

# REIMAGINING LEARNING ENVIRONMENTS

EMBRACING CHANGE | NEW TYPOLOGIES FOR THE  
CAMPUS OF THE FUTURE

ehdd.

 one  
workplace



**imagine new  
possibilities**

**make lasting  
impacts**

## ABSTRACT

**2020 experienced a seismic shift in teaching and learning and the needs of the academic community. Now is our chance to lead in a time of great change to reimagine learning environments in equitable, healthy, and innovative ways.**



The Pandemic has had a profound impact on Higher Education and the needs of the academic community. This is an opportunity to leverage a time of significant change and disruption. This time allows us to reimagine the Future Campus to promote wellness, equity and better serve students and faculty's needs.

Engaging students and faculty in a dialog about their experiences over the past year became clear that those experiences have varied considerably. Through surveys and conversations, we understood unique individual experiences and discovered emerging needs, issues, and expectations that will need to be addressed in the coming years. We must design for future learners and educators the uncertain world they will inhabit and the most critical issues.

The college experience is about so much more than academics. When students are questioning the value of higher education and have increased economic, health, and social hardships, every space on campus should be leveraged in a way that supports the whole college experience, and that

creates the opportunity for memorable and meaningful experiences.

There will be lasting impacts. Moreover, the issues are complex. The effects from campus to campus are widely different, and there is no "one size fits all solution." Through our discussions and research, we identified eight trends that served as a framework for our discussions.

Building from our research and discussions, we engaged field thought leaders to think beyond the current challenges and reimagine a new Higher Education vision. These ideas have been crafted into a toolkit for designers and educators, including ideas, considerations, and resources organized in 5 strategies:

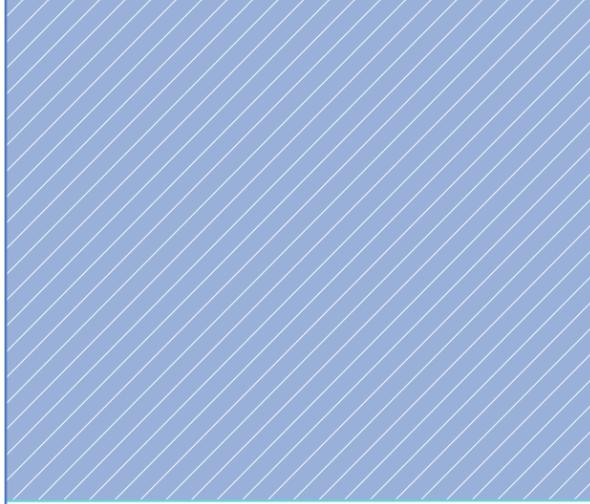
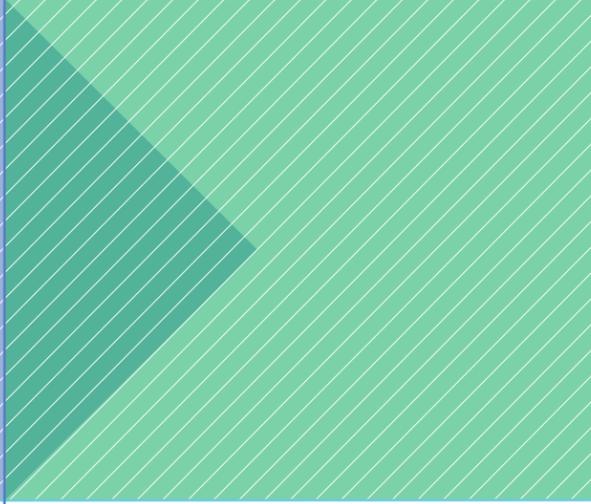
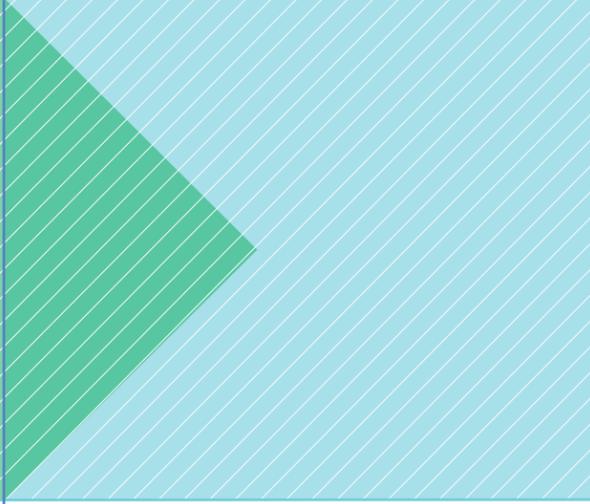
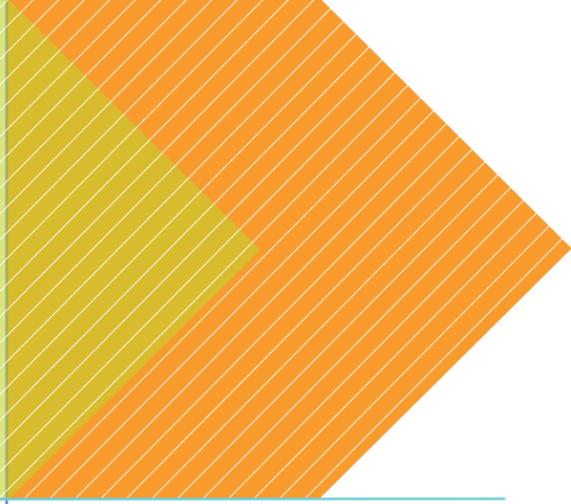
- Design for Connection
- Design for Needs
- Design for Agency
- Design for Wellness
- Design for the Future

Our goal is to share what we learned, spark ideas, and generate a dialog.

Putting our toolkit into action, we created a series of new space typologies to explore emerging needs and reimaged a "21st Century Classroom Building". While this study is removed from the opportunities and context of people and place, it is meant to provoke a dialog about how classroom buildings could be reimaged to better support students and faculty and create more meaningful and compelling learning experiences.

The challenges are staggering, but our conversations have revealed a shared sense of hope and desire to leverage this time of significant change as an opportunity for lasting positive change for the future.

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# INTRODUCTION

## Capturing Unique Stories and Provoking Conversation

### Process

In early 2020, we began receiving calls from our Higher Ed Clients to help them plan for the potential impacts of the Pandemic. We reached out to a student at UC Berkeley's School of Public Health, Jerome Wang, whom we met through a project with Berkeley Innovation, a student consulting group, and offered him a Research Fellowship. This fellowship focused on the Pandemic's impacts on faculty and students through a deep dive into emerging research. He also talked directly to students and educators across the country about their experiences.

It became clear that while the effects have been profound, the impacts from one student to another or one campus to another can be wildly different. Moving ahead, each campus will face unique challenges and opportunities.

Later that Fall, we were awarded an ONEder Grant to build on that research to leverage this time of unprecedented change and disruption to reimagine environments for teaching and learning. Our process involved surveys and discussions with a range of students, faculty, and thought leaders. The findings are documented here, along with a toolkit of ideas and resources. We put our toolkit into action by revisiting the "21st Century Learning Model as it applies to physical spaces.

Our goal is to share ideas, create a dialog, and positively impact students' and faculty's experiences in the years ahead.

### The ONEder Grant

This project was made possible by an ONEder Grant by ONE Workplace. It has been an incredible opportunity to integrate emerging research directly into our work and has been a hopeful project in uncertain times. The guidance and resources ONE Workplace has provided through the process have been invaluable.

### The EHDD Team

We are a group of interior designers, architects, an educator, and a public health graduate/research fellow from EHDD Architecture, with a passion for the value of education and the college experience. The previous year has made us acutely aware of how the environments we live, work, and learn can profoundly impact our health and wellbeing. We aim to find opportunities to use the last year's lessons to transform how we think about teaching and learning environments and better serve faculty and students in the years ahead.

Emily Bello  
Jerome Wang  
Lindsey Quinones  
Mary Lee  
Doris Guerrero



### Discussions

We are inspired by the generosity, passion, and dedication of the students, faculty, and thought leaders who have contributed their time and ideas to this project. Their ideas and stories serve as the foundation of this work to reveal emerging possibilities. There is a profound and shared desire to use the current crisis to come together to make real change in education. The hopefulness is tangible. This is our opportunity to rebuild and reimagine better.

A special thank-you to those who contributed their time and ideas to this project:

Kate Rancourt  
Associate Creative Director, One Workplace

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Melinda Milligan  
Professor of Sociology, Sonoma State University

Manuel Rosaldo  
Assistant Professor of labor Relations, Penn State

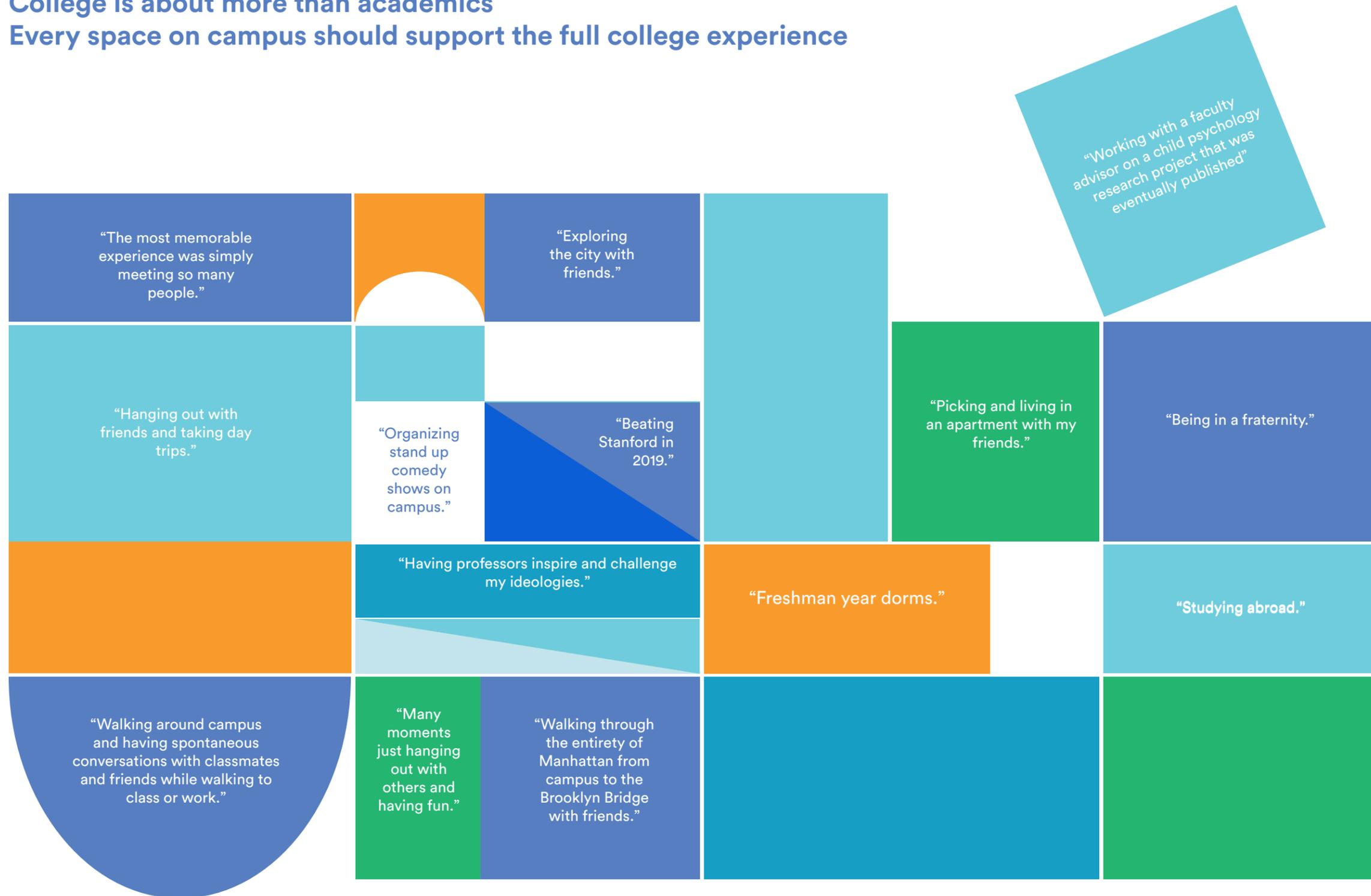
Kristina Woolsey  
Scholar and Cognitive Scientist, Consultant UC Berkeley Innovation Group

EHDD Staff

# THE COLLEGE EXPERIENCE

College is about more than academics

Every space on campus should support the full college experience



## The College Experience

The college experience is about so much more than academics. It is about meeting new people, being exposed to new ideas, feeling a part of a place and community, joining a club, or finding a passion. It is about self-discovery and investigation. The connections made with peers or the support of an inspiring professor are the experiences that are truly transformative and memorable to students. It is these types of experiences that have been most impacted over the past year. Furthermore, they have never felt more important. Every space on campus should be designed to support the whole college experience.

We asked every stakeholder we talked to the same question:

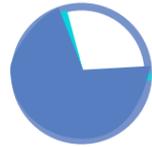
## What was your most memorable college experience?

These stories weave a fabric of experience that reinforces higher education's value and reveal the variations from person to person and from generation to generation.

Please view the video compilations of memorable college experiences from some of our stakeholders here.

# IMPACTS OF THE PANDEMIC ON STUDENTS AND FACULTY

## Experiences have varied greatly, a range of solutions is needed



71% of college students surveyed worried that they would struggle to pay non-tuition-related bills in the coming year



67% of college students said they would need more academic support when they return to school



67% of college students report higher stress than usual

### A Range of Impacts

We interviewed students and faculty to capture their personal stories about how the Pandemic has impacted them. While it was clear that individual impacts varied and depended on unique context, there were unifying themes that could have lasting impacts in the years ahead.

#### Economic Impacts

There have been many economic pressures for students over the past year: increased costs for online learning, unexpected costs for relocation, job loss, and food insecurity. Studies find that student parents, transfer students, and students of color are disproportionately impacted; in a recent survey by NewAmerica.org, nearly 71% of students reported being worried about paying non-education-related bills. That number increases to 91% for caregiving students.

Online learning has made access to technology, computers, and a reliable wireless network a necessity. Students without access were left behind. While these issues existed on campuses before the Pandemic, they have been revealed and amplified in the past year.

Meanwhile, campuses have been faced with unexpected expenses to upgrade existing buildings to allow for distancing, improved ventilation, and robust cleaning protocols. They have had to rapidly invest in technology and staff for online learning and support. And, many have seen a drop in enrollment and retention, a critical funding source.

While the challenges are great, they provide opportunities to re-prioritize funds to better serve students and universities in the years ahead. Some institutions have found ways to reduce their tuition, including Mills College, William's College, Princeton, and Georgetown. A shift to online learning has increased universities' ability to offer non-synchronous courses to a wide range of students, nationally and internationally, without the cost of living expenses near or on campus. This led to an increase in enrollment for some universities. With many campus buildings sitting vacant over the past year, some institutions are considering leasing or selling some of their buildings, creating opportunities for public-private partnerships or community use.

### New Student Needs

Students have new and heightened needs. They need better access to support. Beyond financial constraints, students have struggled over the past year with academic support, connecting with faculty, forming peer study groups, and finding counseling and mental health support. We heard from many students about feeling more and more disillusioned as the semester progressed, unable to focus on work because of stress, and finding it challenging to get the support they needed to get back on track.

A study by Activeminds.org found that 80% of students reported that their mental health was negatively impacted over the previous year. Universities have an opportunity to provide a range of support services to students to help bridge academic and social gaps. With learning opportunities extending well beyond the classroom walls, new and creative space use across campus can better support emerging needs.

“We became aware as most campuses did some years ago that many of our students have real food insecurity. So we opened the food pantry, and now many campuses have that. Maybe, the campus needs to be more like a community center where students and alumni can come anytime and use the food pantry or avail themselves of an open classroom or something. I can see the need for that. For some of our students, it is the first time they have been away from home; it is the first time they have really been in an environment where they are on their own and had to live by their means.”

- Karen Fiene, Campus Architect and Director of Facilities, Mills College

### Resources and References

Surveys:

[Active Minds Student Survey](#)  
[Brightspot Survey May 2020](#)  
[Brightspot/WeWork Student Survey](#)  
[New America “One year Later” Survey](#)

Articles:

[University of California Economic Impact Report](#)  
 “From March to October 2020, the latest data available at the time of this writing, lost revenue and new costs associated with COVID totaled \$2.7 billion for UC campuses and academic health centers.”

[Covid-19’s Forceful Financial Hit: A Survey of Business Officers](#)

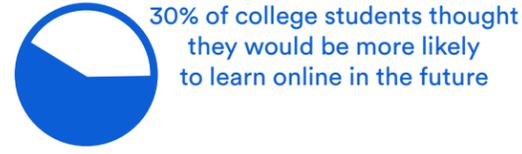
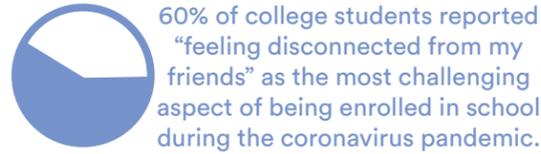
“About a quarter of business officers said they believed their institution could “ride out the current difficulties and return to more or less normal operations” within two years, while nearly half said their institution “should use this period to make difficult but transformative changes in its core structure and operations” in the interest of long-term sustainability.”

[How Colleges and Universities Can Better Adapt | Brightspot Strategy](#)

“Many are realizing that facing a public health crisis, a financial crisis, and a racial justice crisis simultaneously is a marathon, not a sprint. Faculty, staff, and students did an admirable job adapting this spring, but changes are going to keep coming.”

# IMPACTS OF THE PANDEMIC ON STUDENTS AND FACULTY

## There will be lasting impacts



### The Importance of Connection

When asked about the most challenging aspects of the Pandemic on their college experience, 60% of students ranked disconnected from their friends as the greatest challenge. For the students and faculty we talked to, it was also the potential for serendipitous interaction they missed. Students talked about missing out on meeting new friends, walking by a club meeting and being inspired or coerced to join, or the stranger they saw every day at the cafe but had not gotten the courage to talk to yet. The social aspects are so intertwined with place and sensory experience that they are impossible to replace remotely. These are the experiences that impact the most.

### Demands on Faculty Have Increased

Faculty have been faced with increased demands to support online and hybrid approaches learning while facing the challenges of childcare, technology, working from home, and access to healthcare.

They require additional support to teach in new and evolving approaches. A report released by the RAND Corporation in June 2020 found that 31% of educators said they had problems providing remote instruction. Teaching a course effectively online is very different from teaching in-person. Support could include ongoing training, a learning innovation lab, multi-media facilities, and robust tech support.

### Distanced Learning Experiences Have Varied Greatly

A recurring theme in our discussions with educators was a feeling that the hybrid learning model is here to stay. We heard a wide range of faculty and students' perspectives on how successful remote teaching and learning has been in the past year. For those students in California that opted not to return to classes for the Fall of 2021, 82% cited uncertainty about online learning or new class formats as the reason. Campuses will need to figure out how to leverage online learning benefits with the need to provide effective learning experiences with students.

### Technology is an Equity Issue

When campuses were shutting down, students who relied upon on-campus internet access, software, and hardware to do their work, the Pandemic meant losing access to education. Access to technology is a huge equity issue that must be addressed in the coming years.

The new budget survey by EDUCAUSE found that "many higher education IT budgets were reduced, just as institutions are more dependent on IT than ever before, contributing to a growing institutional digital divide." Providing robust tech support to students and faculty could also help bridge the widening tech gap.

"Interaction among students is key. The social bonds formed under the (hopefully) inspired pursuit of collective learning, hard work, and creative exploration. This does not happen with online teaching. Students feel isolated and lost. Their attention span is quickly zapped by Zoom, and their sense of collective alienation is exacerbated. It's a mistake to translate the "social dynamics of the professional workplace" onto them."

- Educator

"I don't feel like I can represent myself well online. A huge strength of mine is talking to people and in person interactions, but now that things are online I feel like a huge part of my skills are gone. I don't believe I can properly capture my whole self online, especially since I don't have a traditional background. My online and in person self are not the same."

- Student

"What I am missing from last year is moving between classes and getting vibes and energies from everyone."

- Student

"Virtual learning is a sad replacement, grasping material is so much harder."

- Student

"Part of being in a big university is that you run into and meet a lot of people. You form passive, not as intimate, relationships with people when you walk on a large campus. Without those interactions you feel small."

- Student

"[The pandemic] made me move back home to save some money. I have lost contact with many of my friends and have lost a lot of motivation. I find it hard to communicate and catch up with friends and see little to no point in social extracurriculars."

- Student

"Professors are a lot more intimate during online zoom office hours as there's a sense of shared humanity between you two. In general, they seem more excited to talk and email you things that are fun and outside the scope of the class."

-Student

"Everything academic is on zoom and it is so much more tiring than in person meetings. As teachers we have to think how we can alleviate that, how we can have built in mental health consideration and breaks to make sure we set students up for success."

- Educator

"There are 50 states all of which have different regulations around online education. California is the only state that is not part of a national agreement. There is real work to do there."

Elizabeth J. Beaven, EdD, Provost, California Institute of Integrated Studies

### Resources and References

#### Surveys:

- [Student Experience Snapshot | Brightspot](#)
- [Brightspot/WeWork Student Survey](#)
- [Educause Budget Survey](#)

#### Articles:

- [The Connected Campus | Brightspot Strategy](#)

"In response to demographic, social, economic, and technological change, institutions will need to change their offerings, their organization, and their operations. Doing so will mean more fully utilizing their campuses, embracing a life-cycle view and evidence-based design, and preparing for a blended world that mixes domains long separated – work and learning, on-campus and online, academia and industry."

#### [Social Connections Matter Now More Than Ever | The Christensen Institute](#)

"Social distancing threatens to crumble an array of social scaffolds and even chance encounters that help students get by and get ahead. That could yield immense losses to students' reservoirs of social capital, particularly for those who need it most. Education systems need to embrace a two-fold mission: triaging an academic crisis and a social crisis."

# TRENDS AND OPPORTUNITIES



## Reframing the Value of Higher Education

Many institutions have seen a pattern of shrinking enrollment numbers over the past year. Recent polls have shown that both returning students and incoming freshmen are increasingly questioning Higher Education's value. This is an opportunity to reframe and reinforce Higher Education's value by addressing the new and evolving needs and interests of future students and quickly adapting to a time of significant change to address the pressing issues facing the world today.

## The Hybrid Model is Here to Stay

If there was one consensus among the educators we talked to, the hybrid model is here to stay. Teaching and learning environments must be configured to allow for those engaging in classes, meetings, and study groups remotely to feel integrated into the experience. Microphones, cameras, and speakers can be distributed to provide a sense of the space's ambient nature to those joining remotely. New technology platforms are emerging to make both in-person and remote learning more socially interactive. Faculty need more support and training to adapt to new models.

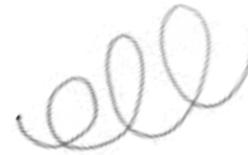


## New Student Needs / New Faculty Needs

Students have new and heightened needs, they need better access to support. Beyond financial constraints, students have struggled over the past year with academic support, connecting with faculty, forming peer study groups, finding counseling and accessing health services. Campuses can leverage technology to provide students a roadmap to campus services and can connect them to peer mentors and support networks. Faculty must be given additional support to address increased demands and hybrid learning approaches. This could include prototyping labs, learning labs, hybrid workspaces, hybrid meeting spaces and tech support and training.

## Learning is Social

Social learning is fundamental to the college experience. Those who learn in groups are more likely to work through tough problems and will be more engaged in the material. Campus environments need to promote connection and collaboration and learning environments should be adapted to promote social learning at a variety of scales.

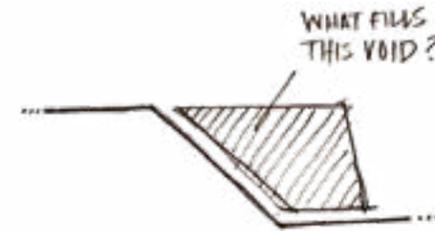


## Need to Adapt and Test New Models

The pandemic kicked off a time of rapid development to meet new and emerging needs and respond to an evolving world context. Spaces are needed on campus to test and prototype new models of teaching and learning, to engage the community in new ways and find strategic partnerships. Sustaining a culture of creativity and innovation require new types of learning and working environments.

## Changing Metrics

Human-centered design shifts the focus to delivering the best possible learning experience. With online learning being able to alleviate the demands on space use across campus, there is an opportunity to adapt existing spaces to promote connection, social interaction and to provide students with unique experiences.



## The Cliff

The United Nations projects that the births in the US will decline by 22% in the next 50 years. That decline is projected to cause a 15% reduction in college student population by 2025 with continued decline in the years after. While the impact is expected to vary greatly depending on geographic location and across various models of higher ed institutions, the effects will be broadly felt. Underutilized buildings will create opportunities for public-private partnerships, creative space use and opportunities to bring in community use. Demand for elite institutions is projected to continue to rise, causing a greater disparity in needs and resources.

## Technology for Human Needs

Emerging technologies provide the opportunity to create spaces that can actively adapt to student and faculty needs. Sensors and online scheduling software can track classroom use. Other sensors may track user preference in terms of climate, daylight, room set-up and air quality. The potential is enormous, and so are the potential ethical and privacy issues.



## Resources and References

[Promoting Physical Distance, Not Social Distance | EdSpaces Insights](#)

[One Workplace | The Classroom as Ecosystem](#)

[Higher Ed Magazine | The Looming Higher Ed Enrollment Cliff](#)

[The Hechinger Report | College Student Population Predicted to Fall by 15% by 2025](#)

[New York Times | Interest Surges in Top Colleges, While Struggling Ones Scrape for Applicants](#)

"Given the radical disruption of COVID requiring a transition to virtual learning (eg. Zoom formats), how can we use these new virtual formats in new innovative ways that sustain and builds relationships?"

Dr Ellen Junn  
President CSU Stanislaus

## UNCERTAINTY IS THE NEW NORMAL

### Future-inspired design can support positive change

It did not take a pandemic for people to talk about the future of education. That conversation started long ago. However, it did take a pandemic to force the rapid shifts in how education was delivered. While much of the change was detrimental to students and put an enormous burden on faculty, it also showed that change is possible. Over the next few years, there is an opportunity to think seriously about change and the value of change in educational environments. The need will be different from campus to campus, student to student, educator to educator, but there is a window of possibility within the pathways ahead.

Many institutions are looking at the next five years as an opportunity to test the waters, to reflect and listen, and to build toward a new future incrementally. The rapid adoption of hybrid approaches to teaching and learning is a vital part of this experimentation phase.

We need to dramatically shift our mindset and our comfort levels in navigating uncertainty. That uncertainty can be leveraged. Why not involve students and faculty in the process transparently and collaboratively? This is an opportunity to shape the future together, with an eye to accountability, research, and a shared understanding of the desired outcomes.

What does this mean in the short term for the design of physical learning environments?

How can we provide extreme flexibility to create spaces that adapt to this level of change at this frantic pace?

If we can effectively impart knowledge virtually, what conditions can students and faculty want to come together on campus?

We developed five key strategies for navigating these issues with an eye towards the future and creating meaningful and impactful college experiences. Our approach is centered on the human experience.

No one solution will work on every project or every campus as individual experiences and impacts have greatly varied. We consider these ideas as provocations and tools for thinking about higher education environments in the years ahead.

**What does this mean in the short term for the design of physical learning environments?**

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There isn't one solution that will work on every project or every campus as individual experiences and impacts have greatly varied. We consider these ideas as provocations and tools for thinking about higher education environments in the years ahead.

These strategies are:

1. Design for Connection
2. Design for All Needs
3. Design for Agency
4. Design for Wellness
5. Design for the Future

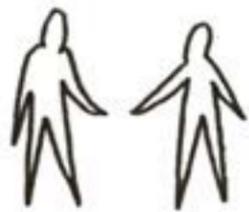
"It is the role of graduate and post-graduate education to address the urgent issues of today and to find solutions. How do we switch from being formed and guided by the past to being guided by what is emerging from the future?"

Elizabeth Beaven, Provost, CIIS

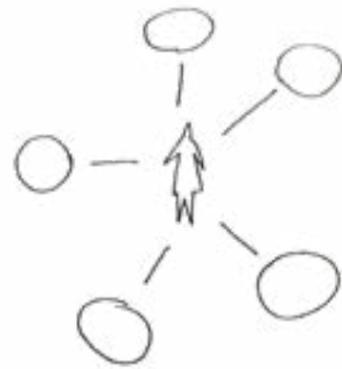
# TOOLKIT

Ideas, provocations, and resources

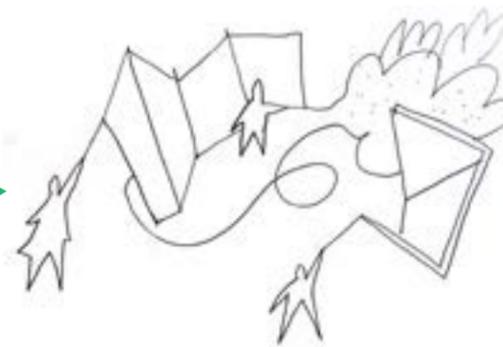
**STRATEGY 1  
DESIGN FOR  
CONNECTION**



**STRATEGY 2  
DESIGN FOR NEED**



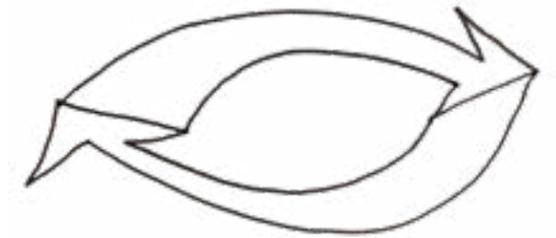
**STRATEGY 3  
DESIGN FOR AGENCY**



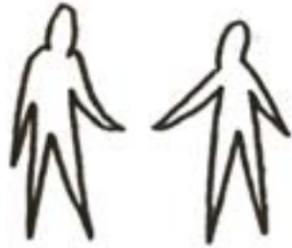
**STRATEGY 4  
DESIGN FOR WELLNESS**



**STRATEGY 5  
DESIGN FOR THE FUTURE**



## STRATEGY 1: Design for Connection



### Key Take-Aways

- > Learning is social.
- > The college experience is social.
- > Interaction between teachers and students improves learning outcomes, retention and graduation rates.
- > The pandemic has revealed the value of meaningful connection in the college experience.

What is the potential at the campus scale?

The campus can be re-imagined as a place of connection.

### Connection is Fundamental

A key benchmark for student success is student-faculty interaction. Close interaction between faculty and students is a critical factor in student learning, engagement, development, and college satisfaction. All campus environments need to be focused on bringing students together and providing spaces and resources for students and faculty to connect from classrooms to corridors.

“Switching classroom structure from didactic lectures to one centered around peer instruction improves learners’ conceptual understanding (Duncan, 2005; Mazur, 1997), reduces student attrition in difficult courses (Lasry, Mazur, & Watkins, 2008), decreases failure rates (Porter, Bailey-Lee, & Simon, 2013), improves student attendance (Deslauriers, Schelew, & Wieman, 2011), and bolsters student engagement (Lucas, 2009) and attitudes to their course (Beekes, 2006).

### Connecting Students

With a renewed focus on the importance of the college experience’s social aspects, spaces that allow students to meet, connect, and collaborate are essential in the years ahead. Places that allow for serendipitous interactions can allow students to build social networks and connect them to others with different majors, backgrounds, interests, and abilities.

#### Considerations:

What are the opportunities to bring a diverse cross-section of students together in an engaging environment that supports interaction?

How can social environments on campus feel welcoming and allow for various places that feel comfortable to a range of students?

### Peer to Peer Learning

Connecting students in an academic environment through peer-to-peer learning and collaborative projects have improved learning outcomes and makes students intrinsically more inspired to learn. “Studies indicate that when young learners are given expanded opportunities to actively and equitably participate in collaborative learning activities, they experienced feelings of wellbeing, contentment, or even excitement.”

#### Considerations:

How can learning spaces be reimagined to support peer-to-peer learning?

How can peer-to-peer learning be supported in a way that supports a variety of learning styles?

“ I really believe in peer to peer learning, it’s the most powerful way to learn in higher education... It’s not going to lecture and just sitting down and listening to a lecturer talking about a subject. Even if it’s a live zoom, the peer to peer contact has been taken away from us. We need to find new ways to employ peer to peer learning that is more than just zoom breakout rooms.”

- Faculty

### Resources and References

#### Articles:

[Christensen Institute | Social Connections Matter Now More Than Ever. Here’s How Schools Can Prioritize Them.](#)

“Education systems need to embrace a two-fold mission: triaging an academic crisis and a social crisis.”

#### Research:

Importance of Student Connection  
Farrell, L. C., Jorgenson, D., Fudge, J., & Pritchard, A. (2018). College Connectedness: The Student Perspective. *Journal of the Scholarship of Teaching and Learning*, 18(1), 75–95. <https://doi.org/10.14434/josotl.v18i1.22371>

“Peer instruction benefits not just the specific questions posed during discussion, but also improves accuracy on later similar problems (e.g., Smith et al., 2009). One of the consistent empirical hallmarks of peer instruction is that students’ answers are more frequently correct following discussion than preceding it”

## Connecting Students and Faculty

We need to create a range of places on campus that support social interaction of all types, from serendipitous interactions outside of classrooms to learning environments that better support collaboration. With the hybrid model's potential being more and more prevalent in the years ahead, these environments need to support cooperative learning and group problem-solving with students joining in-person or remotely in a seamless way.

“Student-faculty interaction can be crucial in developing students’ academic self-concept and enhancing their motivation and achievement.”

A key benchmark for student success is student-faculty interaction. Close interaction between faculty and students is a critical factor in student learning, engagement, development, and college satisfaction.

Research shows that classes of 25 or less are most effective online or in person. Smaller sizes allow faculty to engage and support every student individually. This is also true of online courses. With larger classes, students were less likely to turn on their cameras.

## Considerations:

**What are the opportunities to bring a diverse cross-section of students together in an engaging environment that supports interaction?**

**How can social environments on campus feel welcoming and allow for various places that feel comfortable to a range of students?**

## Connecting Faculty

The Pandemic has resulted in greater demands on faculty. They must be given the support they need to thrive in an evolving academic context. Faculty need to be provided environments with a range of amenities and uses.

They need spaces that allow them to be innovative, learn, and adapt to evolving teaching approaches with spaces that support creative thinking, innovation, and focused research.

“Our professors do more to try and interact with students, but it’s often labor-intensive, one on one, teacher to student, or teacher to the class. While there is ample evidence showing the transformative power of meaningful interactions between faculty and students, there also is research showing that peers learning in teams together, scaffolded by more skilled partners and in ‘active cooperative learning’ environments deepens sustained learning for all students and also promotes social and interpersonal skills.”

Dr Ellen Junn, President CSU Stanislaus

## Resources and References

### Studies:

**Importance of Engagement**  
Quaye, S. J. & Harper, S. R. Student Engagement in Higher Education: Theoretical Perspectives and Practical Approaches for Diverse Populations. (New York: Routledge, 2015).

**Impact of Student Faculty Interaction**  
Komarraju, M., Musulkin, S., & Bhattacharya, G. (2010). Role of Student–Faculty Interactions in Developing College Students’ Academic Self-Concept, Motivation, and Achievement. *Journal of College Student Development* 51(3), 332-342. doi:10.1353/csd.0.0137.

“Faculty members taking an interest in their students’ academic progress could potentially make significant contributions in increasing their intellectual and professional development.”

(Anaya & Cole, 2001; Chickering, 1969; Chickering & Reisser, 1993; Cokley, 2000; Terenzini & Pascarella, 1980)”

## Connecting to Place

Students' feeling of belonging on campus and connection to campus life have correlated with academic success and student retention. We need to create campus environments that are memorable, welcoming and connect students and faculty to the unique characteristics and culture of the places they inhabit.

The students, faculty, staff, and community members who live, work, and learn on campuses every day know it best. The design process is an opportunity to uncover the unique and often hidden patterns of use, identity, and campus community culture. Listening intently to stakeholders in the design process and preparing for surprises is essential to create a deep and meaningful connection to place.

### Considerations:

Who are the stakeholders you are serving?

Will they feel welcome in this place?

What is unique about this campus?

What are the hidden opportunities?

## Connecting to Community

Every campus has a different relationship with the community that surrounds it. Integrating the community into campus culture provides students opportunities to connect with a broader audience and to have a deeper understanding of the broader context they inhabit. The campus can find opportunities to leverage shared interests and resources.

### Considerations:

What are the opportunities to engage in a meaningful way with the surrounding community?

What are the opportunities to come together around shared needs or values?

## Public-Private Connections

Public-private partnerships on campus allow commercial partners to meet talented and motivated students and hear the next generation's new ideas and perspectives. These partnerships provide students with an opportunity for hands-on and applied learning, mentorship, and access to new resources and experiences.

### Considerations:

Is there an opportunity on this project for a mutually-beneficial partnership?

How can the students gain experience through hands-on learning or internship?

How can companies and institutions benefit from the talents and curiosity of the students?

"We asked ourselves how well we are serving first-generation and transfer students -- students who don't have the social capital to understand how the university culture works... [and we learned] that community was important and students acknowledged they didn't know where to go to find some of the services."

- Greg Careaga, Head of Assessment and Planning, UC

## Connecting to Resources

As needs evolve, students need to connect to a wide range of resources that evolve. Providing centralized locations for access to resources or "resource pop-ups" can better connect students to the services and support they need.

The same approach applies to faculty and staff who need to be given access to resources without spending valuable time searching for them.

Technology integrated into resource kiosks can be programmed to create an individualized services roadmap.

### Considerations:

What are the new types of resources students and faculty need?

How can they easily be guided to those services and amenities?

## Resources and References

### Articles:

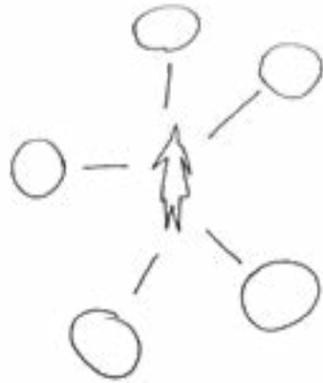
[ECampusNews | 5 ways to help Students Feel Connected to Your Campus](#)

["Colleges can make it easier for students to connect with the services that already exist on campus.. They can also frame their resources in inclusive, inviting ways."](#)

### Studies:

[Importance of Belonging](#)  
Freeman, T. M., Anderman, L. H. & Jensen, J. M. Sense of Belonging in College Freshmen at the Classroom and Campus Levels. *J. Exp. Educ.* 75, 203–220 (2007).

## STRATEGY 2 : Design for All Needs



### Key Take-Aways

> Campus environments need to support a broad spectrum of student and faculty needs.

> Engaging stakeholders in a dialog about the specific needs and activities are required to design spaces that better serve the unique campus community.

What is the potential at the campus scale?

Classroom buildings should provide a broader range of spaces to support student and faculty needs and promote innovation and creativity.

### Design for a Wide Range of Needs

Students are the emerging innovators and creative strategists who will be tasked with solving our worlds' most complex challenges. This will require broad collaboration, interdisciplinary thinking, partnership, and impassioned dedication. Developing and testing these skills requires a novel set of learning environments.

Studies suggest that creative thinking is nurtured through a combination of focus, reflection, and restorative mental breaks; our learning spaces need to support our new understanding of how learning happens. Places to enhance creativity and promote innovation should not be limited to students. Staff and faculty have experienced increasing demands on their skills and time. They need an ecosystem of resources that support collaboration, focus, wellness, creative thought, and innovative teaching.

### Design to Support Creativity

Creative thinking requires a culture that supports and encourages imagination. Spaces should provide focused thought with views or access to nature or the outdoors for physical and mental breaks. Inspiring spaces support expansive thinking, allowing students to work in new and interesting ways.

#### Considerations:

**How can campuses nurture students' imagination by supporting an institutional culture that gives greater value to creativity and its expression?**

**How can teachers be given the tools and agency to enhance their own creativity as an integral part of their work?**

### Design for Innovation

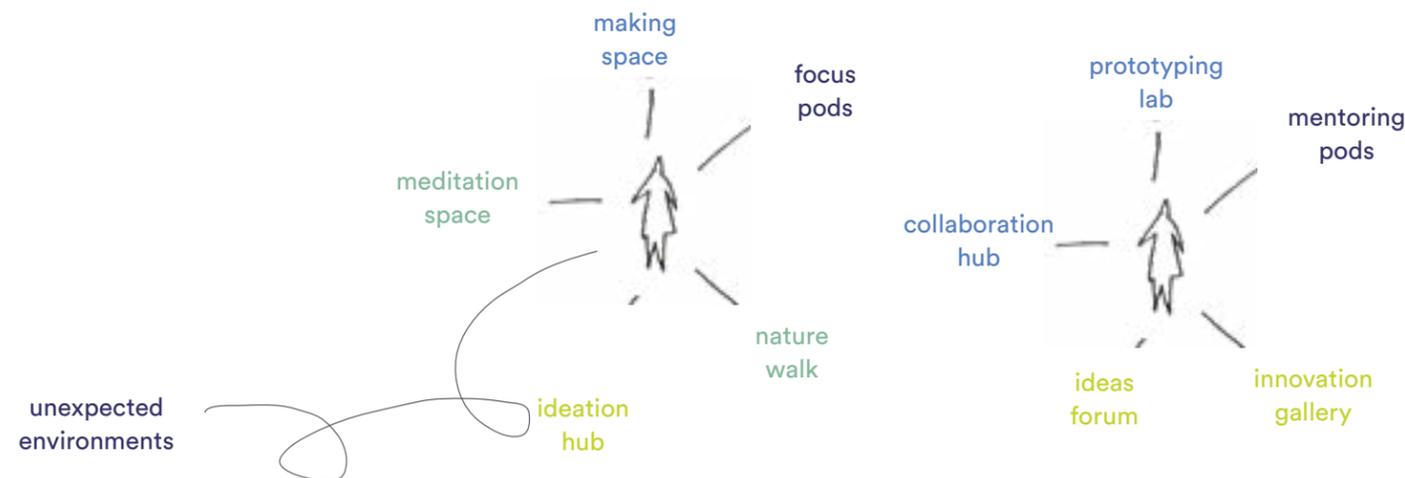
Supporting innovative thinking requires providing a range of spaces that enable focus, research, ideation, collaboration, prototyping, and the ability to share and test ideas with an audience. Promoting innovation in higher education requires places that bring together students with different brain styles and interests and collaborate in novel ways.

Unprecious spaces with flexible furniture promote planned and unplanned experimentation and the flow of ideas.

#### Considerations:

**What types of environments support bringing a range of students together to collaborate and test new ideas?**

**How are students given agency to share their work and ideas on campus for feedback and discussion?**



### Resources and References

#### Articles:

[How Social Spaces Foster Creativity and Innovation | Haworth Blog](#)

[Building the Classroom of the Future | Steelcase](#)

[Inspiring Spaces to Boost Creative Confidence | Work Design magazine](#)

[Mapping the Innovator's Brain | 3 practical ideas to Fuel Innovation, based on the latest Neuroscience Research](#)

**"People's ability to innovate is crucial to technological and cultural progress, and in this day and age, maybe even crucial to survival."**

**"Innovation happens when regions of our brain that normally ignore each other start communicating."**

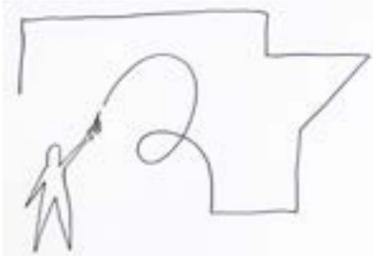
#### Research:

Beatty, Roger & Kenett. (2018). Robust Prediction of Individual Creative Ability from Brain Functional Connectivity. *Proceedings of the National Academy of Sciences*. 115. 10.1073/pnas.1713532115.

Alencar, Eunice & Fleith, Denise & Pereira, Nielsen. (2017). Creativity in Higher Education: Challenges and Facilitating Factors. *Temas em Psicologia*. 25. 553-561. 10.9788/TP2017.2-09.

**"The importance of fostering student creativity in higher education has been widely recognized, due to the need for preparing young people for the uncertain and complex world of work, which requires individuals to be able to use their creative abilities. "**

## STRATEGY 3 : Design for Agency



### Key Take-Aways

- > Giving stakeholders the ability to shape campus development leads to projects that are more adaptable, successful and better support the needs of the unique student body.
- > Giving students and faculty agency to adapt their environments creates spaces that better serve their needs.

What is the potential at the campus scale?

The campus should be actively adapted by its users in a way that promotes belonging and supports a wide range of interests and abilities.

The campus can provide a framework for student expression and community identity.

### Design for Agency in Process

Meaningful engagement of stakeholders in the design process results in projects rooted in a deep sense of place that respond to their users' unique needs and unearth each environment's unique potential. The design process is a tool for building partnerships and engaging stakeholders.

The most effective stakeholder engagement process is one that:

- Carefully curates the right questions for each group
- Balances “blue sky thinking” with a clear understanding of constraints
- Allows for unexpected ideas and opportunities to emerge
- Tackles the tough or “tricky” issues in a way where stakeholders feel heard so that they can move past sticking points to see the bigger picture
- It makes the invisible visible – discovering the hidden patterns, culture, and unique experiences of a place

### Considerations:

How can a wide range of stakeholders be engaged in the process to uncover new opportunities and leverages user expertise?

How can the design process be used as a way to build and strengthen community?

### Design for Agency in Campus Environments

Empowering students and faculty agency over their environment allows them to adapt the space to their needs actively. It promotes belonging.

Designing spaces that promote belonging and reflect the campus community's identity means giving stakeholders agency in the process. This means allowing for surprise in the process and unearthing hidden potential in every project.

Enabling choice in how users engage with learning environments supports a wide range of teaching and learning styles and needs, personalities, and neurodiversity.

Providing the choice to engage remotely in a meaningful way better supports students and faculty and the other demands on their lives.

### Considerations:

How can students be given agency to adapt their physical environments to suit their needs better?

How can places be provided for student expression and identity?

“It’s about being aware that everybody comes to the table with a different set of circumstances and its not one size fits all. I’ve been talking to my colleagues and it’s like, this is an opportunity for a reset! We can really start to design more equitable spaces.”

- Karen Fiene, Campus Architect and Head of Facilities, Mills College

### Resources and References

#### Studies:

Guney, A. & Al, S. Effective Learning Environments in Relation to Different Learning Theories. *Procedia - Soc. Behav. Sci.* 46, 2334–2338 (2012).

Wilson, H. K. & Cotgrave, A. Factors that influence students' satisfaction with their physical learning environments. *Struct. Surv.* 34, 256–275 (2016).

Sue Clegg (2011) Cultural capital and agency: connecting critique and curriculum in higher education, *British Journal of Sociology of Education*, 32:1, 93-108, DOI: 10.1080/01425692.2011.527723

Arasaratnam-Smith, L. A., & Northcote, M. (2017). Community in Online Higher Education: Challenges and Opportunities. 15(2), 11.

#### Articles:

EDSurge | How Student Agency Can Ease the pain of Remote Learning and Teaching

## STRATEGY 4 : Design for Wellness



### Key Take-Aways

> A growing body of research shows that the environments where we work and learn have a significant impact on our psychological, physiological, social, and cognitive health.

> Students and faculty are returning to campus with higher expectations on the health and wellness of their learning and working environments.

> Wellness is not just physical; it is also psychological, cognitive, and social.

What is the potential at the campus scale?

The campus can be reconceived as a resource for student, faculty and community wellness.

### Taking a Holistic View of Wellness

A healthy campus promotes a definition of wellness-centered around physical, mental, social, and cognitive health, transforming the college into a dynamic resource for holistic health. Wellness must no longer be synonymous and confined to traditional health spaces that respond to sickness. There is an excellent opportunity for wellness to permeate every existing space within the campus, choosing healthy behaviors.

College is a stressful time of exploration and growth that often leaves students and faculty members more vulnerable to reduced wellbeing. With the changing student population, more and more students are coming to college with no means to support or treat a health crisis financially. It is essential through intentional design and culture change that universities carry out preventable health missions

#### Considerations:

**Do we need more health centers or increased access to health-related support across campus to promote a preventative approach to health and wellness?**

**Are there different types of health amenities that could be distributed across campus and integrated into every building?**

**How can you restore the health and wellness of everyone who comes to the campus?**

### Benefits of Biophilic Environments

Beyond the aesthetic impact, the integration and incorporation of restorative and greener elements have lasting academic and health impacts for students and faculty on campus. Biophilic elements have been shown to improve the ability to focus. Looking out the window to a view of nature or an indoor plant gives the brain a chance to have a quick break from exhausting cognitive tasks. Biophilic environments can not only improve productivity; they can reduce anxiety and promote a sense of wellbeing. Especially in places where outdoor air quality has become an issue or where the climate forces people indoors, the indoor environment's quality is of critical importance.

#### Considerations:

**What are opportunities to bring the outdoors indoors in and the indoors out?**

**How can spaces be provided with high air quality indoor and out?**

**Can you utilize different components of nature for different learning and study styles?**



80% of college students report that COVID-19 has negatively impacted their mental health

“Since CoVID, teachers were more understanding of mental health: classes started dropping coursework for the wellbeing of students. Having a non reactionary, more coordinated solid framework and guideline of how mental health will be addressed in class and how it affects coursework is important.”

- Student 8/20



1 in 5 college students say their mental health has significantly worsened under COVID-19

### Wellness is Social

Campus environments are designed to either deter or promote connection. Wellness is not only physical; it is also social. Dedicating spaces for building meaningful connections and dialog allow students and faculty places to meet new people and build relationships that can have a lasting effect on their feeling of belonging and wellbeing.

As college campuses serve an increasingly diverse student body, ensuring spaces improve social health will become a greater priority. These spaces also provide an opportunity to connect to the larger community.

#### Considerations:

**Where do students and faculty go to refresh or recharge?**

**How can spaces promote belonging and help diminish power dynamics between different parties?**

**How are students from different backgrounds and experiences going to naturally meet each other in these spaces?**

Studies that demonstrate the potential of how spaces can help support student's psychological, physiological, cognitive and social health



Adapted from: Abdelaal, M. S. Biophilic campus: An emerging planning approach for a sustainable innovation-conducive university. *J. Clean. Prod.* 215, 1445–1456 (2019).

### Resources and References

#### Book:

Anthes, Emily, *The Great Indoors*, Scientific American, 2020.

#### Articles:

Advancing Social Connection as a Public Health Priority in the United States | NIH

#### Studies:

Sara Aristizabal, Paige Porter, Nicholas Clements, Carolina Campanella, Rongpeng Zhang, Kevin Hovde & Chi Lam (2019) *Conducting Human-Centered Building Science at the Well Living Lab, Technology|Architecture + Design*, 3:2, 161-173, DOI: 10.1080/24751448.2019.1640535

Abdelaal, M. S. *Biophilic campus: An emerging planning approach for a sustainable innovation-conducive university.* *J. Clean. Prod.* 215, 1445–1456 (2019).

Moya, T. A., van den Dobbelaar, A., Ottelé, M. & Bluysen, P. M. A review of green systems within the indoor environment. *Indoor Built Environ.* 28, 298–309 (2019).

Yin, J., Zhu, S., MacNaughton, P., Allen, J. G. & Spengler, J. D. *Physiological and cognitive performance of exposure to biophilic indoor environment.* *Build. Environ.* 132, 255–262 (2018).

Baldwin, D. R., Towler, K., Oliver, M. D., & Datta, S. (2017). *An examination of college student wellness: A research and liberal arts perspective.* *Health Psychology Open.* <https://doi.org/10.1177/2055102917719563>

Muhammad, S., Sapri, M. & Sipan, I. *Academic Buildings and Their Influence on Students' Wellbeing in Higher Education Institutions.* *Soc Indic Res* 115, 1159–1178 (2014). <https://doi.org/10.1007/s11205-013-0262-6>

#### Websites:

Well Living Lab <https://www.welllivinglab.com/>

#### Surveys:

Mental Health Survey of University Presidents: | Higher Ed Today

#### Wellness Project Certifications and Resources:

<https://fitwel.org/>

<https://www.wellcertified.com/>

## STRATEGY 5 : Design for the Future



### Key Take-Aways

> The next generation of learners have different expectations, needs, and acuties. Buildings and campuses must adapt.

> Change is possible.

What is the potential at the campus scale?

The campus is a prototyping lab for the next generation.

### The Future is Now

Every campus evolves. While the campus may seem to remain constant, the invisible patterns and flows, a hidden culture of use, and community identity change more readily. Any buildings on campus will see an enormous change in these “invisible aspects of place” over its lifetime. They must be designed to be flexible in the short term and allow for long-term adaptability.

The disruptions caused by COVID-19 have proven that rapid adaptation is possible. While much of the change over the past year has had devastating impacts on the college experience, it has also opened a window of opportunity. Now is a moment to reflect, reconsider and refocus.

“People under 30 are much more concerned about climate change and they want to make a difference at an individual level. They are concerned about equity--whether it's racial equity, gender equity, sexual orientation equity, economic equity, or now even the term ecological equity or sustainability. These are some of the things students are very interested in and they want to see it on their own campuses and in their own classrooms. How do we foster this and show clear support?”

-Dr Ellen Junn, President CSU

### Design for the Next Generation

The next generation of college students has different expectations and visions of their college experience than those of the designers and educators creating the spaces they will learn. Campuses should be designed with the concerns and opportunities of the next generation in mind.

“A picture of Generation Alpha, if a blurry one, is starting to emerge. Analysts have stated that they are or will grow up to be the best-educated generation ever, the most technologically immersed, the wealthiest, and the generation more likely than any in the past century to spend some or all of their childhood in living arrangements without both biological parents.”

-The Atlantic: Oh no, They've Come Up With Another Generation Label

### Design for Creative Use

A tennis court as a dance studio, a gym as a classroom, parking lots as community gathering areas... many campuses offering in-person learning in 2020 were forced to test unexpected uses of their existing spaces quickly. Not all were successful, but lessons learned in the types of spaces lent themselves to more adaptable use. Large auditoriums with fixed seating and tiered floors do not lend themselves well to adaptation. Moreover, many of the students and faculty we talked to felt that these learning experiences were better in an online model. Large classrooms with flat floors became a hot commodity, especially with features like views, access to the outdoors, and a robust ventilation system. The open Workplace is highly flexible but is less effective than private offices when seen through the lens of possible disease transmission. These lessons could have lasting impacts on the types of spaces campuses choose to build moving forward.

In any case, the most adaptable spaces are those that incorporate healthy, inspiring, and unique environments that faculty and students positively experience. Advancements in scheduling technology can give students and faculty more agency in scheduling campus resources. It can also allow them to choose spaces based not only on the room type and size but also on the qualities of the space: access to view, technology resources, access to daylight, or how secluded it is. Universities can track this information to understand what space characteristics are in the highest demand. It can also promote unique uses of these spaces beyond classrooms or workspaces. A group of students could book a small classroom as a collaborative study space, a meeting place for their club, showcase a project, and invite community members for

discussion and feedback. Experience and opportunity are the new metrics for space use.

### Design for Testing and Prototyping

With so much uncertainty in the years ahead, and campuses need spaces for testing a prototyping new approaches to space use. Faculty need to experiment with a range of hybrid teaching approaches and spaces with various active learning approaches. A prototyping culture means providing faculty and students with various teaching labs and support spaces to have agency over their teaching and learning experience and continue to adapt it. Campuses need “blank space” set aside for rapid experimentation and different uses from semester to semester to see what works and what does not.

### Considerations:

[How can we design for the next generation?](#)

[How can we design for uncertainty?](#)

[What are the opportunities to create inspiring environments that leverage the unique possibilities of a place?](#)

### Resources:

[The Generation After Gen Z | The Atlantic](#)

[Getting to Know Generation Alpha | Keystone Academic](#)

[Does Generation Alpha Need a Super Education?](#)



**PROTOTYPE**

*The Toolkit in Action*

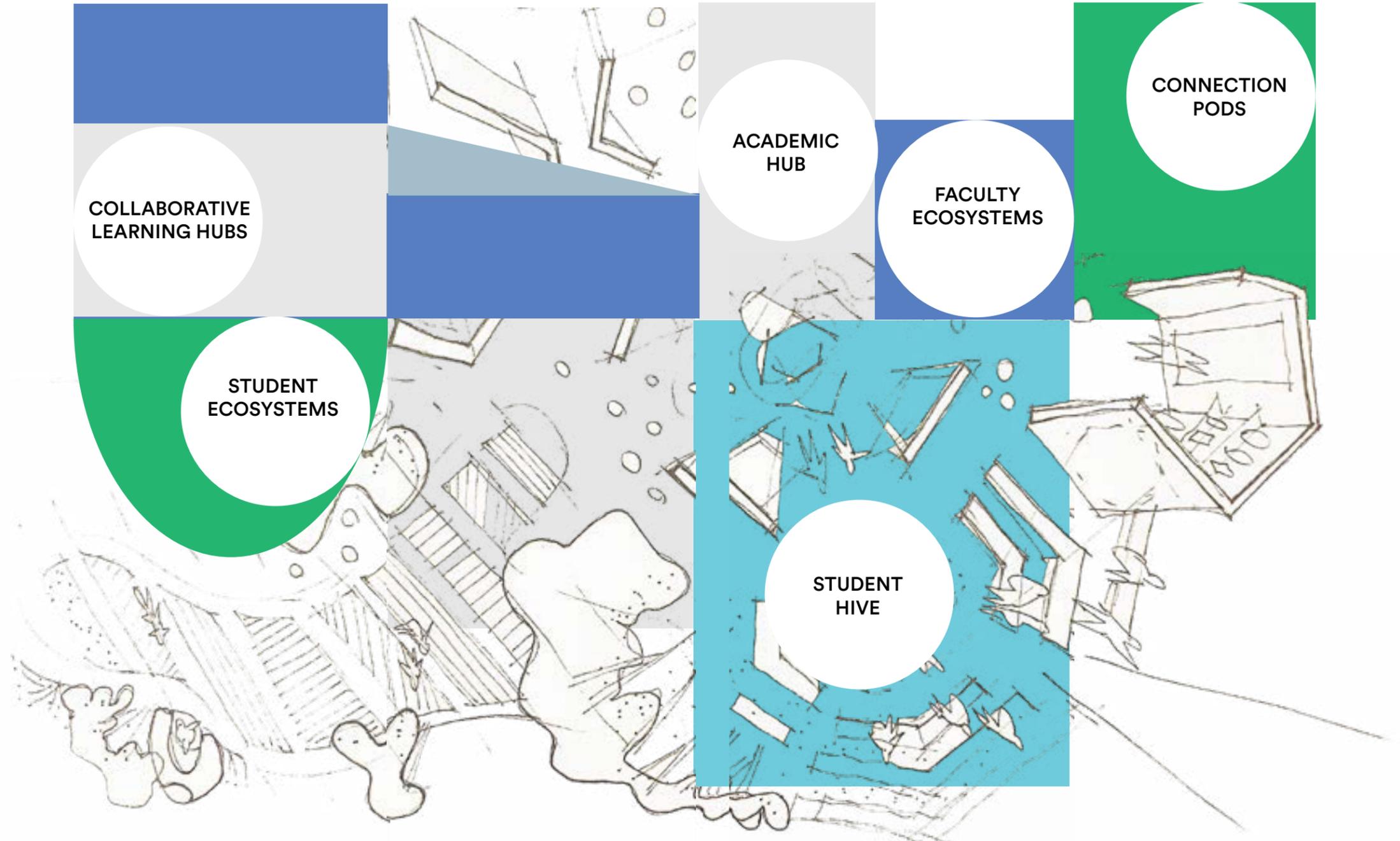
**NEW TYPOLOGIES**

- Collaborative Learning Hubs
- Student Ecosystems
- Student Needs
- Student Hive
- Connection Pods
- Academic Hub
- Faculty Ecosystems

A DAY IN THE LIFE  
CLASSROOM BUILDING  
PROTOTYPE

## NEW TYPOLOGIES

These proposed campus environments are meant to be provocations for how a focus on connection, emerging needs, wellness, and agency could reshape the future campus. They intend to provoke, discuss and inspire new ways of thinking about how campuses can support the whole college experience. Every campus and place has different needs and constraints. The environments proposed are meant to remake the campus anew and propose catalysts that may be inserted and ways of adapting existing spaces to create positive change opportunities.



## COLLABORATIVE LEARNING HUBS

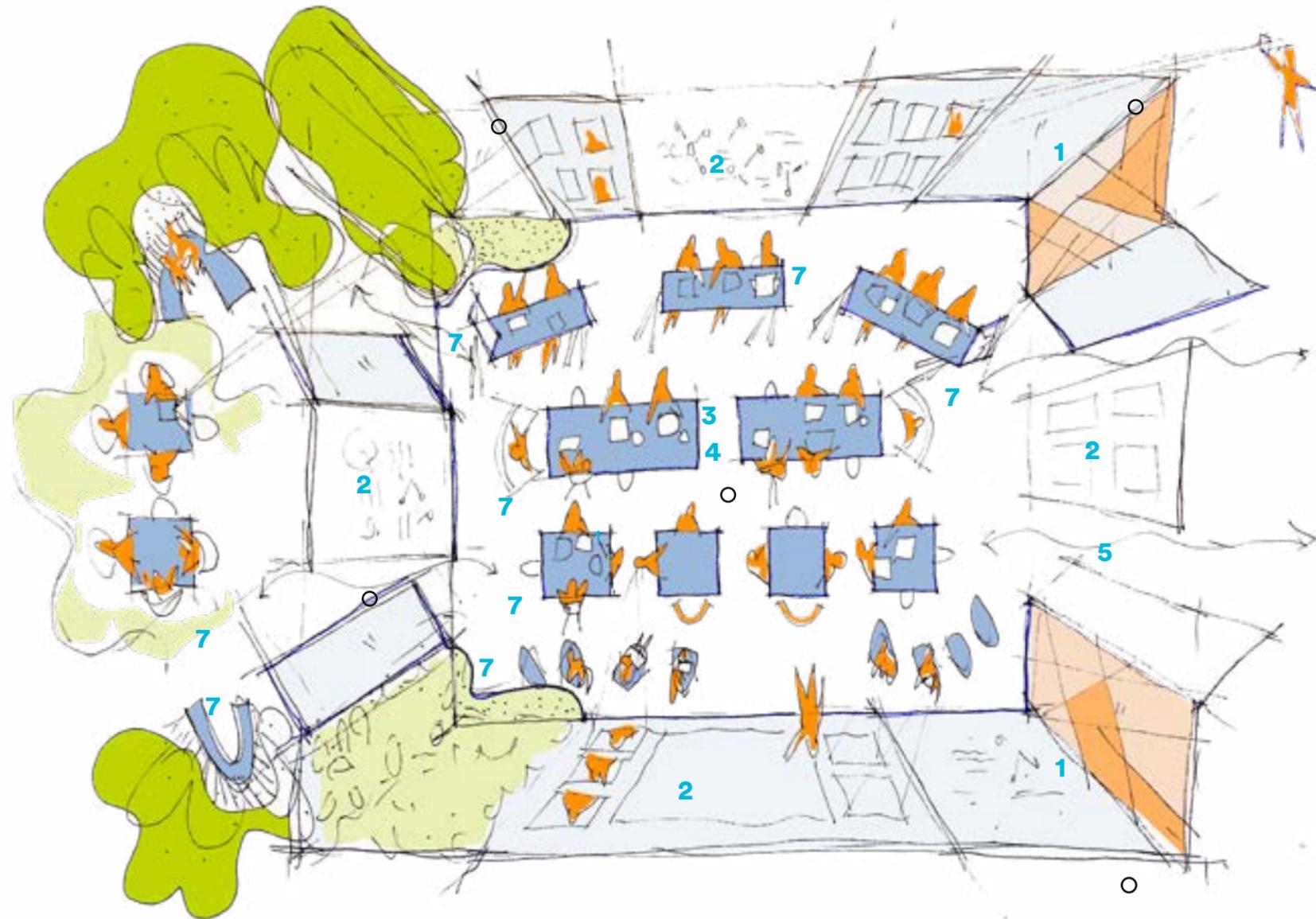
### Learning is Social

This is a space that is structured around supporting social learning and promoting student agency. In this model, flexibility is about choice. Supporting a flipped learning model for higher education, students watch a lecture remotely and come to campus to discuss and collaborate with their peers. Faculty can join remotely or in-person in a way that allows for a variety of teaching approaches. They can engage with specific groups or with the whole room.

With a capacity of 20-30 students, this space has a variety of seating postures and configurations to accommodate a range of preferences and learning styles. Some students may choose to sit with a friend at a table for two. Another may join a study group table that allows for other students to join remotely. Communication and collaboration are paramount, tech-enabled, and takes many forms. Those engaging remotely can share content visually by adding images to the walls and audibly through a distributed speaker system. Remote collaborators view the entire room and collaborate and share directly with their study group. The integration of technology is seamless and is at a range of scales.

Some of these spaces could be provided, some perhaps even outdoors, with a range of qualities from quiet to buzzing.

“I like spaces in which students view themselves as professionals. As a teacher I want a space where students should be equal, classes that present to students that they are valuable and equal.”

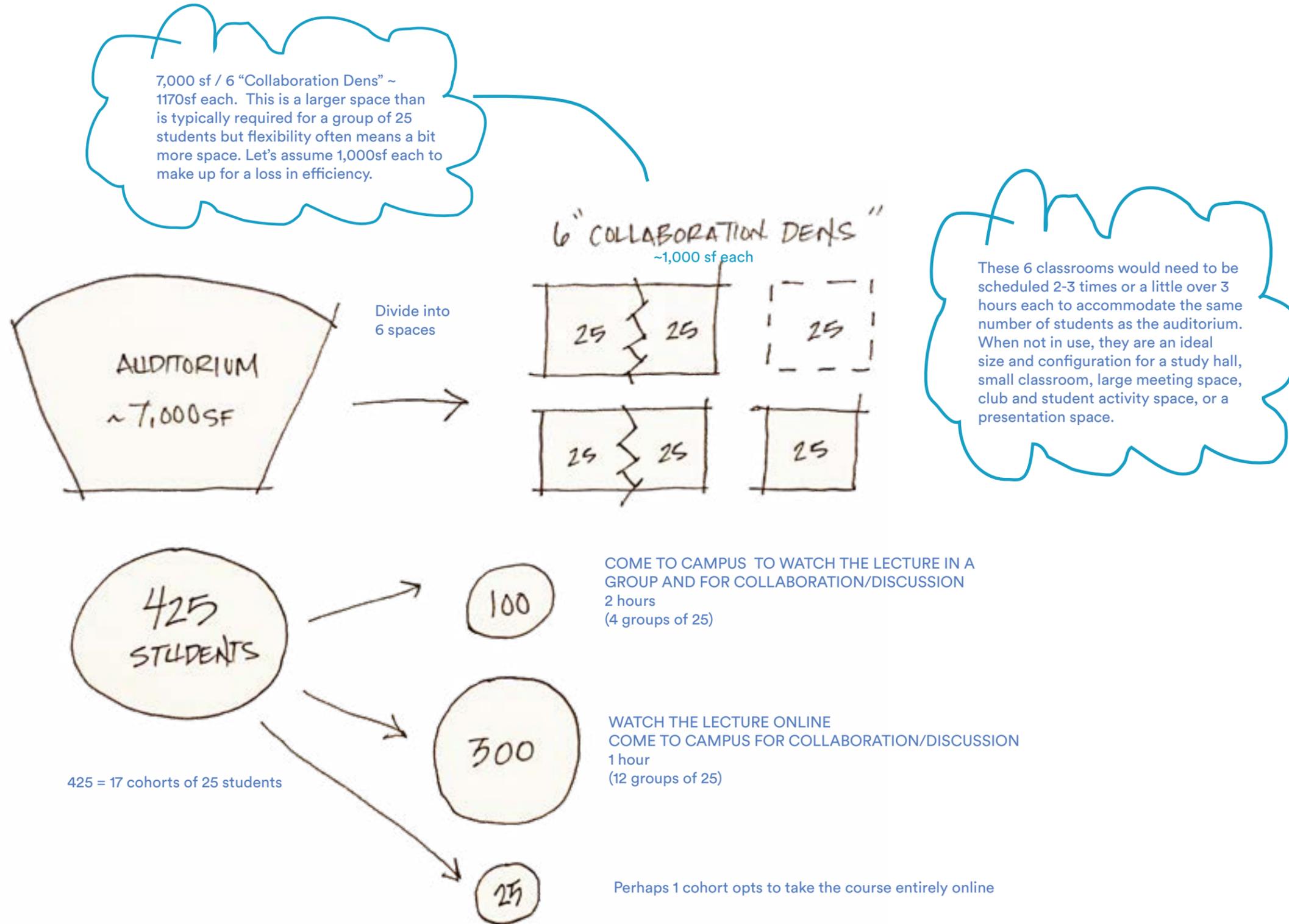


8

Let's dismantle the preconceptions of what a classroom is.

1. student gallery wall, virtual graffiti wall
2. smart walls for sharing presentations, ideas
3. support a variety of learning styles and needs through a variety of group sizes, learning styles and ergonomic options
4. moveable furniture for flexibility of room set-up
5. walls that provide for a range of acoustic enclosure or connection to adjoining spaces
6. provide a variety of these spaces with options for more indoor/outdoor, quieter, more lively depending on student preference and the possibilities of the site
7. screens that bring remote learners to the table
8. remote faculty, experts, support, collaborators
9. support outdoor learning environments
10. access to outdoors
11. view, daylight, fresh air
12. smart room sensors for occupancy, fresh air, daylight
13. audio/visual capture to allow for remote users to feel integrated and actively participate

# COULD A SERIES OF COLLABORATION DENS REPLACE THE AUDITORIUM AS A NEW MODEL OF LEARNING AT COLLEGE CAMPUSES?



## Is the auditorium dead?

Many of the students we talked to disliked large dark auditoriums where they "got stuck in the middle of a row", couldn't hear or see adequately and had a hard time paying attention. They felt that these courses adapted well to the online model, and in some ways worked better virtually. The faculty we talked to didn't like lecturing in these spaces for the lack of ability to actively connect with students.

The pandemic has heightened sensitivity to the "healthiness" of these large spaces where students and faculty are packed tightly together for an hour or more. These are environments that don't adequately tailor to a range of learning styles and neurodiversity. Additionally, these spaces are inherently inflexible, most often with tiered fixed seating that really only serves one use well and that sits vacant at other times.

Could the same square footage be used on campus in a way that provides a more engaging learning experience? Could it be replaced with flexible spaces that accommodate multiple use and that promote faculty and student agency?

## ECOSYSTEM OF SPACES TO SUPPORT STUDENT SUCCESS

Beyond the Classroom: Students need a wide range of spaces to support emerging needs.



Let's think beyond the classroom.

### 1 Collaborative Learning Hubs

These are social learning environments, indoor and out, that inspire students to connect. They enable the hybrid learning model in a social environment that can be tailored to meet unique student needs and preferences in a welcoming environment.

### 2 Student Canvases

These are surfaces that can be co-opted for displaying student work, showcasing student identity or ideas.

### 3 Student Forum

This is an open, welcoming place for students to gather, debate and share ideas. It is an environment that is shaped by those who occupy it.

### 4 Resource Hub

Like a concierge, this is a single place where students are given access to a variety of resources and can be given roadmaps to access a variety of support or opportunities including financial aid, wayfinding, scheduling, counseling, academic support and tutoring, internships, clubs.

### 5 "Garden"

This is a place where students are given agency to engage with the natural/physical environment on campus in meaningful ways.

### 6 Adaptive Meeting Pods

This is a place where students are given agency to engage with the natural/physical environment on campus in meaningful ways.

### 7 Meditation Room

This is a place where students are given agency to engage with the natural/physical environment on campus in meaningful ways.

### 8 Gallery

## STUDENT HIVE

### How can we empower students to make spaces their own?

This is a place for students to connect. Integrated into this environment are a variety of qualities, characters and amenities of spaces for students to meet and collaborate in a variety of ways.

This is a place for students to belong. The unique identity and values of the student body are highlighted in a way that promotes belonging and welcomes all.

This is a memorable environment. Every aspect emerges out of unique culture, people and potential of a place.

This is a place that changes. It adapts easily by enabling students to adjust it to their needs.

This is a place of support where students can connect to a range of resources and services.

This is a place of ideas, with places to share and test them with peers.



#### 1 DIY Student Meeting Spaces

These are adaptable meeting spaces with moveable walls and flexible technology.

#### 2 Student Canvasses

These are digital graffiti walls to share ideas and work or dedicated murals to reflect students values and identity.

#### 3 Student Forum

This is a place of sharing and debating ideas, images and issues.

#### 4 Resource Hub

This is a place where students can access a network of resources in a single visit.

#### 5 "Garden"

This is a place on campus where students can adapt and directly engage with the landscape in a meaningful way. This could be a garden, a sculpture walk, or a creek restoration site.

#### 6 Movable Seating

#### 7 Meditation Room

#### 8 Gallery

"A place where students feel like they belong... with a nook that I can design that is kind of my own."

- Student

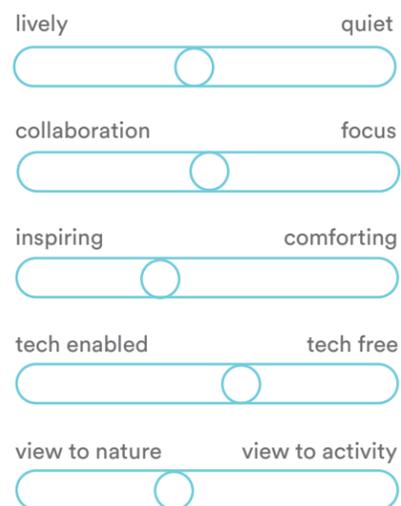
## COLLABORATIVE MEETING HUBS

### How can we provide environments that better connect faculty and students?

Meeting rooms and study spaces should be customized to the unique needs and activities of the students and faculty that use them. Spaces that best promote connection between faculty and students in a school of Social Sciences may differ greatly than those in the Natural Sciences. By giving stakeholders agency to adapt these spaces to support their unique needs, they facilitate meaningful student and faculty interaction, a key metric to student success.

Spaces can be configured so that remote participants can join in a way that they feel integrated into the conversation. Screens are located at eye level with strategically positioned cameras and microphones.

The scales below can be used as a guide with stakeholders to calibrate the qualities of spaces needed:



I often need a space with privacy where I can have a sensitive discussion with a student, where they feel comfortable and secure. Others may prefer a more open space with a whiteboard to work out a problem collaboratively or a place to have a discussion that includes others zooming in.”

- Faculty



- 1 Privacy/Focus Pod**  
This is a welcoming space for a private conversation with comfortable non-hierarchical furniture arrangements and restorative features like plants, views to nature or comforting and warm colors and materials. Full acoustical and visual privacy is provided.
- 2 Collaboration Pod**  
A place for a small group to study, ideate or continue a conversation outside of the classroom with moveable worktables, whiteboard walls and the ability for others to join remotely. Views into this space from adjacent hubs inspire curiosity.
- 3 Discussion Pod**  
A meeting space with comfortable seating where users can sit around a shared table and discuss ideas. The walls in this space can be used for whiteboards, pin-up or display.
- 4 Tutoring/Study Pod**  
A welcoming environment with a range of furniture options where students can work collaboratively or get academic support.
- 5 Ideas Pod**  
This is an open space that affords a conversation between a few or many. This is a place about starting a dialogue. Audience members can engage in various ways including the ability to actively engage remotely.

## ACADEMIC HUBS

### How can we provide environments that support academic achievement, discourse, innovation and creativity?

This is a memorable space where students and faculty come together to meet, grab a cup of coffee, or share research or ideas.

This is a place where the academic programs can showcase their programs and the work of their students.

This is where academic research is shared and tested in an open forum.

This is a place where a marketplace provides unique amenities that reflect the local community.



#### 1 Faculty Student Meeting Rooms

These meeting spaces provide a range of environments for faculty members and students to meet. Some are equipped with smart walls and whiteboards for active work sessions with the ability for outside collaborators to join remotely. Others are welcoming places that support private conversations. Other spaces may promote mentorship through access to a variety of resources and work modes.

#### 2 Student Canvases

Dedicated space for students to showcase their own work and research to the wide range of faculty, visitors, and community members who may utilize this space. The surfaces could be curated to display 2 or 3 dimensional work or could include digital screens that could be updated on an ongoing basis by those within and outside of the space.

#### 3 Community Gallery

To strengthen the relationship between the school and the local community, this gallery serves as an open space for community members to proudly showcase and display what's going on outside of campus.

#### 4 Marketplace

A place for anyone to find nutritious and sustainable food items served in a

community setting.

A place to showcase local goods and products and ideas being sold and traded among everyone in the university.

#### 5 Ideas Forum

This is an open space that affords a conversation between a few or many. This is a place about starting a dialogue. Audience members can engage in various ways including the ability to actively engage remotely.

#### 6 Wellness Hub

An outpost of the campus health services, this is a place for students to find a quiet spot to meditate or relax, to receive counseling or resources, or to find a technology free zone that allows them to disconnect. This is a place with a variety of resources to support health and well being.

#### 7 Critical Making Lab

This is a place that provides all students and faculty with access to tools for making, prototyping and hands-on experimentation.

## ECOSYSTEM OF SPACES TO SUPPORT FACULTY

### What if it is not about replacing the faculty office, but about thinking beyond it?

Faculty need a range of environments to do their work which could include a wide range of activities. They need to be provided the support to think creatively, to access a range of restorative spaces and activities and to collaborate with peers and students in innovative ways.



- 1 Focus Rooms
- 2 Collaboration Zone
- 3 Research Commons
- 4 Tech Support
- 5 Faculty Forum
- 6 Teaching and Emerging Technologies Training and Experimentation Hub
- 7 Wellness Rooms
- 8 Meditation Rooms
- 9 Focused Meeting Rooms
- 10 Multi-media Production Studio

# THE 21ST CENTURY MODEL

## Priorities have shifted

The 21st century model of education is about taking a student-driven approach to classroom design. It allows for collaboration at all scales, supporting active learning and optimizing faculty to student content delivery and connection. These ideas and values are still relevant, but priorities have shifted.

With an increased focus on connection, student agency, and wellness, the ways campuses use existing spaces will need to adapt to meet new needs. Equal weight should be put on creating learning opportunities outside of the classroom as within it.

A focus on a hybrid delivery model and continued concern around densely packed classrooms has accelerated space use recalibration across campuses. These adaptations could have lasting impacts on long-term space use.

Students and faculty have new needs and priorities in what they are looking for on campus. Faculty may need a production and multi-media studio to record and edit lectures. They may need a place to test and be trained on new teaching models or technologies. Some faculty may have gotten used to their home office and would instead work most days remotely to avoid lengthy commutes. Instead of meeting students in their office, they could prefer a reservable meeting pod tailored to the type of conversation and collaboration needed. These welcoming shared spaces put both parties on even ground and have integrated technology to bring remote participants into the conversation in an interactive way.

At the same time, students and faculty remain wary of large lecture halls and densely packed classrooms. Many faculty and students would prefer to continue to take lecture courses online and come to campus for smaller discussion or hands-on courses or to connect with peers and faculty. Does the ability to shift large lecture courses online release demand on classroom seat count on campus?

Has the metric for future classroom design shifted from number of seats to quality of experience?

## It is time to reconsider space use metrics

We studied a 21st Century Classroom Building to explore how the new typologies we created can integrate into an existing building. This study is intentionally provocative and free from constraint to push the boundaries of what a classroom building could be.

Our test case is a three-story building with a variety of classroom sizes and types. The third floor is dedicated to staff offices and maximizes the number of private offices possible for the floor area. “In-between spaces” are integrated along circulation paths to provide break-out and study areas at various scales and with a range of furniture postures. Lecture Halls provide natural daylight and curved seating to allow for students to see each other and have optimal view angles to the lecturer and screens. Large auditoriums serve popular lecture courses, integrate natural daylight where possible, and provide some opportunity for collaboration and discussion among students.

## What is the potential per square foot for:

- “meaningful connections”
- “promoting wellness”
- “memorable experiences”
- “empowering students”
- “supporting student and faculty needs”

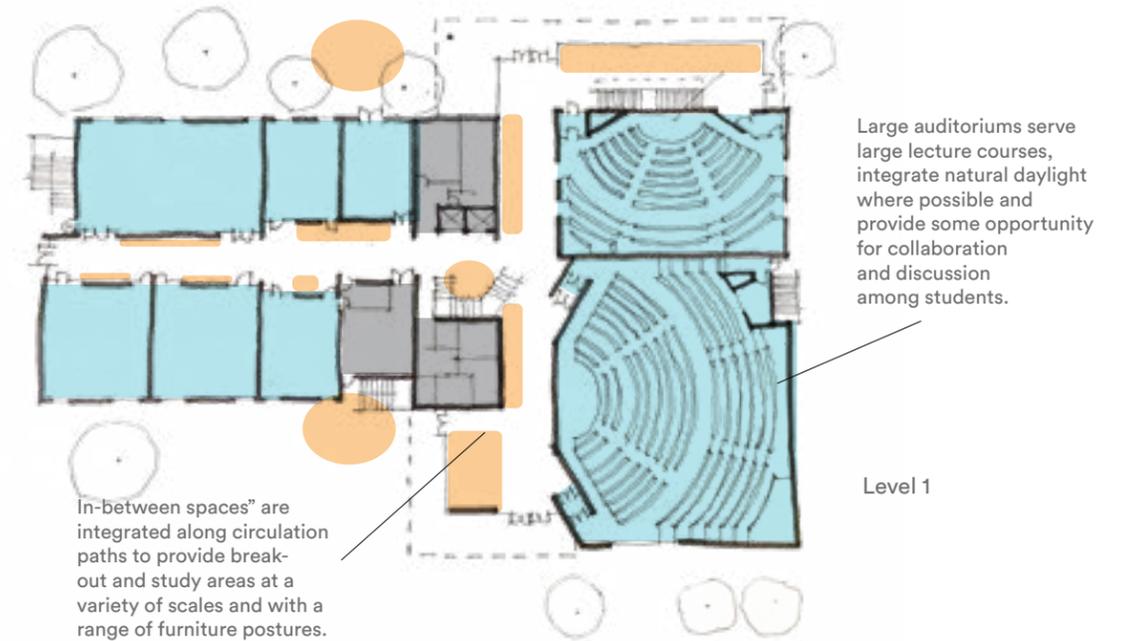
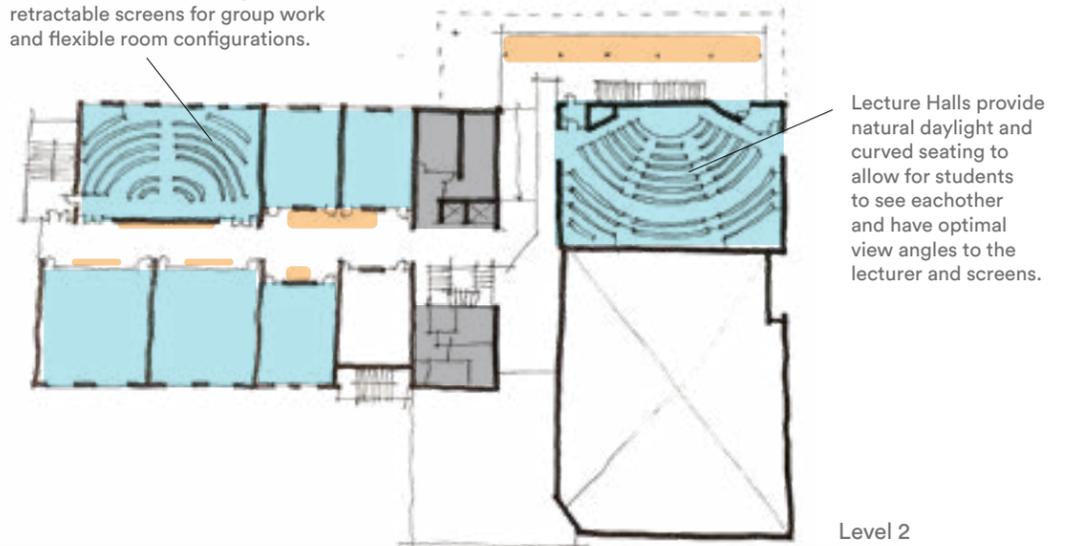
### Baseline Metrics:

- 3 floors | 78,377 gsf
- 64% classroom area | 1,539 seats
- 4% Study and Gathering | 140 Seats
- 10% Office Area | 69 offices
- 22% Circulation and Core

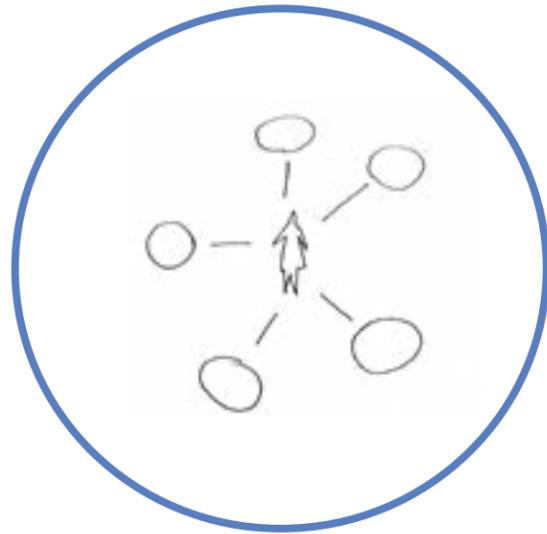
- Classrooms
- Offices
- Social/Study/Meeting
- Core



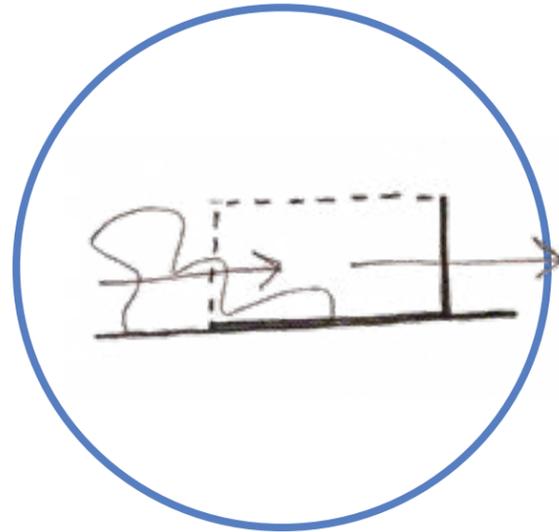
Large flat floor classrooms allow for active learning for large classes, with whiteboards on every wall and retractable screens for group work and flexible room configurations.



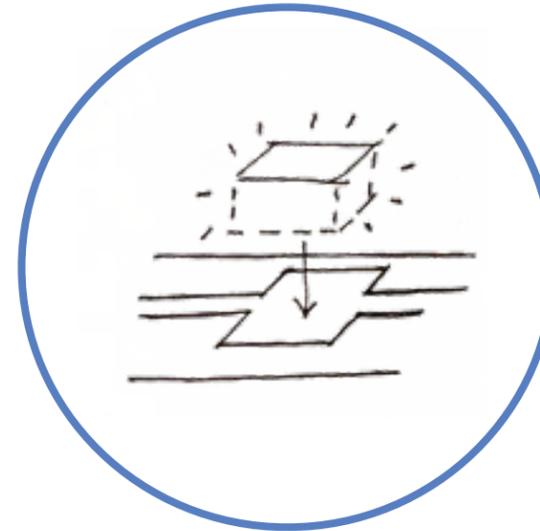
# RENOVATION STRATEGIES



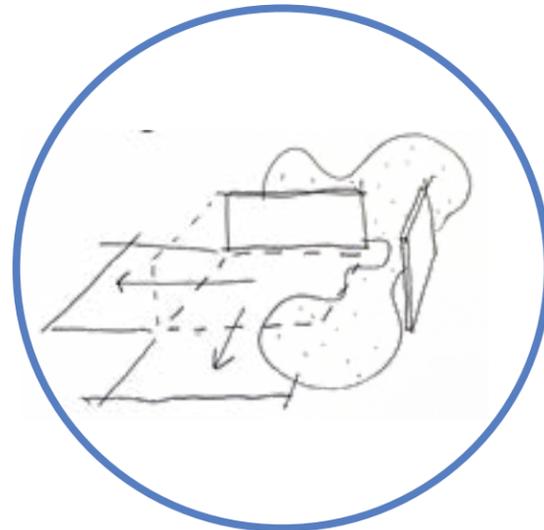
Define the student and faculty ecosystem of needs.



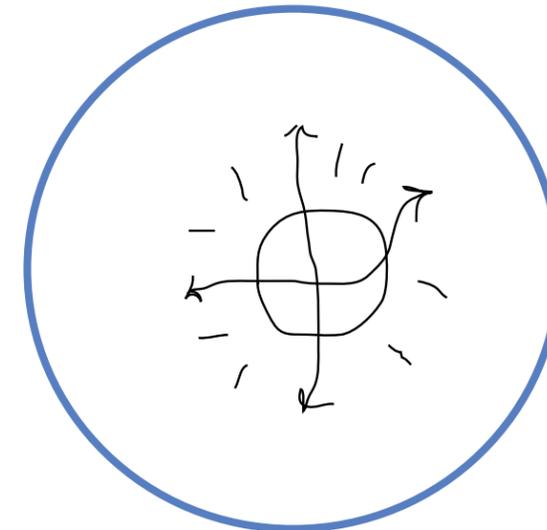
Let the outside in, let the inside out.



Insert a catalyst.



Dissolve edges and boundaries.



Connect in, out and through.

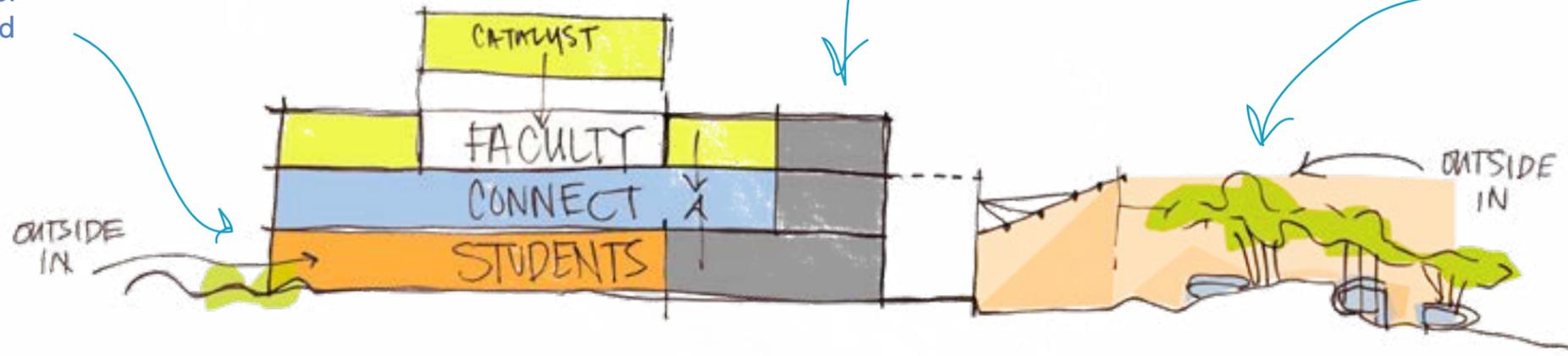
**CONCEPT**  
**Unwall the classroom**

A teaching and learning innovation lab is inserted on the top level as a catalyst.

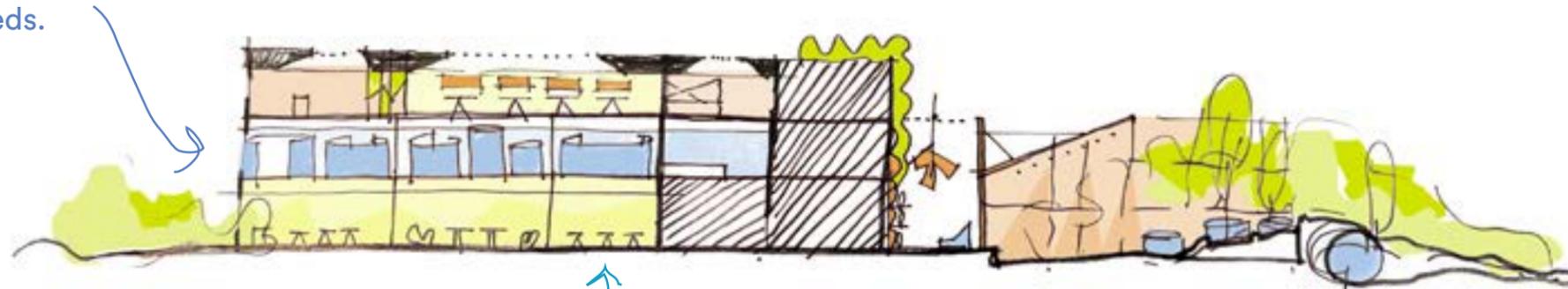
We began by reconsidering space use by section. The first floor is dedicated to student use, the third to faculty and the second floor to bringing students and faculty together.

The edges and walls are dissolved on the lower level to provide more access and to engage the outdoors.

The auditorium is opened up to become a vibrant and dynamic indoor-outdoor hub of student activity.



Every floor provides for a range of spaces to support new and emerging needs.



Spaces have a range of furniture options to allow for a range of postures, preferences and technologies.

# FUTURE CLASSROOM BUILDING PROTOTYPE

## Level 1: Empowering Students

A “Blank Space” is provided to allow for a community or private partnership, a prototyping lab or a student-owned club and activity space. This is a raw space that changes in use and character from one semester to the next with indoor and outdoor space and a public entrance.

“Flipped” Collaboration Hubs provide spaces for students to engage in active peer-to-peer learning.

Resource Pop-Ups provide students a portal to a range of resources through a student “concierge”, advisor or dashboard. Others could be tailored for use as mobile foodbanks, meditation pods, or student club showcases.

A Student Forum provides a place to test and share ideas and showcase prototypes.

A Student Hub provides places for students to gather, meet share their work. They are given agency to adapt the space to meet their needs with moveable walls, furniture and digital graffiti walls.

The outdoors are brought in to create healthy, dynamic and memorable indoor-outdoor environments.

A Nature Path through campus provides an opportunity to refresh and energize before the next activity.



### New Metrics

-  “meaningful connections”
-  “promoting wellness”
-  “memorable experiences”
-  “empowering students”
-  “supporting student and faculty needs”
-  “innovation potential”
-  “inspiring creativity”

Learning spaces are provided indoor and out with a variety of furniture, set-ups and accommodations.

Restorative outdoor environments allow for rest and recentering.

# FUTURE CLASSROOM BUILDING PROTOTYPE

## Level 2: Building Connections

A Student-Faculty Forum provides a venue for sharing ideas, debate and discovery and for finding shared purpose.

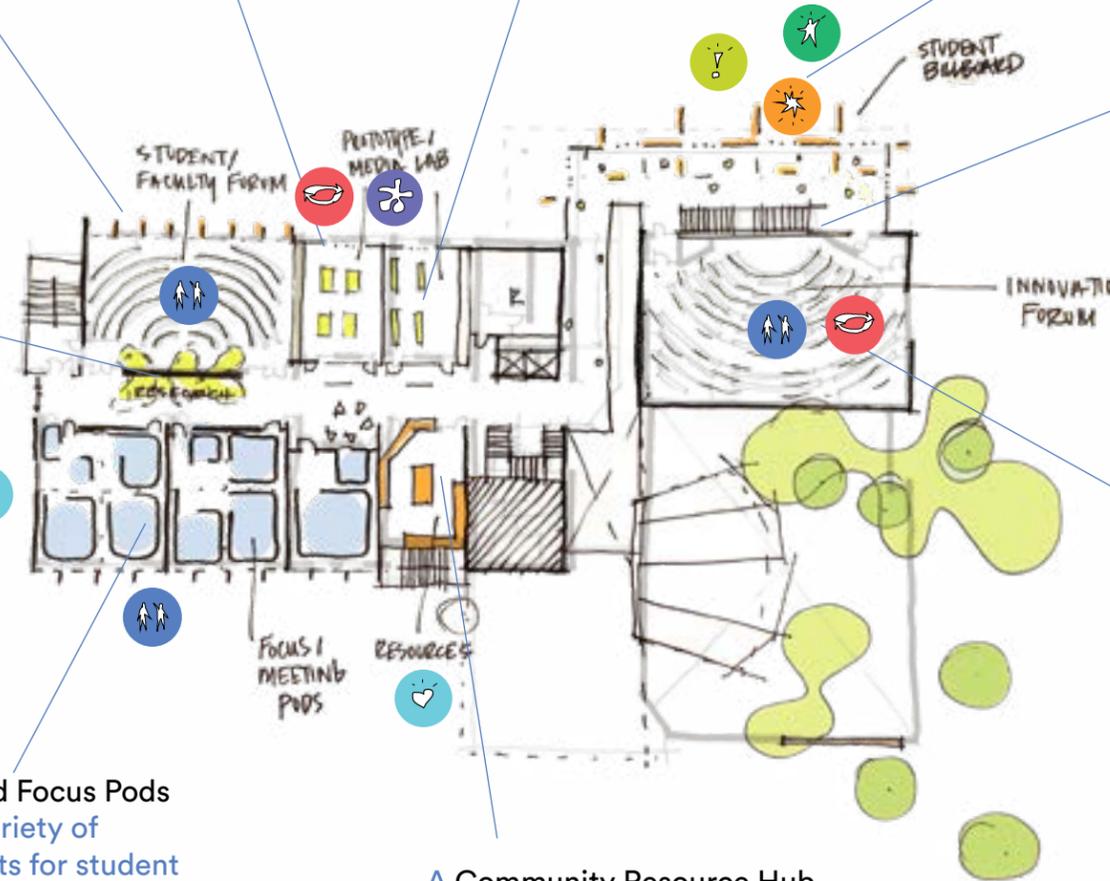
A Prototyping Lab allows students and faculty to iterate and their ideas to flourish.

A Media Lab allows students and faculty to express ideas and share research in a range of immersive digital formats.

A Community Gallery allows students, faculty and community to share ideas visually through a series of digital graffiti walls.

A Community Mural showcases community identity and context.

A dynamic and engaging Research Gallery to share student and faculty research, work and discoveries.



An Innovation Forum allows students and faculty to test new ideas and work and build a community of innovation partners.

Meeting and Focus Pods provide a variety of environments for student and faculty discussion, collaboration and mentorship.

A Community Resource Hub provides a “one stop shop” for a range of services and resources.

### New Metrics

-  “meaningful connections”
-  “promoting wellness”
-  “memorable experiences”
-  “empowering students”
-  “supporting student and faculty needs”
-  “innovation potential”
-  “inspiring creativity”

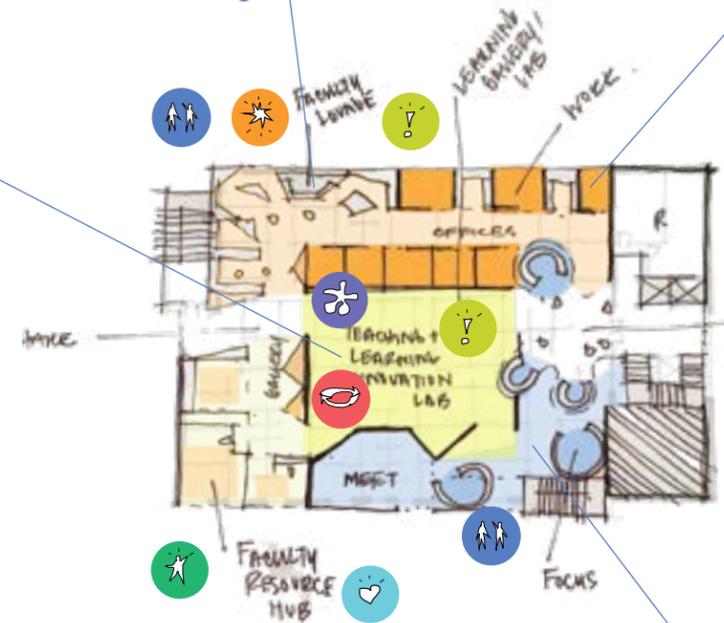
# FUTURE CLASSROOM BUILDING PROTOTYPE

## Level 3: Empowering Staff and Faculty

This is a place for faculty interaction and connection in an informal setting with a variety of seating options. It includes a gallery wall for sharing work and ideas. While some may choose to work in this space, other spaces are provided for focus work, research or meetings.

A Teaching and Learning Innovation Lab allows faculty a place to test, model and learn new teaching approaches and set-ups. Infrastructure is provided to engage collaborators remotely and to track performance and use metrics so that it functions as a research lab. Tech support is nearby. This is an open, flexible, raw space that can be used as a discussion space for faculty meetings and for bringing in outside experts interactive collaboration.

A range of Office Spaces with access to direct or shared daylight and fresh air. These spaces may be “reserved” or dedicated.



A variety of faculty Focus and Meeting Spaces that are adapted to the unique activities and needs of the people and departments they serve.

A Faculty Resource Hub that is adapted to the unique needs of the staff and faculty and that adapts over time.

### New Metrics

-  “meaningful connections”
-  “promoting wellness”
-  “memorable experiences”
-  “empowering students”
-  “supporting student and faculty needs”
-  “innovation potential”
-  “inspiring creativity”

# TAKEAWAYS

Remaining Questions  
Opportunities Ahead



## REMAINING QUESTIONS AND OPPORTUNITIES AHEAD

“The beginning is always today.”

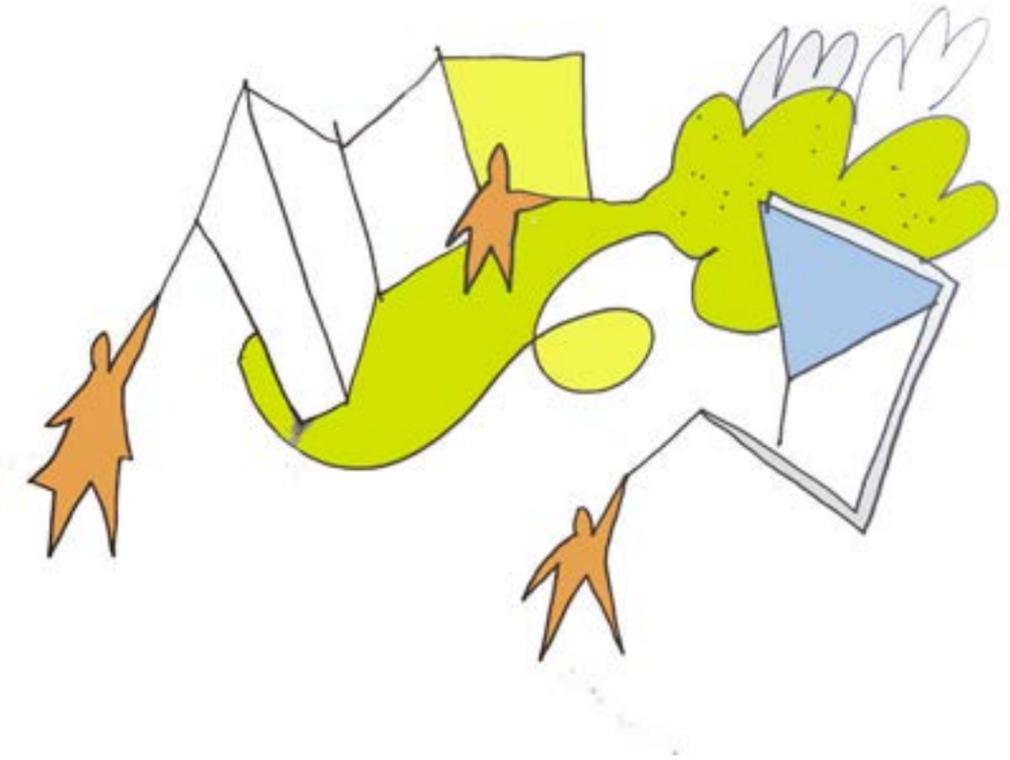
- Mary Shelley

The future of education is full of complexity. The more we learned through this process, the more we realized there was to learn. However, the sense of hope and shared purpose has been palpable. The future of higher education is about bringing together passionate people from a range of disciplines to think creatively, grapple with real constraints and challenges, and craft a plan for implementing positive change. This work should provoke discussion. There is so much more to learn and explore. We barely scraped the surface of issues around equity, resilience, innovation, health and wellness, technology, and the physical environment’s role in making change. There are many more discussions, studies, and explorations ahead.

As architects and designers, we instinctively think of the built environment to approach or solve significant issues. Of course, reimagining learning environments, built and unbuilt, is just one piece of a much larger ecosystem of interdisciplinary work, development, and research that will be needed to build towards positive change in higher education.

The following 5-10 years will be an incredible opportunity to test, prototype, and explore new approaches. Faculty and students must be given agency to participate in and shape that change. As designers, we have an opportunity to leverage design as a powerful tool to facilitate a process that allows impactful ideas to emerge.

The Pandemic has inspired a shared sense of hope and purpose for the future of education. We have shown that we can be incredibly adaptive and resilient when we have to be. Now is the time to leverage that resilience, informed from a time of dramatic change, to inspire positive change for the future.



## TEAM PROFILES



**Emily Bello**  
Senior Designer

I am a designer with a passion for creating inspiring educational environments and for crafting creative and innovative design processes. Specializing in stakeholder engagement, programming and early phase concept design, I believe that the best design is human-centered and emerges from a culture of curiosity and discovery.

**Education**

Masters of Architecture,  
Columbia University

Bachelor of Arts in Architecture  
University of California, Berkeley

DIS Copenhagen

**My Favorite Class/Subject:**

Archeology of East Asia,  
Japanese Urbanism

**Jerome Wang**  
Reseach Fellow

As a public health enthusiast and design researcher, I enjoy finding ways to improve the health of people and spaces.

**Education:**

Bachelor of Arts in Public Health  
University of California, Berkeley  
School of Public Health

**Favorite Class/Subject:**

Physical and Organic Chemistry

**Lindsey Quinones**  
Associate Interior Designer

Utilizing my sense of style, knowledge of materials, and design methods I aspire to create spaces that merge social, environmental, and architectural elements. Understanding that social and economic influences affect the architecture and design industry, I hope to be a guide for organizations to progress, and make a difference in the way people work and thrive.

**Education:**

Interior Design, BS  
San Francisco State University

**Favorite Class/Subject:**

Earth Sciences and Geology

**Mary Lee**  
Senior Interior Designer

I love exploring innovative solutions to design problems where we have the opportunity to improve and transform the interior environment. The best design solutions typically come from a successful collaborative process between the design team and the Client.

**Education:**

Bachelor of Science, Design  
Interior Architecture Emphasis,  
Minor in Art History  
UC Davis

**Favorite Class/Subject:**

Asian Art, Furniture & Textile Design

**Doris Guerrero**  
Interior Design Lead

I'm an architect with a wildly diverse portfolio of professional design experience. Currently, I'm an expert at designing places we want to work and live in - all over the world and in the Bay Area. I'm a design professional, professor and critic with a penchant for future-forward, unforgettable and meaningful experiences, curiosity and craft.

**Education:**

UCLA, Master of Architecture  
UT Austin, Bachelor of Architecture

**Favorite Class/Subject:**

Art, Math, Film

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