2019 LSC NATIONAL COLLOQUIUM

November 1 - 3, 2019
Kansas City, Missouri
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>FRIDAY, NOVEMBER 1</th>
<th>Page#</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:15 p.m. Welcome: <em>Beginning with the End in Mind</em></td>
<td>3</td>
</tr>
<tr>
<td>3:30 p.m. Plenary Session I: <em>Focusing the Experience of the Learner</em></td>
<td>4</td>
</tr>
<tr>
<td>4:30 p.m. Table Talk I: <em>Examining the Experience of Learning</em></td>
<td>6</td>
</tr>
<tr>
<td>5:30 p.m. Informal Poster Session with Cash Bar</td>
<td></td>
</tr>
<tr>
<td>6:30 p.m. Dinner</td>
<td></td>
</tr>
<tr>
<td>7:45 p.m. Plenary Session II: <em>How Focusing on the Learner Informs Attention to the Physical Environment for Learning</em></td>
<td>7</td>
</tr>
<tr>
<td>8:30 p.m. Informal Discussion: <em>Beginning with the End in Mind</em></td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SATURDAY, NOVEMBER 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 a.m. Breakfast</td>
</tr>
<tr>
<td>9:30 a.m. Tour &amp; Plenary Session III: <em>The Story of the Missouri Innovation Campus</em></td>
</tr>
<tr>
<td>10:45 a.m. Working Session A: <em>Kaleidoscopic Perspectives on Ecosystems</em></td>
</tr>
<tr>
<td>11:55 a.m. Break and Pick Up Boxed Lunches</td>
</tr>
<tr>
<td>12:30 p.m. Working Session B: <em>What Do We Know and What Do We Need to Know About Assessing the Impact of Space/Spaces on the Experience of Learning</em></td>
</tr>
<tr>
<td>2:20 p.m. Working Session C: <em>The Why &amp; How &amp; Who of Attention to Ecosystems for Learning</em></td>
</tr>
<tr>
<td>5:00 p.m. Break &amp; Cash Bar</td>
</tr>
<tr>
<td>6:00 p.m. Dinner</td>
</tr>
<tr>
<td>7:15 p.m. Formal Poster Session: <em>An Overview of Spaces That Work</em></td>
</tr>
<tr>
<td>8:45 p.m. Informal Group Exercise: <em>Defining and Visualizing Job Descriptions - Taking the Kaleidoscopic Perspective</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUNDAY, NOVEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 a.m. Breakfast</td>
</tr>
<tr>
<td>8:30 a.m. Plenary Session IV: <em>Imagining &amp; Focusing on the Future</em></td>
</tr>
<tr>
<td>8:45 a.m. Personal Reflections &amp; Break</td>
</tr>
<tr>
<td>10:00 a.m. Table Talk II: <em>Distilling our Collective Thoughts</em></td>
</tr>
<tr>
<td>10:45 p.m. Reporting Out: <em>What We Know from Research and Findings from the Field</em></td>
</tr>
<tr>
<td>11:25 a.m. Reporting Out: <em>A Key Strategy for Action</em></td>
</tr>
<tr>
<td>11:45 p.m. What Next: <em>Beginning with the End in Mind</em></td>
</tr>
</tbody>
</table>
FROM THE LSC ROUNDTABLES

- How can space facilitate the process of “making” knowledge, including demystifying failure, nurturing and embracing students as assets, and promoting life-long learning?

- How can we plan without deep understanding about why spaces make a difference to student learners as individuals—and indeed to all who will experience the spaces we are planning?

- How can we elevate and prioritize the roles of students as stakeholders, influencers, and participants in imagining, planning, and assessing learning spaces?

- How can learning spaces be seen as places where faculty give up control and actually learn along with students—places where faculty are partly responsible for setting the stage and creating the experiences, but where students also have responsibility to shape what is happening in the space?

- What questions should our learners be asking when entering into the spaces that have been realized because of our planning?

---

FROM THE LSC Roundtable at University of Missouri - Kansas City

Why should I come here?
Can I be somebody here?
Can I “own” this space?
Does coming here add some richness to my life?
Is this place open to my influence?
Is this a place where I can learn something?

— DePree, Max.
Leadership is an Art. Dell Publishing, 1989
WELCOME
BEGINNING WITH THE END IN MIND
3:15 P.M. • Friday, November 1

Welcome:
• Jeanne L. Narum, Principal – Learning Spaces Collaboratory

GOAL:
• All participants return to their home communities of practice with a report and an agenda for action. These will bring attention to colloquium discussions about:
  • Current findings—from research and practice on how learners experience space, how space influences learning—that inform the process of planning
  • Examples from a diversity of recent facilities projects about how planning spaces that work happens, becomes embraced by the community, enhances institutional distinction into the future
  • Emerging “pushing the envelope questions” being asked on campuses giving attention to the present and future of their intellectual, social, and physical environments for learning.

Agendas for action reflect the institutional context for focusing on spaces for learning.

LEARNING OUTCOMES
• That all participants leave with a deeper understanding about what we know and what we need to know about:
  • How to shape a shared language and vision within a campus community about why spaces matter—to learners today and into the future, to the institution today and into the future; how to make the case to colleagues and clients.
  • How to examine campus culture for planning and assessing spaces that reflect that language and vision; how to identify and assess institutional assets (people, programs, places) relevant to realizing spaces that matter.
  • How to create and nurture a community with a shared commitment to incorporating attention to inclusivity—spaces serving all students, ecosystems—every space a learning space, and permeability—as a lens through which to design holistically.
  • How to incorporate attention to how institutional operations, programmatic initiatives, and how student successes are influenced by planning that embraces the future.
NOTES
WHAT WORKS

PLENARY SESSION I: FOCUSING ON THE EXPERIENCE OF THE LEARNER—THE EXPERIENCE OF LEARNING
3:30 P.M. • Friday, November 1

Facilitators:
• William R. LaCourse, College of Natural and Mathematical Sciences - University of Maryland Baltimore County
• Laura Malinin, Inaugural Director, Nancy Richardson Design Center – Colorado State University

❖ Beginning with the end in mind
A. University of Maryland Baltimore County Interdisciplinary Life Sciences Building (ILSB)
   • Community of scholars – a shared experience of belonging
   • Flexible, encompassing pedagogical space for the 21st century learner
   • Convergent research – a change of culture, dismantling silos

B. Colorado State University Nancy Richardson Design Center
   • Iconic destination – elevating design and design thinking on campus
   • Creative crossroads – fostering interdisciplinary collaboration
   • Transparency — demystifying the creative process

❖ How planning happens
A. UMBC Interdisciplinary Life Sciences Building (ILSB)
   • Auditing student success – from environment to curriculum
   • Sandboxing – lessons learned from pilots, testing, successes and failures
   • Engaging the community – many voices – a sense of ownership
PLENARY SESSION I: FOCUSING ON THE EXPERIENCE OF THE LEARNER—THE EXPERIENCE OF LEARNING
3:30 P.M. • Friday, November 1

NOTES
AGENDA FOR ACTION

B. Colorado State University Nancy Richardson Design Center
   • Focus on user behaviors — spaces and learning experiences informed each other
   • Creativity takes time — extended visioning processes with diverse stakeholders
   • It takes a village — top-down and bottom-up approaches to planning and funding

❖ What do you know now and what next?

A. UMBC Interdisciplinary Life Sciences Building (ILSB)
   • Shared governance – building occupants as responsible agents
   • Training for success – preparing faculty and staff for a journey into the future
   • Leveraging opportunities – integration of the building into the campus

B. Colorado State University Nancy Richardson Design Center
   • Operational transformation – “breaking the rules” can spur operational innovation
   • Cultural transformation – the ripple effect of “thinking differently”
   • Stewardship – community culture and entrepreneurial opportunities

❖ What works: Advice to Colloquium Colleagues

A. UMBC Interdisciplinary Life Sciences Building (ILSB)
   • Establish a vision – a guiding set of principles for all to believe in
   • Planning to plan – decide before you start how or who will make the decisions
   • Communications – setting expectations, updates, excitement

B. Colorado State University Nancy Richardson Design Center
   • Tell a compelling story – give context to the vision so others can easily imagine it
   • Embrace ambiguity – an organic, unfolding process can yield greater creativity
   • Allow junior faculty to participate – they can be a dynamic force for change
Participants will meet twice in their assigned groups, here following the Opening Plenary and on Sunday morning. In concert with the Colloquium Goals, each Table Group will be responsible for shaping a collective response to each of the two goals, that each person bring home to his/her colleagues:

- ideas and insights about findings from research and from practice in the field that should inform attention to learning spaces on campuses for which they are responsible
- questions or strategies that are relevant for academics and architects to pursue in giving attention to learning spaces on campuses for which they are responsible.

These are self-organizing discussions, beginning with this 1st Table Talk, individual gleaning of ideas through the Colloquium, reconvening on Sunday to distill your individual reflections into a single message about research findings providing evidence on how learning/planning happens and into a single message about a key question or strategy for campuses to explore.

What I bring to the Colloquium:

What I hope to take away from the Colloquium:

5:30 P.M.  Informal Poster Session with Cash Bar
6:30 P.M.  Dinner
PLENARY SESSION II: HOW FOCUSING ON THE LEARNER INFORMS ATTENTION TO THE PHYSICAL ENVIRONMENT FOR LEARNING
7:45 P.M. ● Friday, November 1

Panel:

- Bennett Goldberg, Director of the Searle Center for Advancing Learning and Teaching – Northwestern University (Moderator)
- Edward Gomes Jr., Senior Associate Dean for Trinity Technology Services – Duke University
- Wendy C. Newstetter, Director, Educational Research and Innovation, College of Engineering – Georgia Institute of Technology
- Jim Swartz, Dack Professor of Chemistry – Grinnell College

Framing:
Learner-centered design and practice are requirements of effective education. Learner-centered means:

- valuing what all learners bring to their educational experience, and incorporating their perspectives into the educational environment.
- that the activities, spaces and interactions are designed to create learning,
- that we measure success through the eyes of the learner and feedback improvements that support their outcomes.

Taken together, centering the learner in the educational experience demands a new and different perspective on the physical environment.

NOTES

Resource:
From Audits to Quick Fixes: Critical Questions
Panel:

- Jim Swartz, Dack Professor of Chemistry – Grinnell College
  - Focus upon the kind of environment that will promote the best learning for your students, including both formal and informal spaces, and try to not be constrained by the past. This is your chance to have a substantial and lasting impact.
  - Be prepared to defend these goals to others on campus, to funders, and to the design team.
  - Realize that there will be constraints, and you will need to compromise. However, compromise from a position of a clear vision and realize what aspects of the project are central to its mission and what can be compromised without sacrificing the critical aspects.

- Wendy C. Newstetter, Director, Educational Research and Innovation, College of Engineering – Georgia Institute of Technology.
  - Start with a vision of the graduate you seek to develop (empowered, agentive, fearless, inclusive engineer).
  - Identify the cognitive (model-based reasoning), interpersonal (teaming, communicating, including), and intrapersonal (risk taker ready to fail to fail, resilient, reflective, empathetic) knowledge, skills and attitudes (KSAs) that students need to embrace and practice to become that kind of person.
  - Design learning experiences where they can practice those KSAs.
  - Design learning spaces for this kind of practice.
• Edward Gomes Jr., Senior Associate Dean for Trinity Technology Services – Duke University
  • Know your audience – Who are these learners and how do they prefer to acquire knowledge in pursuit of their educational goals? Are your instructors tied to a specific pedagogy or will/able to adapt to methods that work best with today’s learners? Is the leadership in your institution prepared to support the creation of the type of space that you hope to create?
  • Learning space is connected space – Today we create learning ecosystems, where technology combines with spaces to create environments where learning can happen anytime and anywhere.
  • Prepare for success and failure – You may create fabulous space, get a big win but fail to deliver on some aspect of the overall plan. Embrace the prospect that you may fail and that you’ll build off of that failure to create environments that will ultimately deliver what your learners need to succeed.

• Bennett Goldberg, Director of the Searle Center for Advancing Learning and Teaching – Northwestern University (Moderator)
  • Centering the learner in space design, development, and research is a paradigm shift, just as it was for learning and teaching two decades ago. It requires us to take the learner’s perspective as primary, not that of the instructor, the institution or the researcher.
  • Centering the learner means implementing a learning systems approach for the development of the physical environment. They are joined with designers, architects, researchers, faculty, administrators....
  • Learners should be included in all phases: Design, development, researching and understanding the successes/failures and cycles of improvement. Success if how they define success and how their learning, as measured through their eyes, measures success.
• What do we want our learners to become?
• What kind of learning experiences enable that becoming?
• What kind of learning spaces enable such experiences?
• How do we know?

NOTES
FROM THE LSC ROUNDTABLES

• What do we message in how we plan? As planners, do we always fall back on what is comfortable unless there is an explicit message from campus leaders to think beyond the obvious? What are the levers within our community that allow us to think beyond current practice?

• How do we think about planning from the perspective of the return on investment? Is there a new way to be thinking about when and why $$ are to be spent in the process of planning/assessing learning spaces into the future?

• What do we need to know about our students? What do we know about the tipping point on our campuses for experimenting with new pedagogical and programmatic models for learning

• How do we build a campus-wide buzz about attention to spaces?
SATURDAY

7:15 a.m.  Breakfast

8:15 a.m.  Board Buses for the Missouri Innovation Campus (MIC)

9:30 a.m.  Tour & Plenary Session III
    Experiencing and Hearing the Story of the MIC

10:45 a.m. Working Session A
    Kaleidoscopic Perspectives on Ecosystems

11:55 a.m. Break
    Pick up Boxed Lunches

12:30 p.m. Working Session B
    What Do We Know and What Do We Need to Know About Assessing the Impact of Space/Spaces on the Experience of Learning

2:20 p.m.  Working Session C
    The Why & How & Who of Attention to Ecosystems for Learning

4:15 p.m.  Board buses back to hotel

5:00 p.m.  Break and Cash Bar

6:00 p.m.  Dinner

7:15 p.m.  Formal Poster Session
    An Overview of Spaces That Work

8:45 p.m.  Informal Group Exercise
    Defining and Visualizing Job Descriptions: Taking the Kaleidoscopic Perspective
TOUR & PLENARY SESSION III: EXPERIENCING AND HEARING THE STORY OF THE MISSOURI INNOVATION CAMPUS
9:30 A.M. • Saturday, November 2

NOTES

Facilitators:
- David Reid, Principal – Gould Evans
- Laurel Hogue, Vice Provost for Extended Studies – University of Central Missouri at the Missouri Innovation Campus
- Belinda Copus, Undergraduate Program Coordinator, Computer Science & Software Engineering – University of Central Missouri
- Jeremy Bonnesen, Director, Summit Technology Academy – Lee’s Summit R7 School District
- Kyle Gorrell, Director of Facilities – Lee’s Summit R7 School District (Owner of the MIC campus)

❖ Beginning with the end in mind

- We wanted our graduates to be employable, to have the skills, competencies, and qualities to provide value to the organizations, businesses, and corporations that they become engaged with upon graduation.
- We wanted our graduates to become confident problem-solvers, collaborating members of a team, willing to take risks.
- We wanted a facility that reflected institutional goals, short range and into the future.
- We wanted to transform the institutional culture—in thinking about planning and in embracing an ecosystem of spaces for learning.
How planning happens

To shape and realize a vision for MIC, it took:

• The integration of a regional ecosystem: planning among university, community college, high school, and workforce partners & the integration of a campus ecosystem – visioning with students and leadership.
• The asking of some hard questions: what does learning need to look like in order to instill competencies and achieve success? Integrative systems planning & how do we integrate university and school district systems and protocols into a single shared-use facility?
• Many years for pilot/sandbox spaces—we needed to validate new design ideas and technologies before full implementation.

What do you know now and what next?

• That completely transforming how planning happens when you have very ambitious, audacious, forward thinking goals is very hard, very satisfying.

What works: Advice to Colloquium Colleagues

• Take time. Get the program goals clear before drafting spaces.
• Be ambitious. Engage all your stakeholders—locate and engage outlines.
• Document the process. Be prepared to assess if the resulting spaces meet your project goals.
• Be committed to designing learning spaces that can move and adapt at “the speed of business”—into the future.
Facilitators:

- Jon Dorbolo, Associate Director, Technology Across the Curriculum – Oregon State University
- Thomas Hickerson, Vice Provost and University Librarian (retired) – University of Calgary
- Felix Kronenberg, Director of the Center for Language Teaching Advancement (CeLTA) and Associate Professor in the Department of Linguistics & Germanic, Slavic, Asian and African Languages Michigan State University – Michigan State University
- Wendy C. Newstetter, Director of Learning Sciences Research, College of Engineering – Georgia Institute of Technology

**Researching learning spaces beyond the silos: Getting started with learning space ecosystem research and assessment**

Much of the growing body of learning spaces research focuses on individual spaces: classrooms, labs, makerspaces, etc. As we are increasingly looking at systems of learning spaces, we need to develop research questions to better understand how such spaces are connected.

In this panel, we will ask all attendees to find access points to this emerging field of research:

1. How can we broaden the scope of research from discrete learning spaces to complex learning space ecosystems?
2. How can we forge a research network that addresses learning space ecosystem research?
3. How can faculty, staff, students and other stakeholders (who usually aren’t included) be included in such research?

Each panelist will shed light on how we proceed to define a more unified research vision for learning space ecosystems.
Facilitators:

- Dana Gierdowski, Researcher, EDUCAUSE Center for Analysis & Research – EDUCAUSE (Moderator)
- Bennett Goldberg, Director of the Searle Center for Advancing Learning and Teaching – Northwestern University
- William LaCourse, Dean of the College of Natural and Mathematical Sciences – University of Maryland, Baltimore County
- Lisa Stephens, Assistant Dean, University at Buffalo School of Engineering – University at Buffalo & SUNY System

WHY COLLECT DATA: Research as part of the campus ecosystem of learning spaces.

HOW TO COLLECT DATA: Interviews, Surveys, Focus Groups, Pre-existing Instruments & More

WHAT KIND OF DATA CAN BE COLLECTED TO GAUGE: How students create community within a space?

1. How included students feel in a space?
2. What excites faculty in a learning space?
3. Whether students are productively using a space?
4. What elements and practices could contribute to a broader “toolkit” of resources to realize ideal learning spaces?

These questions will be explored from many perspectives. Our conversations will be sparked by stories from the field, sharing our individual and collective experiences about integrating assessment into the process of planning and about the use of different methods and resources for collecting data for research.*

* LUNCH CONVERSATIONS. Please pick up food and drink, move into the atrium, gathering into conversation groups of ~ 6 individuals (mix of academics & architects). Discuss the kind of data that can be collected to: a) gauge the impact of various parts of the ecosystem on individual learners (each learner) and/or: b) the community of learners. Prepare to report back with one “best data collection practice.”
WORKING SESSION B: WHAT DO WE KNOW AND WHAT DO WE NEED TO KNOW ABOUT ASSESSING THE IMPACT OF SPACE/SPACES ON THE EXPERIENCE OF LEARNING
12:30 P.M. • Saturday, November 2

STORIES FROM THE FIELD: A PANEL DISCUSSION

A. University of Maryland, Baltimore County

B. University of Buffalo - FLEXspace

C. EDUCAUSE

D. Northwestern University
A Few Research & Assessment Resources - Working Session B

- Learning Spaces Collaboratory - https://www.pkallsc.org/
- EDUCAUSE - https://www.educause.edu/
- Learning Space Design Community Group
  https://www.educause.edu/community/learning-space-design-community-group
- Learning Space Rating System
  https://www.educause.edu/eli/initiatives/learning-space-rating-system
- FLEXspace.org
- Learning Space Toolkit - https://learningspacetoolkit.org/
Facilitators:

- Robert Kolvoord, Dean, College of Integrated Science and Engineering (CISE); Professor, ISAT, GS, IA – James Madison University
- Laura Malinin, Inaugural Director, Nancy Richardson Design Center – Colorado State University
- Henry Way, Associate Director, School of Integrated Studies – James Madison University
- Howard Wertheimer, Chief Operating Officer – Piedmont Park Conservancy

How does a campus balance competing interests while keeping in mind a “sense of place” (topophilia) as nurturing, inclusive and supportive of community, but not losing sight aesthetic considerations?

The guiding question/conundrum for our session is “How can you plan an ecosystem” – to which the answer, of course, is that you can’t. Ecosystems cannot be “planned”, rather the conditions or building blocks for a flourishing ecosystem can be planned.

So, as it is difficult/impossible to “plan an ecosystem,” this session is focusing on asking the right questions to generate the best conditions for an ecosystem to emerge and be sustained.

Ecosystems are characterized by: the interaction of different components, flows of energy and material, disturbance, succession, diverse edge environments, and so on. They are dynamic. They are about the interplay between the living and the physical (biotic and abiotic). Can we use some of these key elements and characteristics to organize this discussion, to demonstrate a way of thinking about the model and planning?

**Campus Planning Meeting:** Who’s in the room and how do conversations advance when you’re building and connecting the people and spaces that contribute to the campus learning ecosystem.
WORKING SESSION C: THE WHY & HOW & WHO OF ATTENTION TO ECOSYSTEMS FOR LEARNING
2:20 P.M. ● Saturday, November 2

In your breakout groups, please take a few moments to think about your particular campus and its evolving ecosystem and discuss the following questions. (40 mins.)

- Envisioning a productive and resilient ecosystem.
  - What are our goals in this exercise? What does success look like?
- What are the main “building blocks” of our environment? Context counts.
  - What are our institutional assets and how do we identify them?
- What living things exist in the ecosystem and what brings the energy?
  - Who are the key stakeholders and what are their needs/issues?
- How do you tend to the internal connections and ecosystem edges to build resilience?
  - How do we connect our assets and start to build/strengthen the ecosystem?
- How can feedback loops in a dynamic ecosystem be measured and adaptivity be prioritized?
  - How do we assess the quality of our efforts and build in continuous improvement?
- What are immediate next steps you can take to advance the development of your campus ecosystem?

NOTES
At the end of the discussion, we will ask each group to briefly share two key insights from your discussions about any of the questions above. Key Insights: (10 mins.)

Group 1: ________________________________

Group 2: ________________________________

Group 3: ________________________________

Group 4: ________________________________

Group 5: ________________________________

Group 6: ________________________________

Group 7: ________________________________

Group 8: ________________________________

NOTES
FORMAL POSTER SESSION
AN OVERVIEW OF SPACES THAT WORK
7:15 P.M. • Saturday, November 2

Moderators:
• Jeanne L. Narum, Principal – Learning Spaces Collaboratory
• Nancy Sturm, Principal – The Sextant Group

FROM THE LSC ROUNDTABLES

• The thread through our conversation was that planners, like students, learn through discussion. In each case it is a process of discovery. We think that discovery should be seen as a new way of planning.
• How can we initiate a process for planning that focuses on learners and the experience of learning, on what will be happening within the space, before focusing on the spatial design and affordances?
• What if we had a better sense of the cadence of planning spaces across campus?
• What kind of “what if” questions need to be asked before seeking an architect?
• We need to get a better handle—hard ata and anecdotal stories—about what difference the space make in meeting the institutional vision and goals set for the project.
FORMAL POSTER SESSION
AN OVERVIEW OF SPACES THAT WORK
7:15 P.M.  Saturday, November 2

Ayers Saint Gross  Clark Nexsen  Ellenzweig

NOTES:
FORMAL POSTER SESSION
AN OVERVIEW OF SPACES THAT WORK
7:15 P.M. • Saturday, November 2

EwingCole

Gould Evans

Hanbury

NOTES:
FORMAL POSTER SESSION
AN OVERVIEW OF SPACES THAT WORK
7:15 P.M. • Saturday, November 2

HMA2

HOK

Perkins+Will

NOTES:
FORMAL POSTER SESSION
AN OVERVIEW OF SPACES THAT WORK
7:15 P.M. • Saturday, November 2

Research Facilities Design
Shepley Bulfinch
Skidmore, Owings & Merrill LLP

NOTES:
INFORMAL GROUP EXERCISE: DEFINING AND VISUALIZING JOB DESCRIPTIONS:
TAKING THE KALEIDOSCOPIC PERSPECTIVEAN OVERVIEW OF SPACES THAT WORK
8:45 P.M. ● Saturday, November 2

NOTES

9:30 P.M.  Evening Concludes
7:15 A.M.  Breakfast
7:15 a.m. Breakfast

8:30 a.m. Plenary Session IV: Imagining & Focusing on the Future
Presentation, Exercise & Reporting Out

9:45 a.m. Personal Reflections & Break

10:00 a.m. Table Talk II
Distilling our Collective Thoughts — Report: What We Know from Research and Findings from the Field & Strategies for Action

10:45 a.m. Reporting Out: What We Know from Research and Findings from the Field — How Planning Happens/How Learning Happens
— Open Comments

11:25 a.m. Reporting Out: A Key Strategy for Action
— Open Comments

11:45 a.m. What Next
Beginning with the End in Mind

12:00 p.m. Colloquium Concludes
NOTES

PLENARY SESSION IV: IMAGINING & FOCUSING ON THE FUTURE
PRESENTATION, EXERCISE & REPORTING OUT
8:45 A.M. • Sunday, November 3

Moderator:
- Edward Gomes Jr., Senior Associate Dean for Trinity Technology Services – Duke University

Presenter:
- Thomas Hickerson, Vice Provost and University Librarian (retired) – University of Calgary

Permeability as a Concept for Planning: The Taylor Family Digital Library as Case Study

The Lens of Permeability is a Prism through which to design holistically.

Shaping and Reshaping Libraries

The last 25 years in libraries have been characterized by constant change, perhaps more than most areas of the academy. Driven first by ubiquitous networked access to information, then by the changing nature of the student experience, notions of library space design have been transformed. Today, a fundamentally new type of library is needed.

The Taylor Family Digital Library (TFDL) at the University of Calgary is widely recognized as an instantiation of this new library. A $205M project opened in 2011, the TFDL represents a library not built for permanent housing of collections, but for people interacting in permeable and flexible spaces.

PLENARY SESSION IV: IMAGINING & FOCUSING ON THE FUTURE
PRESENTATION, EXERCISE & REPORTING OUT
8:30 A.M. ● Sunday, November 3

NOTES
EXERCISE: TRANSLATING MENTAL IMAGES OF PERMEABILITY INTO REALIZED PROTOTYPES

Your prototype can be for an individual space, or building, or area of campus. In your prototyping of a permeable space, consider external and internal aspects of the design in combination. Transparency is a critical aspect of permeability, allowing one to see from the outside in and the inside out. Think of the entirety of the design space as being viewed through a series of transparent sheaths – each layer of space as a window into the next.

Consider a range of attributes: architectural, technical, and structural but also cultural, geographic, scenic, and biological. Consider the mix and flow of people within the space, and where in it you are trying to promote individual or group activity. Think about the ‘humanness’ of the space and what elements will promote comfort, reflection, discovery and creativity.

Permeability can stimulate partnerships that further learning, research and technological innovation, spanning the campus and beyond. Envision the core functional purposes to be realized. But be imaginative and creative, adding features, furnishings, technologies, or cultural imagery that invite people to explore, interact, make new social connections, and build community.

Think not of permanence and how long this building or space can serve its current purposes. Think of how spaces can be shaped and reshaped by new users and uses, some of which will arise even before current construction is completed. If truly permeable, design should be able to evolve incrementally to realize goals we have not yet imagined.
PLENARY SESSION IV: IMAGINING & FOCUSING ON THE FUTURE
PRESENTATION, EXERCISE & REPORTING OUT
8:30 A.M. ● Sunday, November 3

Step 1
Individually, imagine the permeable space that you want to design, consider who your key users are and the variety of ways in which this space will address their needs.

Step 2
Draw the space on paper identifying the permeable attributes of your design.

Step 3
Present your design to your group characterizing elements of permeability that you have incorporated.

Step 4
Compare and critique the permeable elements in your designs and also imagine how these spaces might be constructed to enable future repurposing.
PERSONAL REFLECTIONS

9:45 A.M. • Sunday, November 3

Moderator:

• Joan K. Lippincott, Associate Executive Director Coalition for Networked Information

ABOUT FINDINGS

ABOUT STRATEGIES
TABLE TALK II: DISTILLING OUR COLLECTIVE THOUGHTS — REPORT: WHAT WE KNOW FROM RESEARCH AND FINDINGS FROM THE FIELD & STRATEGIES FOR ACTION
10:00 A.M.  •  Sunday, November 3

NOTES
Table 1

Table 2

Table 3

Table 4

Table 5

Table 6

Table 7

Table 8

Table 9

Table 10

Table 11
<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2</td>
</tr>
<tr>
<td>Table 3</td>
</tr>
<tr>
<td>Table 4</td>
</tr>
<tr>
<td>Table 5</td>
</tr>
<tr>
<td>Table 6</td>
</tr>
<tr>
<td>Table 7</td>
</tr>
<tr>
<td>Table 8</td>
</tr>
<tr>
<td>Table 9</td>
</tr>
<tr>
<td>Table 10</td>
</tr>
<tr>
<td>Table 11</td>
</tr>
</tbody>
</table>
BASED ON RESEARCH IN SOCIAL CREATIVITY

Much human creativity arises from activities that take place in a social context in which interaction with other people and the artifacts that embody collective knowledge are important contributors to the process.  
[Gerhard Fischer]*

BASED ON QUESTIONS FROM THE COMMUNITY

How can colleges and universities be redesigned to enhance creative outcomes and educate students to be innovative?  
How can we prepare our graduates to respond creatively to the complexities of the modern world?  
[David Oxtoby]*

BASED ON FUTURES THINKING

The point of futures literacy is to become more adept in inventing imaginary futures: to use these futures to discern system boundaries, relationships, and emergence; to invent and detect changes in the conditions of change, to rethink the assumptions we use to understand the present.  
[Riel Miller]*

BASED ON CONVERSATIONS WITH COLLEAGUES ABOUT RESEARCH

Space is never neutral. When we walk into a space, we ask and determine what we can do in that space: What is acceptable? What is allowable? What can happen here and what cannot? What should happen here?  
[Wendy Newstetter]*

CITATIONS


Newstetter, Wendy, Director of Learning Sciences Research, College of Engineering—Georgia Institute of Technology

12:00 P.M. Colloquium concludes
About the Learning Spaces Collaboratory

Overview of Colloquium Sessions

Architect Posters

- Ayers Saint Gross: Semans-Griswold Environmental Hall - Washington College
- Clark Nexsen: vers un habitat inclusif!
- Ellenzoewig: New STEM Learning Complex with Re-purposed Power Plant - Michigan State University
- EwingCole via the Jacobs-EwingCole JV: Cyber Engineering and Academic Center - US Military Academy
- Gould Evans: Earth, Energy, and Environment Center - University of Kansas
- Hanbury: Flexible Classroom Prototype
- HMA2: American University of Central Asia
- HOK: Academic Workplace Design - George Washington University, Morgan State University, University of Southern California
- Perkins&Will: Center for Natural Sciences, Mathematics and Nursing - Bowie State University
- Research Facilities Design: New Center for the Sciences - Valparaiso University
- The Sextant Group: Executive Hall for Entrepreneurship and Innovation - University of Missouri Kansas City
- Shepley Bulfinch: Center for Innovation and Collaboration - Loyola University Maryland
- Skidmore, Owings & Merrill LLP: The Milstein Center - Barnard College

Registration List

RESOURCES
ABOUT THE LEARNING SPACES COLLABORATORY

Established in 2010, the LSC builds on almost twenty years of attention to spaces for learning in undergraduate settings under the umbrella of Project Kaleidoscope. PKAL was an NSF-funded initiative (1989) focusing on enhancing undergraduate STEM programs and pedagogies—and institutional cultures—to ensure greater persistence and success of students in those fields. Early PKAL leaders recognized quickly that attention to transforming what and how learning happened required attention to where.

From 1992 – 2010, PKAL orchestrated a significant number of national colloquia, regional workshops, institutional consultancies, and invitational roundtables focusing on planning facilities. The first major handbook for planning spaces for undergraduate learners, PKAL’s Structures for Science, was published in 1995. (5000 copies sold.)

In 2003, PKAL hosted a Roundtable on the Future of Learning Spaces at the Cranbrook Academy of Art. Some questions that surfaced during roundtable discussions:

- How do we describe the learning spaces we are planning?
- What kind of spaces might emerge if we spoke about these spaces as opportunities for the serendipitous collision of ideas?
- What might our spaces become if we took to heart the research that indicates how change agents have a talent for speaking differently rather than for arguing well ... that to produce second-order change ... requires a strong alternative schema, presented clearly and persistently?
- What might our laboratories, classrooms, libraries, or atria be like if we began to speak of them and to program them as “trading zones,” as places where people come together to exchange ideas, brainstorm, imagine, reinvent themselves?

A Danish Proverb, as adapted by Niels Bohr, became our motto: prediction is very difficult, especially about the future.

Some further quotes from the Cranbrook workbook:

- While we cannot predict the future, we can prepare for it by designing learning spaces that are flexible, incrementally adaptable, and socially aware. The spaces of the future will function as the “home-base” of information, designed to leverage the best practices of teaching, the latest technologies for learning, with sensitivity toward student and faculty environments.
- To keep pace with continually changing needs, we must create learning spaces that support the science of change. A “science of change” learning environment incorporates flexibility, incremental adaptability, and social awareness.
- College and university planners can be certain that future students and faculty will absolutely need a roof over their heads, air, water and warmth. Beyond that, they can only imagine. But they have the power to plan for the unknown.
The 2005 PKAL Roundtable at Cranbrook foreshadowed the evolution of the Learning Spaces Collaboratory.

In 2010, again with NSF support, a small group of academics recognized for their expertise in transforming undergraduate learning environments convened to establish the vision, goals, and strategies that would drive the work of the LSC. Participants in this weekend retreat represented faculty from different disciplines and administrators in different spheres of responsibility, collectively with experience with a wide range of spatial types and facilities projects.

As a collaboratory, the LSC is a community that tracks, shares, and promotes the work of pioneering individuals, institutions, and organizations transforming the undergraduate learning environment, shaping the future. From the beginning, attention to asking the right questions, recognizing the changing context, bringing diverse voices to the table, and embracing the future were central LSC strategies. Critical to the LSC is the informed collaboration of academics and architects.

In 2016, the LSC adapted the 2010 planning strategy of assembling a small, diverse, and experienced group of academics and architects, charging them to articulate new questions—based on what they knew from research and practice—to drive the future of shaping learning and spaces for learning. From the 700+ pages of transcripts from eleven roundtables in 2016 – 2018 (and for the first time in the work of the LSC), the concept of permeability seemed implicit in roundtable discussions.

- Spaces and people have an impact on one another. As a person passes through a space, both can be changed.
- Spaces can be transformative. They can have an impact on how people use the space, how they understand the potential of the space.
- 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 a learning community? What are the important elements here—atmosphere, visuals, sound?
- What kind of opportunities can we create for students to feel welcome in learning spaces—not cloistered or hemmed in—able to move between spaces/use them in concert with one another—including "real-world," non-institutional spaces?
- 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?
- The problem with planning is that 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? 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 now imagine? Our planning needs to be agile.
- How can learning spaces provide a place for students to fail safely? A place 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 the support to try. How will we create spaces that signal to all learners that they are welcome and that they will have some agency in these spaces. (All exact quotes)

The 2019 LSC Colloquium is an opportunity to engage a broader community of stakeholders in addressing these questions, in exploring new questions, and in shaping strategies for realizing environments that transform the experience of learning and enhance institutional distinction over the long term.
OVERVIEW OF LSC COLLOQUIUM: PLENARIES

Plenaries present stories from four different campuses about the process of planning four different institutional spatial types—beginning with the end in mind for the learners, the campus community and the broader community beyond the campus.

FRIDAY

- **The Interdisciplinary Life Sciences Building (2019) - University of Maryland Baltimore County**
  The Interdisciplinary Life Sciences Building (ILSB) is a center for interdisciplinary research, active/applied learning, innovation, and inspiration. The ILSB will provide many new opportunities for integrating research, teaching, and learning across departments and colleges in support of our mission of student success and expanding research in areas of strategic importance to the state.

- **The Richardson Design Center (2019) - Colorado State University**
  A place for...
  - Students who want to be more creative in the ways they think about and solve everyday and socially significant problems.
  - Faculty looking for a place to form interdisciplinary collaborations around design-based learning, research, and creative scholarship.
  - Departments that value interdisciplinary innovation for its potential to increase teaching effectiveness and faculty productivity.
  - Industry partners seeking talented students and faculty with whom to share ideas and design products and systems for a better future.
  - Community partners who need help understanding the nature of the problems they face and resources to design and test solutions.

SATURDAY

- **The Missouri Innovation Campus (2011)**
  The MIC provides innovative educational opportunities to thousands of students and adults in the Greater Kansas City area with a new model for education in Missouri that focuses on student outcomes and workforce needs. The state-of-the-art facility provides an effective, innovative learning environment in which students will pursue exciting educational opportunities in areas that are in high demand while empowering and instilling confidence in students so that they may enjoy a successful college completion path, ultimately contributing to a strong Missouri economy.

SUNDAY

- **The Taylor Family Digital Library (2011) - The University of Calgary**
  This state-of-the-art learning and research centre is a model for the 21st century library, and a principal gathering place for students, faculty, staff, alumni and the broader Calgary community. The Taylor Family Digital Library’s unique features and resources include technology that encourages experiential learning and innovative ways of creating new knowledge. The facility is one of the most digitally progressive academic libraries in North America. It combines a library, art gallery, archives, rare collections, university press, a student success centre, and alumni offices. A $205M project opened in 2011, this LEED Gold central library is the heart of the campus, and is designed for ongoing architectural and programmatic change addressing the evolving demands of the future.
OVERVIEW OF LSC COLLOQUIUM: TABLE TALKS

The Goal for the Colloquium is that all participants return to their home communities of practice with a report and an agenda for action. One Strategy toward that end is a series of formal and informal Table Talks.

Formal Table Talks will be orchestrated by colloquium facilitators, including architects.

Friday’s Table Talk I is for sharing what each individual/campus team brings to the Colloquium—questions and comments relating to their institutional context for giving attention to spaces for learning.

Sunday’s Table Talk II is for sharing what each individual/campus team is prepared to report to his or her colleagues and the draft agenda for action for their consideration.

The report from the LSC Colloquium [spring 2020] will give an overview of these table talks, which illustrate in practice research on social creativity.

Informal Table Talks are scattered throughout the weekend, including during meals, after Panels and Plenaries.

Social creativity is based on the assumption that the power of the unaided individual mind is fundamentally limited. Although creative individuals are often thought of as working in isolation, much human creativity arises from activities that take place in a social context in which interaction with other people and the artifacts that embody collective knowledge are important contributors to the process. Because the fundamental problems of the 21st century are systemic, complex, and open-ended, they require the ongoing contributions of many minds, particularly from the people who own the problems and are directly affected by them. Unique new opportunities and challenges to enhance social creativity are facilitated by cultures of participation.

OVERVIEW OF LSC COLLOQUIUM: PANELS & WORKING SESSIONS

Saturday the Colloquium moves to the Missouri Innovation Campus (MIC) at Central Missouri University. Three sets of Panel/Breakout Sessions will follow the Plenary and Tour presented by MIC Planners and Users.

A panel of Colloquium facilitators will set the stage for each breakout sessions, in which architects will participate. The intent is to distill from current evidence, based on pioneering efforts on campuses across the campus, what is known about: i) spaces that matter and ii) how to plan spaces that matter.

These discussions are designed to serve Colloquium goal, that participants leave with a report about what is known and an agenda for action to prompt action at the campus level and in offices of participating design professions. They are shaped in a manner reflecting how attention to spaces happen – by identifying and gathering a diverse community of stakeholders (as below).

PANELISTS AND BREAKOUT SESSION FACILITATORS

- Jeremy Bonnesen, Director, Summit Technology Academy, Lee’s Summit R7 School District
- Belinda Copus, Undergraduate Program Coordinator, Computer Science & Software Engineering
- Jon Dorbolo, Associate Director, Technology Across the Curriculum – Oregon State University
- Dana Gierdowski, Researcher, EDUCAUSE Center for Analysis & Research – EDUCAUSE
- Bennett Goldberg, Director of the Searle Center for Advancing Learning and Teaching – Northwestern University
- Edward Gomes Jr., Senior Associate Dean for Trinity Technology Services – Duke University
- Kyle Gorrell, Director of Facilities, Lee’s Summit R7 School District. (Owner of the MIC campus)
- Thomas Hickerson, Vice Provost and University Librarian (retired) – University of Calgary
- Laurel Hogue, Vice Provost for Extended Studies, University of Central Missouri at the Missouri Innovation Campus
- Robert Kolvoord, Dean, College of Integrated Science and Engineering (CISE); Professor, ISAT, GS, IA – James Madison University
- Felix Kronenberg, Director of the Center for Language Teaching Advancement (CeLTA) – Michigan State University
- William LaCourse, Dean of the College of Natural and Mathematical Sciences – University of Maryland
- Joan Lippincott, Associate Executive Director – Coalition for Networked Information
- Laura Malinin, Inaugural Director, Nancy Richardson Design Center – Colorado State University
- Wendy C. Newstetter, Director, Educational Research and Innovation, College of Engineering – Georgia Institute of Technology
- David Reid, Principal – Gould Evans
- Jim Swartz, Dack Professor of Chemistry – Grinnell College
- Henry Way, Associate Director, School of Integrated Studies – James Madison University
- Howard Wertheimer, Chief Operating Officer – Piedmont Park Conservancy
OVERVIEW OF LSC COLLOQUIUM: POSTER SESSION

FACILITATORS

• Jeanne L. Narum, Principal – Learning Spaces Collaboratory
• Nancy Sturm, Principal – The Sextant Group

POSTERS

• Ayers Saint Gross
  Semans-Griswold Environmental Hall - Washington College
• Clark Nexsen
  vers un habitat inclusif!
• Ellenzweig
  New STEM Learning Complex with Re-purposed Power Plant - Michigan State University
• EwingCole via the Jacobs-EwingCole JV
  Cyber Engineering and Academic Center - US Military Academy
• Gould Evans
  Earth, Energy, and Environment Center - University of Kansas
• Hanbury
  Flexible Classroom Prototype
• HMA2
  American University of Central Asia
• HOK
  Academic Workplace Design - George Washington University, Morgan State University, University of Southern California
• Perkins&Will
  Center for Natural Sciences, Mathematics and Nursing - Bowie State University
• Research Facilities Design
  New Center for the Sciences - Valparaiso University
• The Sextant Group
  Executive Hall for Entrepreneurship and Innovation - University of Missouri Kansas City
• Shepley Bulfinch
  Center for Innovation and Collaboration - Loyola University Maryland
• Skidmore, Owings & Merrill LLP
  The Milstein Center - Barnard College
**VISION/GOALS**

The College aims to prepare the next generation of leaders to help solve the most pressing environmental problems of the 21st century. Washington College’s Semans-Griswold Environmental Hall aims to be a regional hub for hands-on research on the Chesapeake Bay and a magnet for thought leadership centered on the environmental challenges facing the region, the country, and the world.

The facility provides experiential teaching and research laboratory, academic, and office spaces that embody the environmental science program’s commitment to sustainability and local ecology. Among its innovative design features is a state-of-the-art marine science lab that includes a river flow-through system, bringing ambient water from the Chester River to give faculty and students the unique ability to study river ecology and marine organism biology in a controlled environment.

**PROCESS**

The waterfront campus at Washington College was first visualized in 2008. After a decade of fundraising, College leadership worked with Ayers Saint Gross to refine the program and scopes. Ayers Saint Gross involved teaching and research faculty as well as a high-performance building consultant to design a building that produces more energy than it uses in pursuit of the Living-Building Challenge Petal Certification.

Semans-Griswold Environmental Hall houses the Center for Environment & Society at Washington College, one of three Signature Centers that focus on providing undergraduate students with graduate-level experiences outside of the classroom.

**OUTCOMES**

**INNOVATIVE LAB SPACES**

Wet Lab and River Flow Through System—The wet lab hosts a river flow-through system, which pumps water from the Chester River directly into and out of the lab, allowing students to study different aspects of the Chester River in a controlled environment using water directly from the river.

Watershed Innovation Lab—The lab serves as the home to CE&S’s Chester River Watershed Observatory. Students have the opportunity to work on buoys that monitor the river’s water quality, side scan sonar, building AquaBotz, and more.

Environmental Research Lab—The third lab serves as a laboratory learning space for hands-on research.

**CLASSROOM**

The classroom, located adjacent to the main commons and along the front porch of the facility, offers sweeping views to the Chester River. The space seats 24 and utilizes flexible, adjustable furnishings to allow for pedagogical adaptation to the evolving curriculum. Glass doors with a 180-degree swing allow the classroom and adjacent commons space to flex and accommodate a larger crowd of students for special events.

**TAKE-AWAY RECOMMENDATIONS**

Ayers Saint Gross found it important to work directly with the stakeholders, in this case, the researchers who would work in this building daily. The research team prioritized natural light and access as the top needs for their space. All spaces in the building are visually accessible to one another—making for ease of movement through the space, collaboration between researchers, and also putting learning on display for the students who will work and take classes in the facility. To design a facility that functions for sensitive and high-level research, it is important to listen to and earn the trust of the faculty.
VERS UN HABITAT INCLUSIF!

This is a call for a truly inclusive environment; for a varied habitat - conceived, designed and constructed to accommodate all modes of thinking.

Most standardized tests, like the SATs, are famously centered on assessing verbal and mathematical competencies. And most office and learning environments follow suit. However, we have consistently included and supported some individuals, but not all. What we have not explicitly included, we have (de facto) excluded.

As legitimate as they are, the verbal and the mathematical are but two of many recognized modes of processing information – of thinking, of learning, of working. There is also (at least) the visual, and the auditory, and the kinesthetic.

We are now more aware of these fundamental distinctions. But awareness is not acceptance, and mere acceptance does not constitute inclusion.

So what will be provided for those who are more naturally effective, focused, productive, creative, and prolific when they paint, or sing, or dance, or construct?

And what will be provided for those individuals who engage more than one model? For those who are proficient with both a primal mode and a secondary model? Or for those who engage various modalities and process by alternating between a single mode, dual modes, or multiple modes?

This is a call for a truly inclusive environment; for a varied habitat - conceived, designed and constructed to accommodate all modes of thinking.

To support/underwrite the contributions of each individual. To support the whole person. To value the whole self, the whole individual, the whole population.

This extends to the ability to work both individually and in teams of various sizes. And applies as much to workplaces and offices as it does to schools and classrooms.

When realized, these habitats must be capable of yielding the fruits of this inclusive habitat, and more importantly, the people whom it supports, enough to capitalize the necessary investment.

This is what it will mean to have inclusive environments. Environments that are truly designed for inclusion. This is more a matter of determination then design.

It now remains to determine who values the potential fruits of this inclusive habitat, and more importantly, the people whom it supports, enough to capitalize the necessary investment.  

Preferences

<table>
<thead>
<tr>
<th>Preference for Single Mode</th>
<th>V</th>
<th>A</th>
<th>R</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td></td>
<td></td>
<td>35%</td>
<td>45%</td>
</tr>
</tbody>
</table>

[Image of VARK preferences]

- V: Visual
- A: Auditory
- R: Read/Write
- K: Kinesthetic

**Most standardized tests, like the SATs, are famously centered on assessing verbal and mathematical competencies.** And most office and learning environments follow suit. However, we have consistently included and supported some individuals, but not all. What we have not explicitly included, we have (de facto) excluded.

As legitimate as they are, the verbal and the mathematical are but two of many recognized modes of processing information – of thinking, of learning, of working. There is also (at least) the visual, and the auditory, and the kinesthetic.

We are now more aware of these fundamental distinctions. But awareness is not acceptance, and mere acceptance does not constitute inclusion.

So what will be provided for those who are more naturally effective, focused, productive, creative, and prolific when they paint, or sing, or dance, or construct?

And what will be provided for those individuals who engage more than one model? For those who are proficient with both a primal mode and a secondary model? Or for those who engage various modalities and process by alternating between a single mode, dual modes, or multiple modes?

This is a call for a truly inclusive environment; for a varied habitat - conceived, designed and constructed to accommodate all modes of thinking.

To support/underwrite the contributions of each individual. To support the whole person. To value the whole self, the whole individual, the whole population.

This extends to the ability to work both individually and in teams of various sizes. And applies as much to workplaces and offices as it does to schools and classrooms.

When realized, these habitats must be capable of yielding the fruits of this inclusive habitat, and more importantly, the people whom it supports, enough to capitalize the necessary investment.

This is what it will mean to have inclusive environments. Environments that are truly designed for inclusion. This is more a matter of determination then design.

It now remains to determine who values the potential fruits of this inclusive habitat, and more importantly, the people whom it supports, enough to capitalize the necessary investment.
NEW STEM LEARNING COMPLEX WITH RE-PURPOSED POWER PLANT
MICHIGAN STATE UNIVERSITY

Vision/Goals
The goal of the project is to create a learning ecosystem - an integrated learning center that brings together several distinct components:
• Highly flexible STEM learning labs to house a variety of disciplines, including Chemistry, Computer Science, Biology, Materials Science, and Physics
• Open-ended project labs, to support future learning initiatives, student projects, and new interdisciplinary courses
• Student Commons that serves as a gathering space for all students
• Hub for Innovation in Learning and Technology (MSU’s Learning Innovation Center)
• Student Help Center
• Student studio space, for student project work

Process
• An MSU core project team was established for the entire project duration
• Faculty meetings were organized with all disciplines attending to encourage collaboration, sharing and interdisciplinary initiatives
• Learning spaces were established using a modular and flexible approach
• The full design team met weekly to maintain open communication
• Interactive, open-ended meetings were held to brainstorm ways to create a “learning ecosystem culture” for the integrated learning center
• 3-D modeling was used extensively for design and coordination purposes
• Mass Timber structure was selected after comparison with conventional framing systems

Lessons Learned
• Truly flexible lab spaces require an investment in a robust infrastructure system
• Implementing a flexible lab infrastructure requires intensive coordination between project engineers and the infrastructure provider
• Developing agreement on an interdisciplinary mission requires considerable time investment by senior project leadership
• Utilizing Cross Laminated Timber required careful study of framing details

Outcomes
The new STEM learning spaces are designed to facilitate an innovative new curriculum, building on team-based, active-learning initiatives. Each space is equipped with cutting-edge technology infrastructure to allow the easy reconfiguration of lab tables to reflect varying pedagogies. The spaces can also be re-configured for a variety of disciplines over time.

The Hub for learning innovation creates new ways to collaborate, learn, research, and deliver instruction at MSU. The project integrates these aspirations into the culture of the overall 3+LM learning complex. Combined with the Student Help Center and Student Project Labs, these components combine with the STEM learning spaces to create a multi-faceted and dynamic center for an ecosystem of learning.
INCLUSIVITY WITHIN THE U.S. MILITARY ACADEMY
CYBER & ENGINEERING ACADEMIC CENTER - WEST POINT, NY

ARCHITECT:
Jacobs / EwingCole - Joint Venture
Lab Consultant: EwingCole

PROGRAM:
Provide innovative labs for Civil & Mechanical Engineering (CME), Electrical Engineering & Computer Science (EECS) and Systems Engineering (SE) + 450 Car Parking Structure + Bridge and Conference Center

DATA:
136,000 Gross Square Feet
82,600 Net Square Feet

PROJECT VISION:
- Strengthening the quality of STEM education at the Academy
- Attracting STEM talent for West Point, the Army, and the nation
- Integrating STEM knowledge and skills across fields
- Enabling cadets, faculty, industry partners, and military leaders to quickly synthesize and share massive quantities of data, test prototypes, strategize STEM innovations, and evaluate ethical considerations

INTERENDED OUTCOMES:
- In response to rapidly changing technology in the modern world, on the battlefield, and throughout the Army at large, CEAC will reflect West Point’s growing leadership in the development and application of STEM-based solutions to the most difficult global challenges
- CEAC will enable and inspire the kinds of collaboration across disciplines that simply cannot happen now in the current academic spaces
- It will prepare cadets to confront the increasingly technological challenges of peacekeeping and defense
- Emphasizes shared technology and collaboration for advanced problem-solving
- Incorporates shared maker spaces, labs, & capstones to create an environment of interdisciplinary engineering
- Maximizes efficiency and flexibility in planning
- Will help to recruit the “best of the best” to join USMA

BOTTOM LINE:
“The bottom line is that CEAC will directly support General Milley’s (Army’s 39th Chief of Staff) vision of a technically competent force that can tackle complex problems.”
Dr. Led Klosky, PE, Dean’s Executive Agent for Design and Construction

GOALS AND OBJECTIVES:
- Develop a facility that is state-of-the-art, cutting edge, and inspirational
- Create a building that contextually integrates into the campus
- Provide an efficient layout based on the proposed program and adjacency requirements
- Develop a floor plan that promotes collaborative academic opportunities between cadets, cadets and faculty, and between the 3 departments of CME, EECS, & SE

CYBER SECURITY - Multiple digital connections allows for cyber warfare amongst cadets
SYSTEMS DESIGN - Digital planning by collaborating with massive amounts of data
HIGH BAY - Inviting creativity and risk-taking for developing future inventions for the Army
ROBOTICS - Interdisciplinary effort - civil, mechanical, electrical & computer science
TESTING LAB - Developing devices to replace direct human interaction on the battlefield
UNIVERSITY OF KANSAS EARTH, ENERGY & ENVIRONMENT CENTER

Breaking down historic academic silos:
An integrative model for student learning, student success, and improved post-graduate readiness is developed via a series of integrative planning strategies.

**STRATEGY**
- Combine earth sciences and engineering, as well as energy and environmental research
- Support advancement of pedagogical scholarship through work in flexible, active learning classrooms
- Integrate advanced programs with industry partners despite location in a non-urban area
- Emphasize the way programs support student success for women and minorities in engineering
- Integrate research and academic studies that were previously separate to support team-based learning models
- Conduct post-occupancy research, looking at the university’s various active learning models

**OUTCOME**
- Changed the campus paradigm by providing program space for disciplines typically siloed
- Greater student success and equity to all engineering students
- Industry partnerships benefit faculty in acquiring research funding and students in acquiring real-world experience
- Improved overall diversity within the engineering programs
- Increased overall effectiveness of new learning strategies
- Deeper understanding of the impact of the integrative initiatives to deploy elsewhere on campus

Design Architect: Gould Evans in association with Cannon Design
Size: 141,000 GSF
Completion: December 2017
Cost: $78.5 M
Where the former Soviet Union’s eastern border met the ancient Silk Road is the new campus for the American University of Central Asia (AUCA) in Bishkek, Kyrgyzstan. The architecture, inspired by local nomadic traditions of mobility and hospitality, supports an American style education.

The design’s open and flexible spaces are densely woven to generate a free exchange of ideas and high energy. At the same time, AUCA comfortably accommodates its 1600 students in 125 square feet per student, which is half the median area per student at American colleges as reported by American School and University. Students inhabit the diverse campus spaces like nomads with iPads. Faculty and administrators migrate from open office suites to communal banks of quiet meeting and study rooms. The furniture is nomadic too. Tables and seating on wheels beckon anyone to freely stage spaces.

The architecture fits its environment and culture. Pitched roofs echo nearby alpine mountains. The facade patterns recall native rugs, called shyrdaks. Central skylights operate like the crown of a yurt. Rocks gathered from the construction site clad an arcade to say “AUCA.” The building’s geothermal system for heating and cooling is a first in Kyrgyzstan.

The new AUCA campus building brilliantly models the behaviors and modes of thought we try to inculcate in our entire community: openness, transparency, and flexibility. —Andrew Wachtel, President, American University of Central Asia, Bishkek, Kyrgyzstan

The building’s gestural gesture for building and learning is a metaphor for the AUCA mission: it is a living, breathing campus and an important new node on the intellectual map of Central Asia.

“It’s the place where I wanted to be,” a student commented. “I would come here and read, or just walk around and see what happens. ‘What’s going on here?’” —Andrew Wachtel, President, American University of Central Asia, Bishkek, Kyrgyzstan

HMA2 Architects
Associated Firms: AKG Group (MEP), Thornton Tomasetti (Structure), Fisher Marantz Stone (Lighting), ADABA Consulting Engineers (Lighting), Aston Meade (Architect and Engineer), Bishkek Design Group (Architect and Engineer), ABDUVT Architects (Architect and Engineer), ABDUVT Artists (Architectural Design), U.S. Construction (Completion), Bishkek Construction (Construction Manager)

Design Team
Henry Myerberg (Principal-in-Charge), Christine Sheridan (Project Architect), Miranda Danusugondo (Project Manager), Owen Huang (Architect), Karen Foley (Designer), Bryan Jug (Architect), Aida Sulova (Designer), Tucker Viemeister (Graphic Designer), Karen Davidov (Designer)

Client
American University of Central Asia

Area
Total Cost
Completion

200,000 sq. ft.
$27,000,000
August 2015 (including site work)

Cost/square foot
65

Photographer
Christine Sheridan, Henry Myerberg

“Appreciate the allusions to local culture. Facade has interesting design elements with a nice mixture of materials, forms, and colors. Interior design is dynamic and fun. The building has a postmodern, open and flexible design with pleasing symmetry, a lot of texture, and subtle color...”

—2017 JURY
FLEXIBILITY
The new academic workplace will have to be flexible and agile to accommodate a more diverse workforce and to accommodate a higher degree of movement amongst workers, both internally and externally. To stay relevant in a rapidly changing world, the space will have to be designed to adapt to emerging trends.

ADAPTABILITY
We are spending more and more time working, so being in spaces that are designed to be human-centric and have some personality to them is essential. The desire for work-life balance and a more social setting means many are seeking to bring home to work. Hence, we are seeing a more residential or hospitality feel entering the workplace.

VISIBILITY
SOCIAL INTERACTION
ENERGY
Proximity is a key element in successful cross-pollination of people and there is a renewed emphasis on vertical connections throughout the building and horizontal connections with the community and nature.

CHOICE, FOCUS, COLLABORATION
Support a variety of workstyles and reflect what, when and how people are working. To enable that we need to create places where we can work – meet – learn – refresh and be social.

How Space is Allocated

Choice of Space: 30% General Use, 25% Institutional Support Space, 15% Office Space, 10% Research Labs, 9% Special Use Instructional Space, 7% Study/Library, 3% Classrooms, 1% Health Care

Details of How Space is Allocated

George Washington University
1. Physics Department faculty cafe
2. Grad Student breakout space in typical Physics research neighborhood

Morgan State University
3. Building Atrium with sight line to faculty meeting pods
4. Typical faculty meeting pod

University of Southern California
5. Multipurpose flexible classroom with operable partition to building lobby
6. Research lounge adjacent to cleanroom
7. Typical public amenity space
8. Write-up space adjacent to research labs

LSC Sponsor
The Center for Natural Sciences, Mathematics and Nursing at Bowie State—one of our nation’s oldest Historically Black College/Universities—is designed to inspire, empower and increase minority success in fields of STEM and Nursing.

- **Center for Natural Sciences, Mathematics & Nursing**
- 149,000 gross sf
- $102 million project cost
- 6,000 sq ft Commons
- 125 “Beacon” research & instructional labs
- 14 flexible classrooms
- 05 active learning classrooms & labs
- 01 greenhouse
- 01 nursing simulation wing

**HBCU CULTURE: STEM PROGRAMS**
- Sustainable Machine BSU Ecosystem
- Amplify: BSU Ecosystem
- Unified through Fractal Geometry.
- Inclusive Culture
- Branding and storytelling welcome and create cultural unity.
- • Inspired by traditional African fractal patterns, a visual framework is used to represent department identities and beautiful wayfinding
- • Digital signage is used to promote success, opportunities and affirmations

**Synergistic Design**
- Transparency enables compelling connections
- • Views enable showcase of other disciplines
- • Light creates an inviting place to teach and learn

**Activated Learning**
- Intentional, holistic design supports diverse styles of learning and teaching
- • Spaces are designed with flexibility to support various disciplines
- • Active learning labs are integrated into the design

**Pioneering Innovation**
- Creative ideas yield new stewards of wellbeing, sustainability and digital learning
- • Natural shading and water strategies
- • Dynamic glass

**BSU Center for Natural Sciences, Mathematics and Nursing: Screen Content Style Frames**
- March 2017

**Corridor Monitors Overview**
- Ambient Graphic Pattern Animations Profiles: Well known figures, students, faculty, alumni
- Inspirational Quotes from: Well known figures, authors, etc.

**Inclusive Culture**
- Branding and storytelling welcome and create cultural unity.
- • Inspired by traditional African fractal patterns, a visual framework is used to represent department identities and beautiful wayfinding
- • Digital signage is used to promote success, opportunities and affirmations
- • In the "Beacon" assembly space pages from the image to the campus as a spiritual and cultural

**Synergistic Design**
- Transparency enables compelling connections
- • Views enable showcase of other disciplines
- • Light creates an inviting place to teach and learn

**Activated Learning**
- Intentional, holistic design supports diverse styles of learning and teaching
- • Spaces are designed with flexibility to support various disciplines
- • Active learning labs are integrated into the design

**Pioneering Innovation**
- Creative ideas yield new stewards of wellbeing, sustainability and digital learning
- • Natural shading and water strategies
- • Dynamic glass

**Learning Spaces Collaboratory 2019 National Colloquium**

**BSU Center for Natural Sciences, Mathematics and Nursing: Screen Content Style Frames**
- March 2017

**Corridor Monitors Overview**
- Ambient Graphic Pattern Animations Profiles: Well known figures, students, faculty, alumni
- Inspirational Quotes from: Well known figures, authors, etc.

**Inclusive Culture**
- Branding and storytelling welcome and create cultural unity.
- • Inspired by traditional African fractal patterns, a visual framework is used to represent department identities and beautiful wayfinding
- • Digital signage is used to promote success, opportunities and affirmations
- • In the "Beacon" assembly space pages from the image to the campus as a spiritual and cultural

**Synergistic Design**
- Transparency enables compelling connections
- • Views enable showcase of other disciplines
- • Light creates an inviting place to teach and learn

**Activated Learning**
- Intentional, holistic design supports diverse styles of learning and teaching
- • Spaces are designed with flexibility to support various disciplines
- • Active learning labs are integrated into the design

**Pioneering Innovation**
- Creative ideas yield new stewards of wellbeing, sustainability and digital learning
- • Natural shading and water strategies
- • Dynamic glass

**BSU Center for Natural Sciences, Mathematics and Nursing: Screen Content Style Frames**
- March 2017

**Corridor Monitors Overview**
- Ambient Graphic Pattern Animations Profiles: Well known figures, students, faculty, alumni
- Inspirational Quotes from: Well known figures, authors, etc.
**VISION/GOALS:**
- Program/pedagogy drives space needs - highlight importance of STEM at Valpo.
- High quality faculty / student research space to improve research outcomes.
- Facility design should aid recruitment and retention of faculty and students.
- Building location & design to promote synergy with the College of Engineering.
- Embrace modern AV & IT technologies.
- Incorporate smart sustainable practices.
- Promote efficiency of space utilization through appropriate sharing.
- Provide ample spaces for student study and collaboration throughout building.
- Create an open, transparent design to encourage connections, activate the building, and promote interdisciplinary interactions / collaborations.

**PROCESS:** Inclusive, iterative, consensus-building process with active participation by science faculty, staff, administrators, students, development office, and other non-science constituents on campus throughout the planning, programming and design phases of the project.

**LESSONS LEARNED:** Planning process reinforced that broad based input from all stakeholders on campus is essential. In particular, vocal faculty proved to be critical in enhancing the original project budget to create a facility with ‘critical mass’ to form a viable STEM community.

**OUTCOMES:**
- Pedagogical initiatives had a positive impact on the program & facility design.
- Modern faculty / student research lab space has greatly enhanced undergraduate research opportunities.
- The new facility has spiked interest in STEM programs among student recruits.
- Building is located adjacent to College of Engineering. Planned future phase may physically connect to Engineering.
- AV / IT technologies were successfully utilized throughout the building.
- Facility features some shared teaching labs, research labs, and support spaces to create efficient utilization.
- Open study spaces & interior windows create a welcoming environment and promote a true STEM community.

**TAKE-AWAY RECOMMENDATIONS:**
- Encourage input from a broad base of stakeholders on campus in an iterative, participatory, consensus-building process for optimal satisfaction / results.
- Ensure that your academic planning process precedes any facility programming and design decisions. Allow the time it takes to ‘get it right’.
- Learn from others through facility tours with your planning team. There are lots of great examples and it is a good ‘team-building’ experience.
Faculty and student voices are critical to the planning process.

The outcome? Student centered teaching and learning environments.

- Collaborative
- Flexible
- Adaptable
- Multi-disciplinary

“The NASA simulation you developed was genius. It was the epitome of effective “learning by doing”. You can’t get that from a traditional lecture, book or online video. It was also fun to see our faculty so engaged. I have no doubt that the active learning experience you provided will transform our concept of learning and set the stage for what is possible for years to come.”

- Sandy Bretz
  Executive Assistant to the Dean, UMKC
The Permeable Learning Ecosystem
Life at Loyola University and Beyond

LOYOLA UNIVERSITY CENTER FOR INNOVATIVE & COLLABORATIVE LEARNING

Loyola’s collegiate foundation is based upon the Jesuit virtue of exploration; to go forth and create meaningful professional service and leadership. Connection to community expresses itself not only in sending students out into the world but also inviting the world in.

The Center for Innovative & Collaborative Learning began with a five month planning study that engaged a breadth of Loyola’s community in bi-weekly meetings with the Steering Committee. Engagement and consensus building—centered around “promoting Ignatian citizenship”—occurred with faculty, staff, and students. This process allowed the team to accomplish the following:

• Develop a set of guiding principles.
• Understand current and future needs.
• Identify challenges and opportunities for Beatty Hall and adjacent sites.
• Explore planning scenarios.
• Refine a preferred scenario into a preliminary design and massing concept.

Inclusivity

The Center for Innovative & Collaborative Learning provides a variety of space types that allow for different ways for students and faculty to learn, research, meet, and engage as a community. Approximately 70% of the program area will be shared space that supports innovation and collaborative learning. This includes a wide range of instructional spaces to serve varying pedagogical modes, the Idea Lab, the multi-use Commons and the Cafe, as well as one of Loyola’s signature programs—the Career Services Center. The balance of the space will accommodate interdisciplinary faculty office and research space for Psychology, the School of Education, Speech, Language and Hearing, and Sociology.

Ecosystem

The building provides a variety of space types that allow for different ways for students and faculty to learn, research, meet, and engage as a community. Approximately 70% of the program area will be shared space that supports innovation and collaborative learning. This includes a wide range of instructional spaces to serve varying pedagogical modes, the Idea Lab, the multi-use Commons and the Cafe, as well as one of Loyola’s signature programs—the Career Services Center. The balance of the space will accommodate interdisciplinary faculty office and research space for Psychology, the School of Education, Speech, Language and Hearing, and Sociology.

Permeability

The Center for Integrative & Collaborative Learning will serve not only as a physical gateway to campus but also as a link to the community and life after Loyola. This give and take is at the nexus of the renovation and addition to Beatty Hall. The project blends academic research and professional opportunities through collaborative spaces where students, faculty, and businesses engage with each other. Loyola’s decision to move the Career Center to this building ensures that permeability will happen serendipitously and programmatically—strengthening personal and professional connections.

Recommendations

• Understand the opportunities your project strives for to better involve the right stakeholders early in the planning process.
• Project outcome will better reflect student needs if they are engaged as key participants.
• Successful academic ecosystems require a variety of space types to support: learning styles, introverted vs extroverted engagement, programmatic flexibility.
• Ensuring balance of transparency to and through the building can connect the collegiate environment to the larger community.
The Milstein Center at Barnard College
Creating Permeable Teaching and Learning Spaces

Date Completed: Fall 2018
Size: 128,000 GSF

The Milstein Center serves as a crossroads for the campus, the community, and the city. It is an interdisciplinary place where students and faculty can learn by doing, engage in robust dialogues, and visualize ideas. Within this centrally located building, all disciplines have equal access to a variety of academic centers including the Center for Engaged Pedagogy, Digital Humanities, Empirical Center, Movement Sciences Lab, Slate Media Center, and Computational Science Center.

The suite of centers within the Milstein Center provides students and faculty with powerful digital technologies to craft robust solutions to classroom problems, and encourages all disciplines to utilize data science in classroom instruction and research. Permeable learning spaces further support collaboration and transparency between these various fields. Students and staff can check out a book from the library, watch a dance performance analysis in the Movement Sciences Lab, or visualize data in the Computational Science Center.

More than just a library, the Milstein Center is a 12-story building with glass partitions, double height spaces, and communicating stairs that promote visual connections and spontaneous interactions. Since its opening in Fall 2018, it has quickly become an active hub for Barnard students and staff, and the local academic community.

“...The Milstein Center is more than a wonderful new building. It is a game changer for Barnard... and it will help Barnard become even more extraordinary.”

Sian Beilock
President, Barnard College

NEW YORK, NEW YORK
SKIDMORE, OWINGS & MERRILL LLP
<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliation</th>
<th>Email</th>
<th>Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Aubin</td>
<td>Director of Space Management, University of Nevada Las Vegas</td>
<td><a href="mailto:jason.aubin@unlv.edu">jason.aubin@unlv.edu</a></td>
<td>D</td>
</tr>
<tr>
<td>Paul R Battaglia</td>
<td>Principal, Clark Nexsen</td>
<td><a href="mailto:pbattaglia@clarknexsen.com">pbattaglia@clarknexsen.com</a></td>
<td>F</td>
</tr>
<tr>
<td>Janette Blackburn</td>
<td>Principal, Shepley Bulfinch</td>
<td><a href="mailto:JBlackburn@shepleybulfinch.com">JBlackburn@shepleybulfinch.com</a></td>
<td>K</td>
</tr>
<tr>
<td>Kathryn Wilson Boone</td>
<td>Head, Learning Commons and Branch Libraries, Old Dominion University</td>
<td><a href="mailto:kboone@odu.edu">kboone@odu.edu</a></td>
<td>H</td>
</tr>
<tr>
<td>Tyler Bosley</td>
<td>Project Lead, Education, Freedom Interiors</td>
<td><a href="mailto:contact@fre3dom.net">contact@fre3dom.net</a></td>
<td>A</td>
</tr>
<tr>
<td>Deborah Botker</td>
<td>Assistant Professor, Social Science Division, Middlesex Community College</td>
<td><a href="mailto:botkerd@middlesex.mass.edu">botkerd@middlesex.mass.edu</a></td>
<td>G</td>
</tr>
<tr>
<td>Jennifer Brophy</td>
<td>Practice Planning Specialist, EwingCole</td>
<td><a href="mailto:rpeoples@ewingcole.com">rpeoples@ewingcole.com</a></td>
<td>I</td>
</tr>
<tr>
<td>Jillian Cornelius</td>
<td>Designer, Ellenzweig</td>
<td><a href="mailto:cornelius@ellenzweig.com">cornelius@ellenzweig.com</a></td>
<td>G</td>
</tr>
<tr>
<td>Dana Craig</td>
<td>Director of Student Learning and Academic Success, York University</td>
<td>d <a href="mailto:CRAIG@YORKU.CA">CRAIG@YORKU.CA</a></td>
<td>K</td>
</tr>
<tr>
<td>Travis William Dance</td>
<td>Architect, Brigham Young University</td>
<td><a href="mailto:travis_dance@byu.edu">travis_dance@byu.edu</a></td>
<td>F</td>
</tr>
<tr>
<td>Irve Dell</td>
<td>Professor of Art, Associate Dean of Fine Arts, St. Olaf College</td>
<td><a href="mailto:dell@stolaf.edu">dell@stolaf.edu</a></td>
<td>E</td>
</tr>
<tr>
<td>Doug Diesenhaus</td>
<td>Director of Strategic Initiatives and Special Projects, UNC-Chapel Hill Libraries</td>
<td><a href="mailto:ddiesenh@email.unc.edu">ddiesenh@email.unc.edu</a></td>
<td>B</td>
</tr>
<tr>
<td>William H Dodge</td>
<td>Principal, Hanbury</td>
<td><a href="mailto:wdodge@hewv.com">wdodge@hewv.com</a></td>
<td>E</td>
</tr>
<tr>
<td>Shannon Bennett Dowling</td>
<td>Senior Associate, Ayers Saint Gross</td>
<td><a href="mailto:sdowling@asg-architects.com">sdowling@asg-architects.com</a></td>
<td>B</td>
</tr>
<tr>
<td>Peter J. Egler</td>
<td>Head of Owen Library</td>
<td><a href="mailto:pegler@pitt.edu">pegler@pitt.edu</a></td>
<td>F</td>
</tr>
<tr>
<td>Jessica Figenholtz</td>
<td>Higher Education Practice Leader, Associate Principal, Perkins&amp;Will</td>
<td><a href="mailto:jessica.figenholtz@perkinswill.com">jessica.figenholtz@perkinswill.com</a></td>
<td>I</td>
</tr>
<tr>
<td>Name</td>
<td>Title and Affiliation</td>
<td>Email Address</td>
<td>Table</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Kris A. Frandson</td>
<td>Principal, Frandson Hart</td>
<td><a href="mailto:Kfrandson@frandsonhart.com">Kfrandson@frandsonhart.com</a></td>
<td>A</td>
</tr>
<tr>
<td>Dana C. Gierdowski</td>
<td>Researcher, EDUCAUSE Center for Analysis &amp; Research</td>
<td><a href="mailto:dgierdowski@educause.edu">dgierdowski@educause.edu</a></td>
<td>C</td>
</tr>
<tr>
<td>Bennett Goldberg</td>
<td>Director of the Searle Center for Advancing Learning and Teaching</td>
<td><a href="mailto:bennett.goldberg@northwestern.edu">bennett.goldberg@northwestern.edu</a></td>
<td>H</td>
</tr>
<tr>
<td>Edward D Gomes</td>
<td>Senior Associate Dean - Trinity College Office of Technology Services</td>
<td><a href="mailto:edward.gomes@duke.edu">edward.gomes@duke.edu</a></td>
<td>A</td>
</tr>
<tr>
<td>Julia Grabazs</td>
<td>Senior Architectural Professional, Skidmore, Owings &amp; Merrill LLP</td>
<td><a href="mailto:julia.grabazs@som.com">julia.grabazs@som.com</a></td>
<td>K</td>
</tr>
<tr>
<td>Celso Guitian</td>
<td>Campus Planner, University of Maryland, Baltimore County</td>
<td><a href="mailto:cguitian@umbc.edu">cguitian@umbc.edu</a></td>
<td>B</td>
</tr>
<tr>
<td>Laura Hall</td>
<td>AIA, Senior Associate, Ayers Saint Gross</td>
<td><a href="mailto:lhall@asg-architects.com">lhall@asg-architects.com</a></td>
<td>C</td>
</tr>
<tr>
<td>Heath Hase</td>
<td>Director of Teaching and Learning Technologies, William Jewell College</td>
<td><a href="mailto:haseh@william.jewell.edu">haseh@william.jewell.edu</a></td>
<td>J</td>
</tr>
<tr>
<td>Michael Heinz</td>
<td>Principal, Research Facilities Design</td>
<td><a href="mailto:rmh@rfd.com">rmh@rfd.com</a></td>
<td>F</td>
</tr>
<tr>
<td>H. Thomas Hickerson</td>
<td>Former Vice Provost and University Librarian, University of Calgary</td>
<td><a href="mailto:tom.hickerson@ucalgary.ca">tom.hickerson@ucalgary.ca</a></td>
<td>I</td>
</tr>
<tr>
<td>Judith Hogan</td>
<td>Dean of Business, Legal Studies &amp; Public Service, Middlesex Community College</td>
<td><a href="mailto:hoganj@middlesex.mass.edu">hoganj@middlesex.mass.edu</a></td>
<td>F</td>
</tr>
<tr>
<td>Barbara Knauff</td>
<td>Associate Director of Academic Technologies and Client Services, Dartmouth College</td>
<td><a href="mailto:Barbrara.E.Knauff@dartmouth.edu">Barbrara.E.Knauff@dartmouth.edu</a></td>
<td>K</td>
</tr>
<tr>
<td>Bob Kolvoord</td>
<td>Dean, College of Integrated Science and Engineering, James Madison University</td>
<td><a href="mailto:kolvoora@jmu.edu">kolvoora@jmu.edu</a></td>
<td>E</td>
</tr>
<tr>
<td>Felix Kronenberg</td>
<td>Director, Center for Language Teaching Advancement (CeLTA) and Associate Professor, Department of Linguistics &amp; Germanic, Slavic, Asian and African Languages, Michigan State University</td>
<td><a href="mailto:kronenb6@msu.edu">kronenb6@msu.edu</a></td>
<td>F</td>
</tr>
<tr>
<td>William R. LaCourse</td>
<td>Dean and Professor of Chemistry, University of Maryland, Baltimore County</td>
<td><a href="mailto:Lacourse@umbc.edu">Lacourse@umbc.edu</a></td>
<td>C</td>
</tr>
<tr>
<td>Matthew Lee</td>
<td>Principal, Hanbury, Hanbury</td>
<td><a href="mailto:mlee@hewv.com">mlee@hewv.com</a></td>
<td>I</td>
</tr>
</tbody>
</table>
Joan K. Lippincott  
Associate Executive Director  
Coalition for Networked Information  
joan@cni.org  
Table E

Doug Loveland  
Principal  
ACI Boland  
dloveland@aciboland.com  
Table B

Laura Lucas  
Learning Spaces Manager  
St. Edward’s University  
lauras@stedwards.edu  
Table E

Jennifer Luebbert  
Executive Officer  
Learning Spaces Collaboratory  
jluebbert@ico-dc.com  
Table J

Marie-Claude Mailhot  
Librarian  
Universite Laval  
famille.mctv@gmail.com  
Table A

Laura Malinin  
Director of the Nancy Richardson Design Center, Associate Professor  
Colorado State University  
laura.malinin@colostate.edu  
Table G

Steve McDowell  
Principal  
BNIM  
smcdowell@bnim.com  
Table D

Sequoia Nagamatsu  
Assistant Professor of Creative Writing  
St. Olaf College  
nagama1@stolaf.edu  
Table G

Jeanne L. Narum  
Principal  
Learning Spaces Collaboratory  
jnarum.lsc.ico@gmail.com  
Table K

Wendy C. Newstetter  
Assistant Dean for Educational Research and Innovation  
Georgia Tech  
newstetter@gatech.edu  
Table B

Stephanie Orr  
Director of Learning Experience  
The Ohio State University  
or.145@osu.edu  
Table C

Papa Owusu-Kwarteng  
Learning Spaces Service Owner  
Ohio University  
ownsu-kk@ohio.edu  
Table K

Ken Panko  
Director, Media & Technology Innovation  
Northwestern University  
ken.panko@northwestern.edu  
Table B

Kathy Parsons  
Head, Preservation and Stacks Management  
Iowa State University  
kap@iastate.edu  
Table D

Elizabeth Ann Peterson  
Associate Director of the Center for Teaching and Learning, Classroom Services  
Washington University  
liz@wustl.edu  
Table I

Jesse Plaza  
Office of Information Technology Project Assistant  
St. Edward’s University  
jplaza@stedwards.edu  
Table A

Leslie Poljak  
Outreach and Engagement Librarian  
University of Pittsburgh  
l.poljak@pitt.edu  
Table G

Jane Quigley  
Head of Research & Data Services  
Dartmouth College  
jane.quigley@dartmouth.edu  
Table J
David Lawrence Reid
Principal
Gould Evans
david.reid@gouldevans.com
Table B

Jeanne Kuespert Roberts
Associate Principal
Ellenzweig
roberts@ellenzweig.com
Table H

Maureen Rust
Student Engagement and Community Outreach Librarian
Central Washington University
maureen.rust@cwu.edu
Table I

Amy Samuelson
Senior Associate
The SLAM Collaborative, Inc.
asamuelson@slamcoll.com
Table D

Tom Scott
Associate Dean of Libraries, Teaching and Learning
York University Libraries
tscott9295@gmail.com
Table F

Hilary Seo
Interim Dean
Iowa State University
hseo@iastate.edu
Table E

Damon Sheppard
Principal, Regional Leader of Science and Technology
HOK
damon.sheppard@hok.com
Table G

Christine Sheridan
Senior Associate
HMA2 Architects
csheridan@hma2.com
Table E

Lisa Smith
Head, Information Technology Services
Iowa State University
lsmith@iastate.edu
Table F

Emily Sperini
Architect
The SLAM Collaborative
Sperini@slamcoll.com
Table J

Lisa A Stephens
Assistant Dean, University at Buffalo School of Engineering
University at Buffalo & SUNY System
stephens@buffalo.edu
Table C

Nancy Sturm
Principal
The Sextant Group
nsturm@thesextantgroup.com
Table D

Jim Swartz
Dack Professor of Chemistry
Grinnell College
swartz@grinnell.edu
Table D

Dave Taeyaerts
Associate Vice Chancellor Learning Environments & Campus Architect
University of Illinois at Chicago
davet@uic.edu
Table J

Jennifer Taxman
Associate Librarian for Research & Learning
Dartmouth College
jennifer.r.taxman@dartmouth.edu
Table I

Annie M Thompson
Director Science & Engineering and Health Sciences Libraries
University of Southern California
amhughes@usc.edu
Table H
Jessica Toal
Principal
ASD | SKY
jtoal@asdnet.com
Table A

Brian Tucker
Academic Planning Expert
EYP Architecture & Engineering
btucker@eypae.com
Table K

Amanda Vigneau
Interiors
Shepley Bulfinch
AVigneau@shepleybulfinch.com
Table J

Scott M Walters
Principal, Design Director - Education
Hord Coplan Macht
swalters@hcm2.com
Table H

Henry Way
Associate Director, School of Integrated Sciences
James Madison University
wayha@jmu.edu
Table G

Howard Wertheimer
Chief Operating Officer
Piedmont Park Conservancy
werth1108@gmail.com
Table A

Ian White
Assistant Vice President for Academic Initiatives & Infrastructure
Caldwell University
iwhite@caldwell.edu
Table H

John Wilkins
Principal
Gould Evans
john.wilkins@gouldevans.com
Table C

Timothy Winstead
Regional Director
EwingCole
twinstead@ewingcole.com
Table J