverse people—of different races, abilities, backgrounds, etc.? How do we make spaces inclusive and remove barriers to entry of all students? In particular, how do we make makerspaces more open and welcoming?

How do we plan to address collisions between diverse user groups?

- What kind of people are needed on a planning team? A champion, collaborators, creators, competitors, control freaks...
- How do we ensure that stakeholders are onboard with the shared mission and vision of a project in order to support institutional change?
- How do we step away from convention and avoid jargon in our planning, in order to be inclusive of all stakeholders in the full planning process (so everyone is engaged and understands)?
- How do we build an authentic planning committee that in turn creates or bolsters an authentic institutional culture?
- Students who live on campus are still in mostly institutional spaces—is there a way to make these spaces less institutional to provide “less institutional” experiences?

8. Online Spaces

- How do we design virtual learning spaces? Do we put the same thought and time into them?
- There should be a continuity, flow, and connectedness to learning that happens in all kinds of spaces. How do we address the unique opportunities and challenges presented by online spaces in building community and taking students on an inspiring journey?

9. Interdisciplinary

- How do we give students opportunities for interdisciplinary work that gives them the opportunity to engage in spaces they design and build?
- How do learning spaces contribute to or inhibit the growth and mind-opening that happen through liberal arts education? What kinds of interactions are necessary for spaces to enable social contact, different kinds of interactions, and the broadening of horizons when students engage in different disciplines?

10. Pedagogy & Learning Spaces

- How can we accommodate new pedagogies in classes with large enrollments by refitting current spaces?
- How can we make learning transferable from one experience/environment to another? How are our spaces connected to our notion of civic engagement? Of deep learning?
- How do we intentionally link pedagogy with makerspaces and other learning spaces?

- How do we prepare our students to work in the world, and how does this all weave together when we think about spaces and experiences of learning?
- How does our educational model need to shift? Should we be offering classes with over 100 students? If so, how could these be self-directed or peer-led project-based? Is scale a fallacy? Does scaling up learning work?
- How do/can learning spaces contribute to students' civic engagement (including acquisition of skills of democracy, and other engagement skills) and the desire to be lifelong learners? How do spaces contribute to deep, rich, contextual, provocative experiences?
- How do we use learning spaces for community engagement, and for engaging students with the community?

11. STEM & STEAM

- How can we create learning spaces that provide innovative, active learning opportunities for students in introductory STEM classes, to engage them in the first year to increase first to second year retention?
- (Moving from STEM to STEAM): Where are fine arts programs beginning to overlap with science programs? How will they in the future? Should buildings be interdisciplinary instead of compartmentalized? How can learning spaces contribute to interdisciplinary coexistence?

12. Makerspaces

- Why do we want a makerspace?
- Why is making and creating becoming such an important part of 21st century learning?
- What do students get from the experience of being in a maker space? Is there a culture of inclusion and equity/access?
- How do we define a makerspace? Is it specific to engineering? Is it simply a space that helps users “do” something? One that brings together people to work on projects, to network, to build?
- How do we do pre-planning for the occupancy and use of makerspaces? Are we considering risk management? How are we serving the needs of our students? How do we collaborate with students to create spaces that they feel like they can walk into and own and use?
- How can we integrate experiential learning and makerspaces into areas where they do not currently exist?
- Where and for whom are makerspaces being planned? How do we plan spaces for a new generation of students who are already experiencing disruptive change in K-12 spaces?

- How can makerspaces create trans-disciplinarians (instead of just engineers)? How can different levels of makerspaces engage people who are new and just want to try out the makerspace world, as well as those who are prepared to use advanced machinery and lab equipment?
- How do makerspaces contribute to preparing students for the future?
- What are the barriers to spaces for making in a library? Across campus? Are the barriers curricular? Is faculty resistance a barrier? Is it just that our campus is unfamiliar with how to incorporate attention to making into our curriculum and then into our spaces?
- Why is making and creating becoming such an important part of 21st century learning?

13. Faculty & Learning Spaces

- What about a faculty innovation lab—a place where faculty can go and try something out?
- Faculty development is an integral part of planning spaces for the institutional future. This needs to become part of the culture.
- There is a need for incentives for faculty (to use learning spaces, etc.). Teaching and learning must be part of the institutional culture. Faculty must understand the expectation to innovate through teaching.
- How do we empower faculty to think about space and how it affects the pedagogies we use, how we teach, and how our students learn?
- How do faculty feel if they try new things? How are they treated by the institution?
- Faculty buy-in is essential, in fact, change should be led by faculty and then students.
- How can we engage faculty in the concept of involving students in the contexts of planning learning spaces so that they are co-owners in the process?
- How do we change faculty culture to support what we know and are learning about learning spaces, and the support of new spaces?
- What kinds of faculty development exist, and what kinds are needed, to prepare instructors to use learning spaces? How can this development begin in graduate programs? What role can peer observation play in this work? How do we teach instructors/faculty about teaching and learning so they can best leverage the potential of learning spaces?
- How do we work with faculty members in the planning process to start to convince people that these pedagogies are worthwhile, and do transform the way students learn and increase persistence? How do we convince humanities faculty (and others) that they should use these spaces, too?