Driving Questions from Architects

Learning Spaces Collaboratory Roundtable
Spring 2016: Focusing on the Future of Planning Learning Spaces
Georgia Institute of Technology

Notes:

A.

1. A T-shaped individual is an individual who is anchored in a discipline but has the capacity and openness to span across disciplines. How can learning and the spaces for learning ensure that students become T-shaped individuals upon graduation?
2. Current trends in higher education point value a culture of openness and sharing in the academic environment. What can our learning spaces do to promote strategic partnering between students from different backgrounds and disciplines to push learning beyong the boundaries of a classroom?
3. Can architectural identity help champion a program? Can a new space be a catalyst not only for new ideas, but for new programs and curriculum? If you create space, will they come?
4. Can new or renovated architectural space serve as a mechanism to spur innovative learning techniques on a campus? What does a collaboratory look like?
5. Can we grow our potential for learning without growing our campus footprints? Can today's academic needs fi t neatly into yesterday's structural bones?
6. How can we structure our buildings on public universities, usually built via capital funds or private donors given to specifi c programs, as to not silo student thinking? What does a classroom or student environment look like in a topic-based education model?

B.

7. Can a facility advance academic science programs forward 50 years in quality, including the incorporation of emerging and future technologies, laboratory flexibility and adaptability, modern learning methodologies and skills, and sustainable energy/ building management systems?
8. How does climate impact design with respect to issues of connectivity and separation?
9. Can the limitation of building "footprint" be an asset when designing a facility that requires more program than available site can accommodate?
10. Does "art" integrated within the architecture enhance student learning and discovery?
11. How do students understand how to use the spaces provided?

Notes:

12. What are the upper limitations/ thresholds for the number of students moving through and engaging with the faculty and within the facility during the course of a typical day?

C.

13. What are the opportunities and challenges of integrating sciences and engineering into a core interdisciplinary STEM facility?
14. How can governance and facility design leverage advanced research tools to enhance student learning and research?
15. How can a facility respond to the unique curriculum and pedagogic needs of the lower division (early years) learners?
16. How does a facility encourage and foster the undergraduate research experience?
17. How does an institution build a pathway from departmental to interdisciplinary learning and research models?
18. How can a facility engage with the broader community whether actively participating or passively experiencing the place?

D.

19. What are the opportunities and challenges of integrating sciences and engineering into a core interdisciplinary STEM facility?
20. How can governance and facility design leverage advanced research tools to enhance student learning and research?
21. How can a facility respond to the unique curriculum and pedagogic needs of the lower division (early years) learners?
22. How does a facility encourage and foster the undergraduate research experience?
23. How does an institution build a pathway from departmental to interdisciplinary learning and research models?
24. How can a facility engage with the broader community whether actively participating or passively experiencing the place?

E.

25. How can a small portion of an unloved, sputnik era chemistry building slated for demolition be repurposed in the shortterm to create an economical, “pop-up” collaboration environment?
26. After the initial renovation, the University became excited about the potential of a comprehensive, phased renovation and asked “If we use this for prototyping collaborative space and demonstrating our commitment to sustainability, what groups/departments have unmet needs for interdisciplinary innovation and how can we create a unique environment for teaching & research?”
27. Throughout the multiple phases we asked: “What is a good mix of functions, spaces, furniture and technology that allows students to find optimum accommodations for individual and group learning?”

Notes:

28. When the final phase was conceived as flexible maker space, various stakeholders asked “what are the key components of a home that encourages informal investigation and tinkering?”
29. Now that the project is fully occupied, Lord Aeck Sargent believes a post occupancy evaluation should assess the successes and opportunities for improvement with one key overriding question being: “How do we best determine/ quantify if a diverse mix of nonscience and science faculty and students in a single building creates an environment more conducive to interdisciplinary work and innovation than if in separate, more discipline specific buildings?”

F.

30. How do we create a campus-wide “heart” for student engagement and innovation?
31. How do we enhance technology-enabled problem-solving skills for students?
32. What does an agile, timeless, learning and research environment look like?
33. What tools, spaces, relationships and events will attract, retain and support the highest caliber faculty & students?
34. How do we create deep learning through immersion in critical-thinking scenarios?
35. How do we create the destination for collaboration with industry, government, and academic partners to accelerate intellectual and economic development and help students build a bridge to a bright future?

G.

36. How can we proactively plan for change?
37. How do we navigate institutional change, while maintaining a steady course throughout a prolonged or multi-phased project?
38. How can we create a “commons” that will physically connect a diverse range of different programs?
39. How can we celebrate diversity and manifest interdisciplinarity in our physical spaces?
40. How might we foster a sense of “community” in an urban campus with a predominately a commuter population?
41. What types of spaces should we create and co-locate that will encourage commuter students to stay and collaborate with peers beyond regular classtimes?
42. How do we create a vibrant heart for intellectual exchange, encouraging peer-to-peer, student-to-faculty, and faculty-to-faculty interactions and chance encounters?

H.

43. What does student-centered planning mean? How might we address in our planning the need for spaces that enable us to engage fully our entering and lower level students in the doing of engineering from the very first day?

Notes:

44. Engineering itself is a multi-disciplinary community. How can our planning and the spaces resulting from our planning dissolve barriers between disciplines, and build community across disciplines that is sustainable over the long-term?
45. Becoming socialized into a community of STEM practitioners requires spaces where students can build and test the things they draw and design. How can we introduce students to the environments where engineering is practiced in the world beyond the campus? How are such spaces different from those of past generations of spaces for educating engineers?
46. How many different kinds of spaces, traffic patterns, adjacencies, etc. need to be considered in developing an ecosystem of learning spaces for 21st century learners in fields of engineering?

I.

47. Can an institution struggling with inertia take a quantum leap into modern classrooms?
48. How can an institution better serve the needs of its students – not just for improved learning but to also close gap between the academic environment and the professional world most students will enter post-graduation?
49. How can a campus create a “common ground” where instruction and innovation are facilitated to succeed where past experiments and attempts to change culture have failed?
50. Is there a better way than “If you build it they will come” to mitigate risk (sunk cost for stuff they don’t need/use) and steward a place that will continue to grow technologically along with the institution, it’s teachers, it’s students, and the world?
51. Where is the next InfoCommons-like incubator happening?
52. How are emerging technology trends affecting / improving learning spaces?

Driving Questions from Architects

Learning Spaces Collaboratory Roundtable
Spring 2016: Focusing on the Future of Planning Learning Spaces
Boston University

Notes:

A.

1. How to promote active learning environments—in classrooms and in teaching labs. What does it take to promote small group peer-to-peer interaction and learning?
2. How can a space promote interdisciplinary problem-solving? How can spaces promote investigative, cross-disciplinary problem-based learning?
3. What does a "technology-rich" learning environment mean? What are the tools needed in the learning spaces to prepare students for increasing technology-dependent careers. How many ways and places can technologies be used in a facility to serve the campus community as well as to support outreach beyond the campus?
4. In our planning, how can we exploit opportunities for sharing, for breaking down departmental silos for maximizing the use of flexible or case method classrooms, student and administrative space? Does it work to distribute disciplinary throughout the building rather than clustering them by floor? What needs to be next to what?
5. How can a goal of increasing success of lower division STEM students success in STEM disciplines be addressed in the planning process? What does it take to attract students to these fields and motivate them to persist (assist them).
6. How do our spaces reflect the social nature of learning, the need for collegiality, the unplanned interactions and conversations that shape and nurture communities?

B.

7. How can we design for the future and encourage innovation and new ways of learning?
8. How do we create an environment of entrepreneurial thinking, with the vibrancy and experimentation atmosphere of the West coast combined with the structure and richness of the Northeast academic history?
9. How can we create awareness, connections and encourage collaboration through our architecture?

C.

10. What are the space planning criteria for this learning environment? How will instructors and teaching assistants interact with students in the physical and virtual spaces? How will students interact with one another and with the room's advanced technology?

Notes:

11. What do we know about what works now (or does not) in spaces to be renovated? What is our common vision about 'game-changing' spaces? What affordances will best support formal and informal learning activities, and problem-driven learners and learning?
12. How will people come and go throughout the building?
13. What opportunities might surface in the planning to signal to the larger academic community campus-wide about the value of new types of learning spaces, about the value of this new facility to the institution at large? How will this new space be accessed and utilized by the University community?

D.

14. To enhance the educational experience, specifically for a large student population, what elements need to be considered in planning a learning community?
15. How have technological advances in the science workplace changed the design of an undergraduate curriculum? How does this reshape space for different types of learning?
16. How does a need for efficiency drive operations and space planning?
17. How big is too big?
18. How do we rigorously and responsibly plan for an unknown future?
19. To support student success, what elements and adjacencies should an institution/design team consider for an academic building?

E.

20. How do we get faculty and students to move throughout the building? How do we get students to stay within it?
21. How can the project accommodate more than just science?
22. What are the "third spaces" needed to encourage collaboration?
23. How do you accommodate for materials and equipment necessary for instruction or research in a flexible classroom or lab?
24. How is shared space operated or maintained in a transdisciplinary space?

F.

25. How can existing spaces remain functional during renovation and expansion activities?
26. How can a STEM facility accommodate both collaborative learning and didactic instruction?
27. How can a STEM facility support learning outside of structured instructional spaces?
28. How can faculty and student spaces be organized to maximize interaction without disruption?
29. How can a STEM facility be inviting and attractive to non-STEM students?
30. How can research and teaching functions be integrated by our planning of spaces?

Notes:

G.

31. What are the beneficial impacts/synergies of blending library and campus center programs?
32. Can a mixed-use building save money and space by capitalizing on those impacts / synergies?
33. Do these programmatic overlaps intensify the use of the building? Is there increased use of the library by more diverse groups?
34. Can learning spaces be shared effectively between departments and programs?
35. What is the right balance of food and social space to animate learning spaces?
36. Do adjacent outdoor terraces and porches really enhance learning spaces in temperate climates?

H.

37. How can we take better advantage of distributed, underutilized campus spaces?
38. How can we showcase STEM programs at work?
39. How can we make industry partnerships work to our advantage?
40. How can we attract the next generation of STEM students?
41. How can we plan for future flexibility while managing a limited budget?
42. How can a single space be shared among multiple stakeholders and program roles?

Driving Questions from Architects

Learning Spaces Collaboratory Roundtable
Spring 2016: Focusing on the Future of Planning Learning Spaces
University of Washington

Notes:

A.

1. How can the successes or failures of existing learning spaces be better understood and enhance future developments?
2. How can students actively participate and constructively contribute to the design of spaces in which they will learn.
3. What is the appropriate balance/blend of learning modes? How can content be delivered to optimize the knowledge capture for diverse learners?
4. How can the factor of time (utilization in and outside of normal classroom hours in unique ways) be better incorporated into learning space design?
5. How are learning spaces contributing to universities' sustainability missions of teaching resourcefulness and reduced energy use?
6. What technologies allow students to gain an intensified awareness of diversity and culture?

B.

7. How can classroom environments improve student and faculty retention and improve graduation rates?
8. What are the spatial characteristics that encourage active learning, and are they scalable? Can they be applied to lecture halls? Can lecture halls be more than a necessary program element, and become an experience that faculty aspire to and students are attracted to?
9. Is the classroom building replacing the rec center as a primary recruiting tool? What is motivating institutional investment in effective teaching and learning space, and how does a project fuel that initiative? What is the impact of housing a significant percentage of campus classroom seats under one roof?
10. How do we know whether new spaces for active learning are improving learning outcomes?
11. How do you inspire faculty to consider new teaching methods and spaces, and equip them with the skills, confidence and excitement to embrace experimental teaching environments? What programming and design processes effectively maximize this consideration?
12. How do you leverage these progressive environments to inspire further change and progress?

Notes:

C.

13. How can we create “the students’ office on campus,” which provides all the resources they need to pursue their educational interests?
14. What strategies can we use to make library resources more approachable, explorable and transparent to students?
15. What learning activities are most relevant to our users and how can they be fostered through the design of space?
16. For a university with many buildings and classroom types, what should the next leap in active learning classrooms look like?
17. How can we shorten the University’s capital projects typical process from 45+ mos to 22 mos max to satisfy legislative funding requirements, while maintaining inclusive stakeholder input and creative design solutions?

D.

18. How do contextual considerations influence the planning of learning spaces?
19. How do you assemble a collection of learning spaces that embrace multiple visions of the community about how and where learning happens?
20. How can attention to the characteristics of an ideal learning space influence the process of planning?
21. What metaphors can be used to push-the-envelope in thinking about what spaces can be, can do?
22. How do you anticipate what tomorrow will be like as planning happens today?

E.

23. How would the design of these classrooms accommodate the flexibility needed to potentially fulfill use within two pedagogical models?
24. How could their flexibility of design be used to leverage the potential wholesale adoption in the future of just one of those models?
25. How could the classroom’s design allow both enough specificity and enough flexibility to serve as either general-use classrooms or learning lab spaces?
26. How will adjacencies support learning?
27. How will furniture be used to work in conjunction with technology to support facile transitions between modes of learning?
28. How do we design spaces that not only support but suggest different modes of collaboration?

Driving Questions from Architects

Learning Spaces Collaboratory Roundtable
Spring 2016: Focusing on the Future of Planning Learning Spaces
Loyola Marymount University

Notes:

A.

1. What can the design of the building do to promote interdisciplinary interaction and de-Balkanize departmental tendencies?
2. What is the importance of “Science on Display” and how does it support more open learning environments?
3. How can design challenge pre-conceived notions of undergraduate teaching laboratory design? How do you get buy-in from faculty for more open environments?
4. How do you balance the need for low-tech vs. high-tech interaction spaces? And, where should these spaces be located within a building?
5. What is the importance of exterior learning environments? Can your project create spaces for the entire campus community to enjoy?
6. How do you engage faculty and student from across campus and create environments for cross-departmental interaction?

B.

7. How do we activate a 50-year old library of libraries that has technical and planning challenges into an active learning center?
8. Can a building with multiple additions and program uses be made legible? How do we keep 6,000,000 volumes of books accessible and provide new learning venues?
9. Can a 400,000 sq. ft. renovation be completed while maintaining current building operations and services?
10. How do we provide integrated learning opportunities? How do we activate “signature spaces” that focus on user experience? How do we create group learning spaces that promote group interaction yet allow for individual study? How can we create intimate study spaces within a large central library?
11. How do we make rare books celebrated, accessible, and integrated into learning?

C.

12. How do we find synergies in program and systems to balance building efficiency with the growing need for communal/collaborative space?
13. Collaborative environments are as much a result of a collaborative programming and design process as they are the architectural response. How do we better integrate our clients and their community into the design process?

Notes:

14. How do our projects contribute to the evolution of university programming by challenging traditional paradigms without alienating building users?
15. How does our connection to the natural environment inform programming needs and adjacencies?
16. How do we create communal campus activity at the ground floor of building and program types that require increasing amounts of security?

D.

17. How can the proposed STEM Facility help attract and retain new students (both majors and non-majors)?
18. Given insufficient financial resources to replace all science facilities on campus as part of this project, which programs /spaces should be prioritized for the new building?
19. How can the planning process help engage all disciplines in developing a common vision and top priorities for the project?
20. What features should be incorporated into the new facility to foster an active and collaborative learning environment?
21. How can the facility design support future changes in personnel, pedagogy, technology and equipment over the life of the building?
22. How can the design of instructional laboratories promote flexibility and facilitate active learning pedagogies?

E.

23. How are emerging technology trends affecting / improving learning spaces? Including:
    a) Extra-wide, blended, interactive displays and displays integrated into the fabric of the building
    b) The migration of AV technology to data and software (from physical wiring and hardware boxes
    c) Cameras and data everywhere
24. How do you integrate the professional lab environment with the classroom environment (or more accurately capture the on-demand teaching moments with classroom technology in a lab with chemicals or a clinic with patients)?
25. How do you make a building with very high technical demands pretty and friendly?