

RETHINKING THE FUTURE OF THE UNIVERSITY CAMPUS

Dennis Pieprz, Romil Sheth, and Tao Zhang^{1*}

ABSTRACT

In a post-COVID world, how can higher education embrace unforeseen changes and enable self-starting, entrepreneurial students to thrive? The interdisciplinary design firm Sasaki, has learned from its experience in the planning and implementation of university campuses around the world that a nimble, multi-faceted 21st century living-learning education positions universities to be adaptable for years to come. We argue that flexibility must be integrated at the planning level to break down silos and support interdisciplinary pedagogies inside and out of the classroom. Campus master plans need to embrace the idea of the plan as a “living document” or framework that can adapt to future needs. Designers and educators must also work together to harness the next generation of technology to create transparent, accessible and impactful learning environments. Flexible plans, buildings, and landscapes can connect different disciplines, integrate the latest technology, stitch together the campus, and encourage a lifelong learning mentality. The following case studies drawn from Sasaki’s practice in the United States, Asia, and Latin America will be used to support our argument: Instituto Tecnológico de Monterrey, Singapore University of Technology and Design, Anant National University, The Lawrenceville School, Xinyang University, Syracuse University, and Dartmouth College.

KEY WORDS

21st century university, campus design, post-covid, flexibility, future campus,

INTRODUCTION

It is a familiar trope that we’ve been hearing since the internet became commonplace in the 1990s—how we educate students in the future will be different. Now, as we find ourselves well into the digital revolution and processing the effects of the COVID-19 pandemic on education worldwide, the discussion still focuses on the future: what’s to come in the next few years, what will the next big technological breakthrough be, how will educational delivery evolve as we emerge from a global health crisis reshaping a generation?

Prognosticating about the future, of course, is nothing new. Contemplating what’s next to come is central to furthering any dialogue, but making specific investments based on these forecasts too often misses the mark or leads to early obsolescence.

1. Dennis Pieprz, Principal, Sasaki, 110 Chauncy St, Boston, MA 02111, dpieprz@sasaki.com

Romil Sheth, Principal, Sasaki, 110 Chauncy St, Boston, MA 02111, rsheth@sasaki.com

Tao Zhang, Principal and Chair of Design Culture, Sasaki, 110 Chauncy St, Boston, MA 02111, tzhang@sasaki.com

Principal, Sasaki, 64 Pleasant Street, Watertown, MA 02472, tzhang@sasaki.com

*The original version in Chinese was published by *Time+Architecture* based in China in March 2021.

Instead of forecasting the specifics of the future, the schools that are innovatively evolving today are embracing the one thing they *can* guarantee: change is certain. The best way to prepare students for life after graduation is to teach them change is not an unwelcome challenge, but rather an opportunity to apply themselves in new and surprising ways.

There's a variant of the old "teach a person to fish" proverb that illustrates the mission and ethos of these forward looking, self-aware schools: "Give a person a fish, and they'll eat for a day. Teach a person to fish, they'll eat for a lifetime. Teach them how to *learn*, and they will create their own solutions in the future."

In the post-COVID world, there is an incredible opportunity to push the boundaries of blended and peer-to-peer learning to the next level by combining the strengths of digital and experiential learning. Harnessing the next generation of technology will create transparent, accessible and impactful learning environments. Advances in technology can also be harnessed to connect and transmit knowledge across multiple universities and platforms throughout the country and globally. Overall, a holistic development approach is required with proficiency in the four C's: critical thinking, communication, collaboration and creativity. These approaches are vital for the formation of extraordinary professionals who have a deep commitment to society, are rooted in a humanitarian worldview, and have a keen appreciation of interdisciplinary and collaborative learning. This kind of training will enable future students to successfully navigate and help shape the next industrial revolution.

1. FLEXIBLE, INTERDISCIPLINARY CAMPUS

So, how can schools create campuses that embrace unforeseen changes and enable self-starting, entrepreneurial students to thrive? Flexibility and collaboration are key. In order to build innovative, 21st century campuses, flexibility must be integrated at the planning level to break down silos and support interdisciplinary pedagogies inside and out of the classroom. Campus master plans need to embrace the idea of the plan as a "living document" predicated in the creation of flexible frameworks that can adapt to future needs. Our experience in the planning and implementation of university campuses has proven to us that campuses are dynamic entities that adapt and change depending on the needs and demands of multiple generations of users. When master plans are static, their physical infrastructure is often resistant to change, leading to long, costly, and disruptive cycles of forced adaptation.

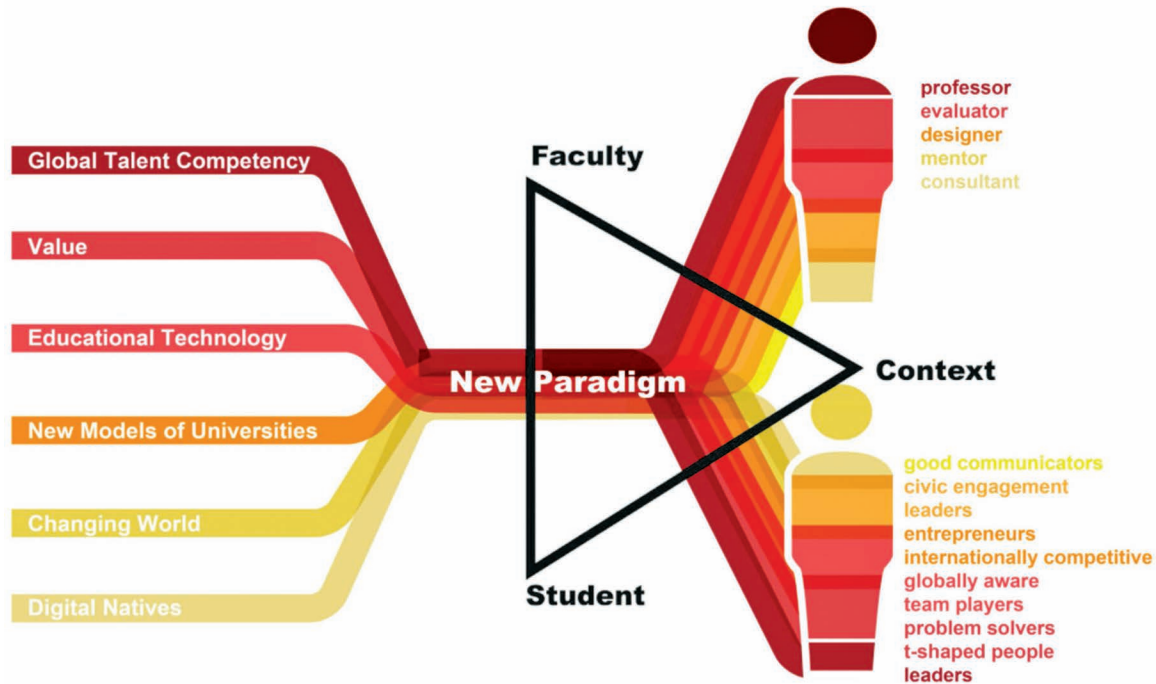
Who is the 21st Century Student?

Recently, Instituto Tecnológico de Monterrey, Mexico's largest private university, embarked on an ambitious program, dubbed the Tec 21 Educational Model, which reconsidered the implications of teaching and learning methods for the entire university system. This program reflects shifts and trends in the external forces that impact the type of students the university accepts, the way that students learn, and the professionals those students will need to become to compete in the digital age. Sasaki worked with the campus to translate this model into spatial guidelines that enable implementation.

Tec 21 seeks to develop a pedagogical structure that develops extraordinary professionals with a deep commitment to society, are rooted in a humanitarian worldview, and have a keen appreciation of interdisciplinary and collaborative learning. A project-based approach to learning is central to this model, wherein core instruction is balanced with multidisciplinary challenges that test new knowledge and one's ability to collaborate with peers.

FIGURE 1. Tec 21's new educational paradigm prepares students for today's economies and cultures

STUDENT - FACULTY RELATIONSHIP



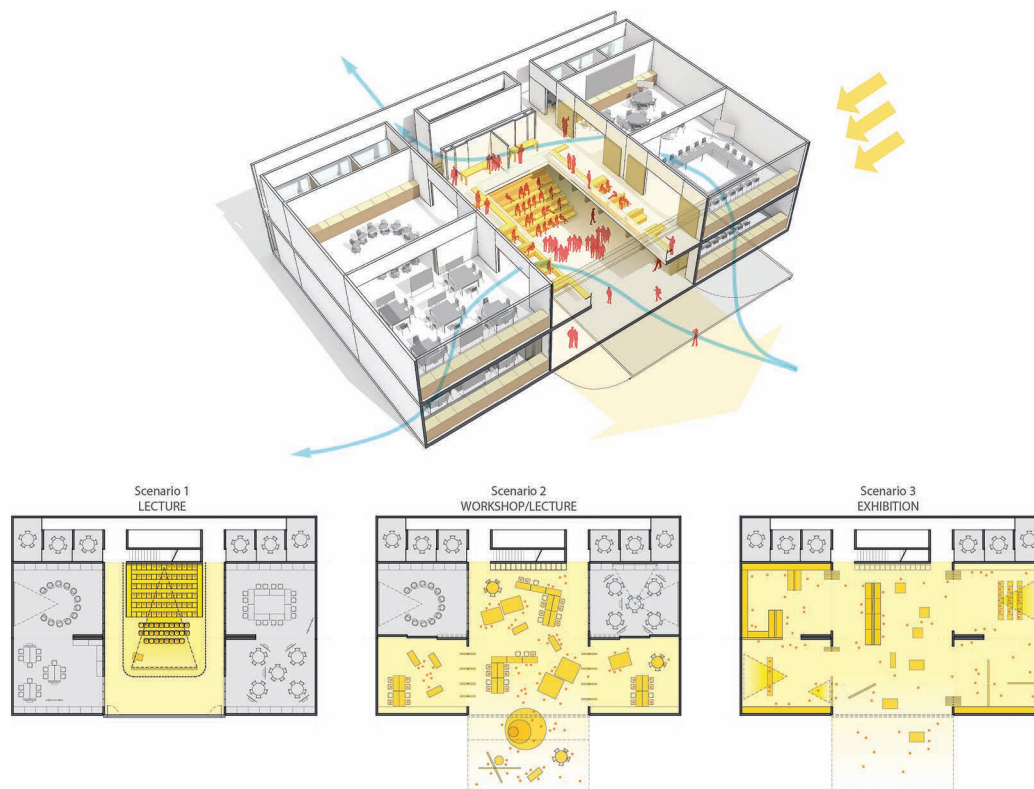
The role of the faculty also shifts from just delivering instruction to designing challenges, mentoring, and constantly evaluating students and the pedagogical structure. The goal is to develop students into professionals who are good collaborators and communicators, and also have a deep respect and commitment to society.

Tec 21's goal of developing multidisciplinary individuals leads to the development of a non-linear progression of study where students have enormous flexibility in molding their curriculum. This model also encourages and enables students from different universities within the Tec system to take courses at different campuses depending on their interests.

The Framework Plan for the Queretaro campus of Monterrey Tec tests the application of the Tec 21 vision by consciously disrupting existing silos of academic departments and faculties and re-organizing them according to disciplines they collaborate with instead of the disciplines they "belong to." A new paradigm is imagined, in which all buildings operate as shared resources without singular ownership of a specific academic department. Scheduling of classes is re-structured to provide opportunities for collaboration and serendipitous encounters between peers and faculty. Interdisciplinary and inter-faculty collaboration forms a key structuring element, along with the development of spaces for student collaboration and engagement with allied industry and the surrounding community.

This new approach to learning is not unique to Tec 21, nor is it unique to Mexico. Across the globe, institutions see the benefits of multidisciplinary, humanitarian-focused learning—and in order to have this pedagogy thrive, institutions must take a flexible approach to planning, landscape, and design.

FIGURE 2. All buildings operate as shared resources without singular ownership of a specific academic department



Breaking Down Silos

Like the Instituto Tecnológico de Monterrey, Singapore University of Technology and Design (SUTD) saw value in creating bold new paradigms for integrating technology and design education in the fields of engineering, product development, architecture and sustainable design, and information systems technology. This approach promotes research and learning, partnerships in key industries, and integrates students into a global, knowledge-based economy.

“In the 21st century, we face complex issues such as an aging society, rapid urbanization, cybersecurity, global warming, and sustainable development,” SUTD explains on their website. “Therefore, SUTD has set aside a multi-million dollar budget to spearhead our next phase of growth in three key economic sectors aviation, cities, and healthcare, [which is] supported by capabilities in artificial intelligence/data science to address some of these issues. We will work with industry to develop a suite of integrated, multi-disciplinary programs to enhance SUTD’s education and research offerings to prepare our graduates for the future economy and to support national growth priorities.”

The university adopts a cutting-edge academic vision by dismantling the traditional idea of majors and creating a curriculum that focuses on four critical branches of design: engineering systems and systems design; engineering and product design; architecture and sustainable design; and information engineering and design. The curriculum is structured to be highly interdisciplinary and project-based, with students completing at least 20 projects prior to graduation, according to John Brisson, director of the MIT-SUTD Collaboration Office.

FIGURE 3. SUTD's four Academic Pillars are spread across the campus, promoting cross-pollination between discipline



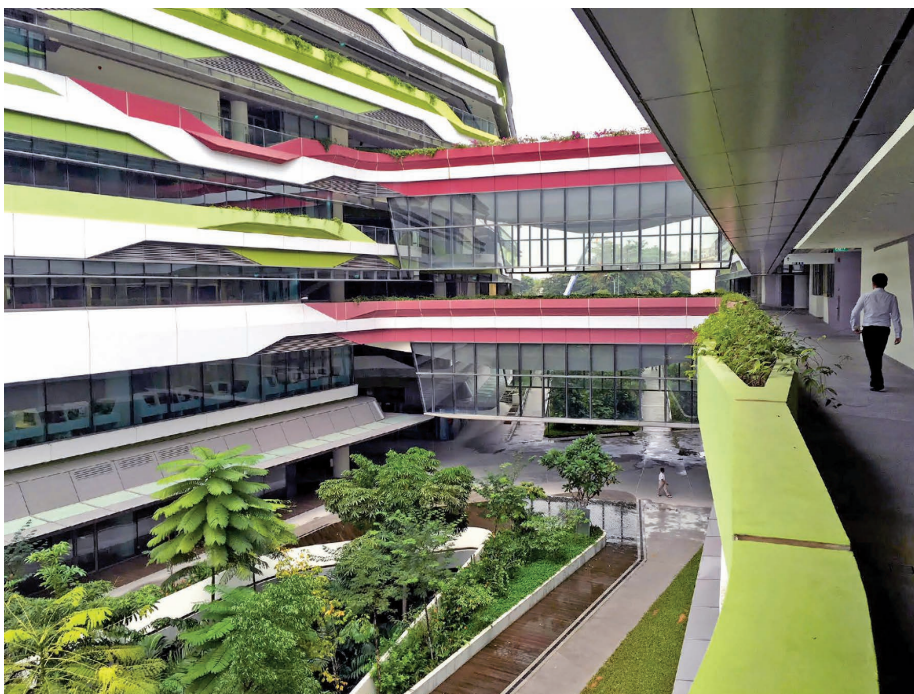
To foster SUTD's innovative curriculum, Sasaki developed the master plan in close collaboration with representatives from Massachusetts Institute of Technology (MIT), SUTD, and Singapore Ministry of Education to put forth a bold and visionary road map for the campus environment. The east-west pedestrian spine showcases the university's interdisciplinary and collaborative mission with multi-functional and interconnected academic buildings. The spine is anchored by the International Design Centre and woven together by an outdoor pedestrian network. The spine also creates a public face for the university and connects to surrounding areas for future development. Student life facilities, housing, and recreational buildings are integrated in mixed-use precincts and connected through a range of public spaces and pedestrian links. Sustainable design strategies are comprehensively integrated through efficient building systems, green roofs, pedestrian and transit access, and storm water management. The resulting campus has a strong identity, supports a vibrant community, and demonstrates a commitment to engaged learning and student development. The new campus accommodates up to 7,000 students on a site area of 22 hectares.

Since SUTD is designed to be open and permeable, it invites active community engagement. The master plan enables the campus to be a catalyst institution that brings economic and urban vitality to the eastern portion of Singapore. Proposed transit connections serve as a critical link between the campus and Singapore's Central Business District (CBD), establishing a strong

FIGURE 4. SUTD's master plan celebrates connection with the surrounding communities



FIGURE 5. A network of pedestrian bridges and courtyards serve as the connective tissue between buildings. Within the buildings, a network of pedestrian bridges and entries from the underground parking knit the buildings together. On the exterior, the primary spine and living-learning corridor connect the buildings on multiple levels through a series of pathways and terraces. Building pictured designed by UN Studio. Photo courtesy of Dennis Pieprz



campus-city relationship. Pedestrian and street networks likewise provide critical connections to Changi Business Park and the EXPO Centre, the latter of which may provide overflow space for the university to hold large-scale events. The connections to the Changi Business Park are envisioned to facilitate a strong programmatic and physical relationship for collaboration and innovation with allied industry.

A First-of-its-Kind Campus in India

The master plan for Anant National University seeks to realize the university's mission: redefine design education in India. To do so, the plan creates a new model that embraces multidisciplinary learning, a culture of making and experimenting, and the development of 21st century skills like critical thinking, leadership, teamwork, engagement, and communication. The flexible framework plan emphasizes the formation of the first completely residential design school campus in India. It also sets itself apart by focusing on holistic student development, being a net-zero campus, incorporating universal design, and breaking down silos by making all academic buildings shared facilities.

The pedagogical structure of ANU necessitates the need for spatial typologies that are flexible and can adapt with evolving pedagogical needs. The plan accommodates all academic and instructional spaces in buildings that are responsive to local climate and culture. These 21st century studio environments facilitate new ways of thinking and collaboration—instead of being assigned to specific departments, buildings are re-imagined as shared teaching, learning, and research environments with faculty offices integrated within them. Strategically-placed maker hubs, demo spaces, and exhibit areas anchor the academic core, promoting an active culture of experiential learning, testing, and making.

During the master planning process for the new ANU campus, it quickly became evident there was a dire need to transform the school's existing academic building. Though recently

FIGURE 6. Large swaths of leftover space inside the building are transformed into collision spaces, bringing students and faculty together for formal and informal interactions.



Designed by Sasaki

FIGURE 7. The previously neglected courtyard is transformed into a maker hub. Students are now exposed to a range of cutting-edge testing and prototyping facilities enabling them to push design ideas and foster a culture of learning by making



FIGURE 8. Shade structures, seating, trees, mobile tackboards, and a deck using recycled wood, transforms a bleak courtyard into a versatile social heart that is used for crits, social events, collaboration, and a display



built, the building comprised of a bleak central courtyard, design studios in classrooms organized behind dark narrow hallways, and a model shop lacking adequate infrastructure.

To keep the building open during construction, the team had to be nimble and creative. A non-traditional design approach transformed the building using low-cost methods and sustainable strategies that included the following:

- Working with the hot arid and dry climate of the city to introduce shade, making openings at the lower levels to channel breezes for cross ventilation, and integrating planting and color to transform a stark and unused courtyard into the social heart of the building
- Developing a simple modular shade structure system for rapid fabrication and assembly, combined with wood decking using refurbished timber from a local ship-breaking yard to create a friendly and inviting space
- Strategically deploying color to energize and animate spaces and facilitate identity creation and wayfinding
- Doing a detailed structural analysis of the building to inform strategic demolition of large blank walls that previously cut-off spaces and made learning largely invisible and inaccessible
- Understanding use-patterns of students and faculty and testing real-time solutions for transforming the building using accessible mock-ups
- Exploring strategies for bringing in filtered daylight into the studios, maker hub, and clay workshops
- Harnessing the building as a live laboratory for exploring and prototyping design solutions.

The overall project was executed in nine months and included several iterations.

Post transformation, the university has reported a significant increase in the recruitment of new faculty and growth in student enrollment, increased development of new programs, and the formation of a vibrant and dynamic campus culture. With the development of a new maker hub and ceramic workshop, students are now exposed to a range of cutting-edge testing and prototyping facilities enabling them to push design ideas and foster a culture of learning by making. A building that was once quiet and insular is now a hive of student activity that is visible, accessible and engaging.

2. FLEXIBLE BUILDINGS

Flexibility has been a guiding principle in campus planning and design for the better part of the last decade, but as we consider the multi-faceted nature of a living-learning education, campuses need to double down on a flexible space strategy. Flexible spaces have the power to reflect a school's pedagogy in all aspects of campus life.

Preparing Students for College and Beyond

Regardless of a school's ethos, flexible, interdisciplinary spaces can be implemented to help break down silos and encourage students to bring new perspectives to their work through collaboration. In secondary schools, pedagogy has branched out from traditional learning methods such as lecture and discussion to incorporate more modalities of learning. That shift is linked to demands established well beyond the schooling years: modern workplaces and universities now value outside-the-box thinking and hands-on approaches to problem solving.

Like their university counterparts, secondary schools are proactively creating learning environments that respond to those needs—chief among them being maker spaces, which include tools like wood shops, 3D printers, and laser cutters as well as virtual reality labs. Maker spaces spark discussion on how fabrication technologies can facilitate new methods of learning and encourage students to develop the self-starter, growth-centered mindset that is necessary for their career.

Located in New Jersey, The Lawrenceville School is a coeducational, independent college preparatory boarding school for students in grades 9 through 12 that values discussion-based learning. Their recently-opened Gruss Center for Art and Design (GCAD), a 21st century student learning center, builds upon the Harkness method of discussion that is traditional to the school. On campuses around the country, the Harkness table has become a symbol that stands for the kind of open dialogue and learning from peers that defines an independent school education. Around the Harkness table, students discuss material in small groups, using collaboration and equal share of voice to approach problem solving. Maker spaces might be the answer to bridging an important gap between discussion and practice.

“The act of making changes the way we understand the learning process,” said Sasaki senior associate Marta Guerra-Pastrián, project manager and designer for GCAD. “When you make something with your own hands, you realize you can make a change in the world.” Incorporating making into the learning process changes the physicality of the Harkness method, giving new meaning to learning material through an iterative design process.

FIGURE 9. Today’s shift in educational paradigm centers on project-based learning to promote cross disciplinary teaching. Students realize their potential world impact by making things with their hands and fostering their creativity through group collaboration. The project aims to nurture this hands-on culture.



Designed by Sasaki

Engaging in this type of learning sparks a mindset change in students. In an increasingly competitive world, schools recognize that being high-achieving is only one part of a much bigger picture—a learning mindset and self-starter attitude are both integral to success in college and beyond. Stephen S. Murray, Lawrenceville’s Head of School, agrees: “We are graduating students into a world where there are no simple solutions; they need to have a range of intellectual and practical skills in their toolbox,” he says on the GCAD website. Bringing designs to life in maker spaces demonstrates the value of tactile problem solving, inspires confidence in students, and armors them with the growth mindset and entrepreneurial spirit that is sought after in today’s job market.

In addition to the maker space, GCAD’s “flex room,” which floats over the main stair, is a 185-square-meter that can be divided to suit a variety of needs. The flex room is designed to host large settings such as 100 person lectures, or facilitate working rooms of 12 students each. Movable partitions, smart screens, large storage areas, and perimeter desks are distributed to allow for the spontaneous use of the space. Faculty and students have the autonomy to adapt the space to their needs.

The Lawrenceville School and the Sasaki design team decided it was important to keep the flexible room agnostic of discipline. The Flex room is designed to be a living cabinet of

FIGURE 10. The Gruss Center for Art and Design bridges museum space and the school’s visual arts studios. Maker spaces occupy the ground floor, while labs and forum stairs connect with the basement. The floating Flex room hovers over the lobby space.

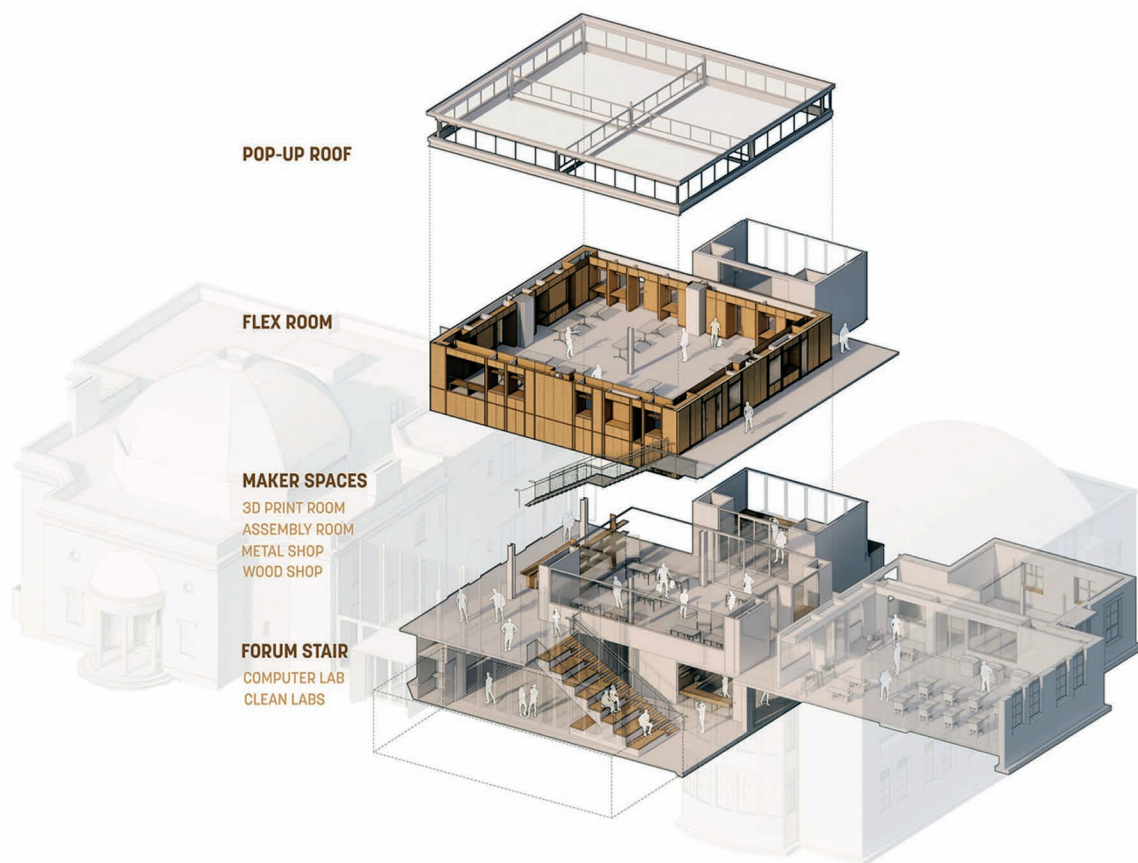


FIGURE 11. The pavilion draws students and visitors to the symbolic and historic core of the campus



Designed by Sasaki. Photo credit: Paco Alvarez

curiosities, a concept that originated in Germany as a way to showcase vast collections of interesting artifacts and objects. Through time, its shelves, furniture, and storage will be filled with students' work on constant display.

A Symbol of the Future

Similarly, at Instituto Tecnológico de Monterrey, we consider how flexible spaces work with the overall flexibility of the Framework Plan. Situated at the symbolic and historic core of the campus, La Carreta Pavilion is a place for students, faculty, staff, and the broader community to engage with one another, to collaborate, and to share ideas.

Placed within a shaded central quad, the pavilion is designed as a highly flexible, open and transparent, minimal structure that is approachable from all sides. The steel and glass building envelope is designed as a series of collapsible doors that can seamlessly open and retract to accommodate a variety of sized assembly spaces: from an informal and spontaneous space for 50 persons to a more formal lecture hall with media intensive lectures for 450.

One of the main functions the pavilion serves is to foster a pedagogical shift with the university's system toward a "challenge-oriented" curriculum, based on Sasaki's planning work in support of the institution's new Tec 21 Educational Model, which we discussed earlier in the article. The pavilion is a critical display and presentation space to encourage research, invention, competition, and collaboration across campus. For this reason, campus leadership considers La Carreta a symbol of the Tec 21 campus of the future.

3. TECHNOLOGICAL INTEGRATION

The pandemic has proven that hybrid learning is here to stay. What will the future of campus look like now that we've seen how successful remote learning can be? We reflect on different ways technology will affect the future campus experience.

We believe the campus of the future will be anchored in cutting edge yet adaptable and secure digital technologies that facilitate 21st century learning, research, and experimentation to take place. For the future campus, we imagine the integration of a campus-wide Internet of

FIGURE 12. Placed within a shaded garden, the pavilion is designed as a highly flexible, open and transparent, minimal structure, approachable from all sides



FIGURE 13. The pavilion is a critical display and presentation space, encouraging research, invention, competition, and collaboration across campus



Things network that acts as a ‘Digital Mirror’ of spaces and services, creating a virtual platform for teaching, learning, knowledge dissemination, operations, maintenance, and resource management. This will be facilitated by the development of a resilient digital infrastructure system that leverages cloud-based platforms and data visualization to enhance campus wayfinding and accessibility. Virtual reality, telepresence, and digital representation technologies will be

harnessed to create global portals that will allow the future campus to be at the forefront of disseminating knowledge, engaging in a global discourse, and showcasing work.

Technology will be utilized to create fully immersive simulated environments, non-immersive computer simulated environments, and hybrid physical and digital spaces with the goal of creating a safe and less resource-intensive environment for experimentation and iteration. As part of a holistic and scalable digital network, schools will explore integrating 5G networks and bringing enhanced uses of AR and VR and wearables into teaching, learning and research. Schools will also work on the development of a Campus Foundry that acts as a powerful digital-to-physical production environment as well as the next generation makerspace. Integrating technology into living and learning environments is another crucial part of the equation to ensure spaces are dynamic.

While these technologies are fast approaching—and already adopted on some forward-thinking campuses—the most widespread technological integration still happens in the classroom to ensure educational delivery is accessible. Hybridized learning—a combination of both in-person and online instruction—was already on the rise in the last decade, but because COVID-19's spread pushed many campuses to rapidly and significantly pare back their in-person activities, and even close campuses to students altogether for significant portions of time in 2020. Now, hybridized learning has been enhanced and adopted to unprecedented degrees.

Hybrid learning offers many benefits, including the potential cost of education to decrease, making education more widely accessible. Some schools have even begun to think of their physical campuses as broadcast centers from which pedagogy is widely and broadly disseminated online. There is exciting potential to reach more students than ever before, providing avenues to education that previously were not accessible when in-person learning was the predominant educational delivery model.

While hybridized learning is likely only going to increase, we at Sasaki do not believe online-exclusive learning will never supplant in-person learning entirely. This is especially true for collaborative learning experiences that benefit from face-to-face exchange, such as lab sciences or musical training and performance. It is also worth highlighting the immense value of person-to-person interactions that happen outside the classroom that round out a student's experience.

4. THE VALUE OF OUTDOOR SPACE

Sasaki has long approached outdoor spaces as a connecting tissue of campus that foster the holistic development of each student. It can't be overstated: the campus quad and meandering pathways of campuses, particularly in the American vernacular, have always been prized for their ability to add another crucial dimension to the campus experience. The spontaneous social connections that make an in-person campus experience invaluable often happen in outdoor settings. With the COVID-19 pandemic, people around the globe have understood the importance of having access to flexible outdoor spaces. Going forward, campuses understand that flexible spaces are key aspects of the living learning environment that enables students to thrive.

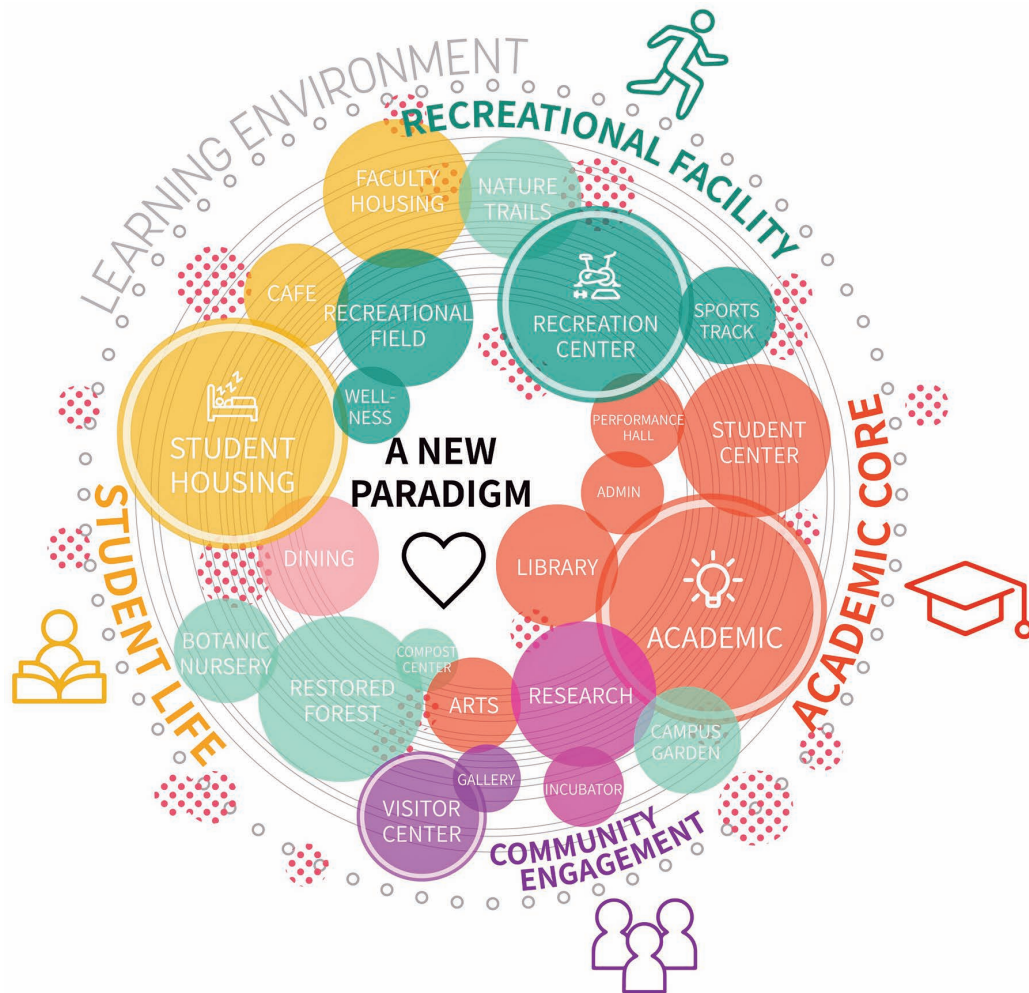
A New Kind of Enriched Social Life on Campus in Xinyang

Today, the majority of China's leading universities and colleges are state-owned, with a prevailing preference for monumental and neoclassical planning and architecture over the past several decades. However, the landscape of higher education is quickly evolving, paving the way for private colleges and joint venture international universities to envision a more diverse education

system that meets China's increasingly dynamic societal needs. "China wants to move up the development curve by fostering a much more broadly educated public, one that more closely resembles the multifaceted labor forces of the United States and Europe...just as China has built national grids of high-speed rail lines and superhighways in the past decade, it has built campuses full of modern classroom buildings, dormitories, libraries and administration buildings," writes Keith Bradsher for the *New York Times* in the article, "Next Made-in-China Boom: College Graduates." This burgeoning higher education sector presents opportunities for a new kind of campus planning and the social life it fosters.

The master plan for Xinyang University's (XYU) new campus in Xinyang City, China strives to advance the educational mission of the privately-owned university as a 21st-century liberal arts institution focusing on interactive and experiential learning. A highly collaborative and iterative planning process was guided by extensive in-depth research into the site characteristics, its ecoregion, climatic conditions, along with a series of interactive work sessions and charrettes with stakeholders.

FIGURE 14. The new campus strives to advance Xinyang University's educational mission as a 21st-century liberal arts institution focusing on collaborative and experiential learning



The university is committed to developing a culture that respects and integrates learning and living with ecology through a variety of environmentally conscious development strategies. These strategies include preserving upland woodland habitat and improving seasonal streams and wetlands that are part of the connected regional watershed.

Architecture takes advantage of the campus' rich natural settings to offer distinct vistas in all directions and create a memorable arrival experience through landscapes. The boundaries between indoor and outdoor learning are blended by diverse public programming in the open spaces.

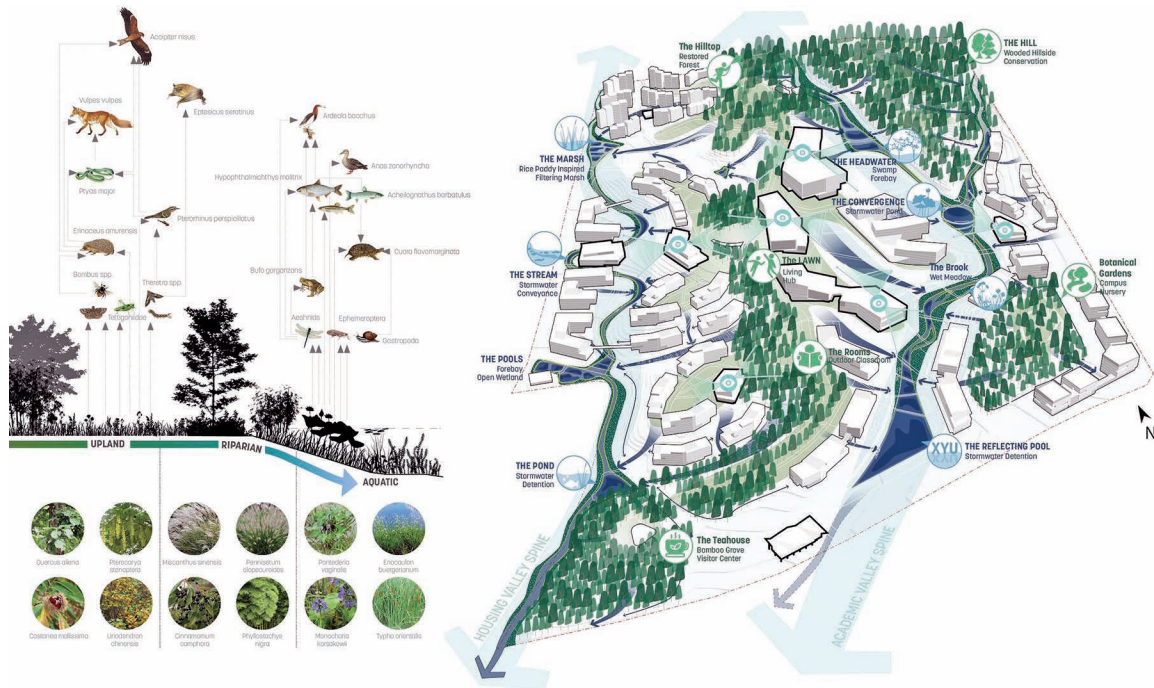
The scenic rolling terrain sets the spatial foundation for the campus, functioning as a primary campus amenity, integrating storm water management, diverse natural habitats, spaces for student recreation, as well as outdoor learning. Inspired by the vernacular landscape, the campus offers spaces ranging from formal quads to an array of naturalistic landscapes—even a tea plantation—each with its own aesthetic, management processes, and ecological considerations. Diverse plant communities provide resources for wildlife throughout the year while considering seasonal interest for student recreation.

A hierarchy of trail system connects the entire campus while also providing students with varied spaces for movement, recreation, and congregation. Strong connections between the academic, residential, and student life areas promote living-learning communities and enhance the vibrancy of the campus core. All buildings and key program destinations are within a 5-minute walk, making the campus a pedestrian-oriented environment with vehicular access and parking located on the periphery of the campus. Academic and social lives are conceptualized as a seamlessly integrated series of indoor and outdoor gathering spaces and courtyards, connected

FIGURE 15. A popular landscape amenity, the lotus pond also provides important ecosystem services such as filtering surface runoff from the adjacent recreation fields



FIGURE 16. The ridge and valleys become the key spatial features of the campus framework, functioning as a primary campus amenity that incorporate ecologically enriching landscapes



by interactive hubs, cafés, communal study areas, and recreation facilities to support informal learning and socializing throughout the campus.

Leveraging Xinyang's temperate climate, the building design reduces campus energy consumption by allowing natural ventilation and maximizing winter solar gain while reducing summer glare by planting large deciduous trees along the south and west facing facades. In addition, electricity generation through solar PV arrays is coupled with solar water heating for dining and showering facilities. On-site composting and holistic waste management help minimize campus waste output by turning kitchen scraps into nutrient-rich organic matter that can benefit campus landscape maintenance. Indigenous soil is also stockpiled and preserved during construction, with an efficient phasing strategy to minimize campus soil compaction.

A Venue for Community

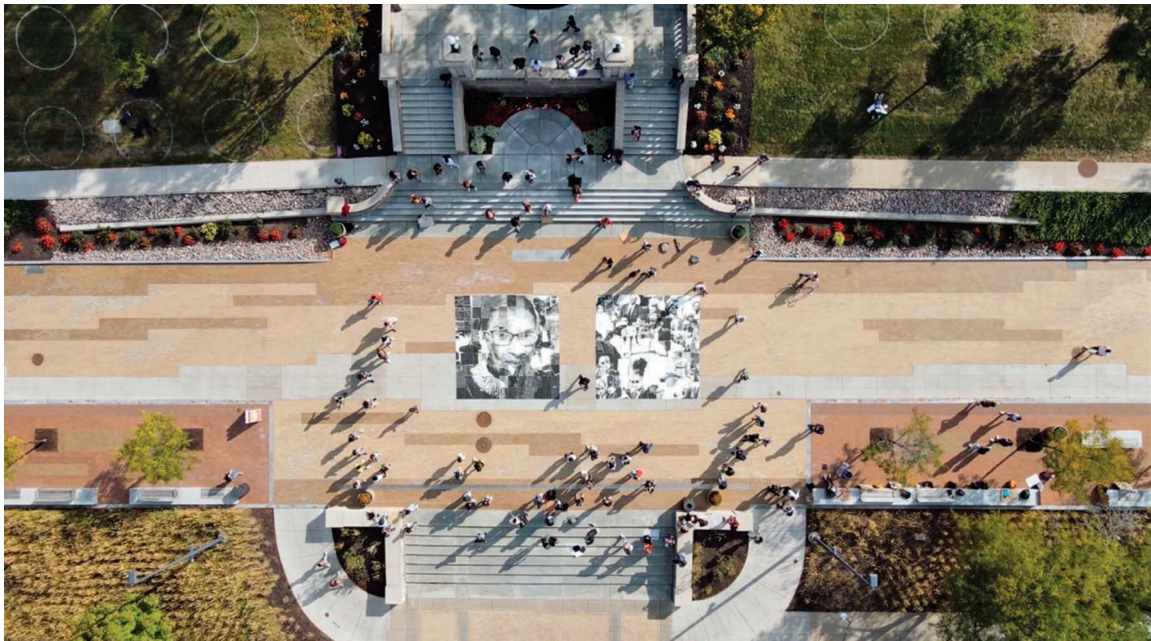
Moving away from the residentially-focused spaces, promenades and thoroughfares also have great potential to stitch together the campus as a living-learning environment. At Syracuse University in New York, the Einhorn Family Walk not only connects key campus destinations but also serves as a space to convene.

Since it opened, the Walk has become a popular gathering place for student groups hosting events, students and professors chatting after class, and long lunches. The versatile space is ideally situated for collaboration across scales, or for solitary moments of respite between classes.

In October 2020, freshman architecture students working on a unique art project demonstrated another multi-layered use for the space: displaying public art.

The class worked on two large-scale drawings, though the students did not know the subject matter they were depicting until the final piece was assembled. Gathered on the Walk,

FIGURE 17. The new major thoroughfare serves as a place of connection and respite that benefits the entire campus community. Photo courtesy of Zicheng Wang and Tianche Liu and Syracuse Architecture students.



Designed by Sasaki.

the subjects of the large drawings were revealed to the students and the rest of campus: U.S. Supreme Court Justice Ruth Bader Ginsberg and U.S. Representative and civil rights activist John Lewis, two American heroes who passed away in 2020.

“This project introduced me to a new way of thinking about collaborative work and seeing it all come together to represent such a relevant time in our country really surprised me,” says Bella Klug, a student in the class. “Looking at the two images made me feel like I was a part of something greater than the project itself, which was really humbling.”

The Walk offered students an ideal backdrop to display the art: students coming from all over campus had an opportunity to visit the artwork or stumble upon it on their way to class. Importantly, the outdoor location gave students a safe venue to gather in during a time when gathering indoors was strictly limited due to the pandemic.

The idea behind the Einhorn Family Walk aligns closely with the spirit of the oldest and most beloved spaces on Syracuse’s campus. Civic spaces—both old and new—bring people together in a shared experience of space.

Students Have Autonomy to Transform Their Campus Spaces

When thinking about creating avenues for residential life to thrive on campus, it is vital to consider the role of the landscape. At Dartmouth College, an American Ivy League school in New Hampshire, housing stock built between 1920 and 1950 were not meeting the full diversity of 21st century student life needs. In response, Sasaki designed two pilot house centers to test various program styles and uncover valuable insights into the needs and wants of the student body.

FIGURE 18. Flexible spaces seamlessly weave together outdoor and indoor spaces via sliding glass doors



*Designed by Sasaki.
Photo Credit: Jane Messinger*

The Dartmouth College House Center Pilots strengthen campus community, promote continuity of friendship over students' college careers, and increase opportunities for deeper intellectual engagement through informal interactions. This kind of student engagement has the potential to shape one's education just as much as a key seminar or lab.

Several students have commented on how these new flexible buildings provide a space that was previously lacking. These buildings offer a "living room" feel—more casual than the library, more intimate than the dining hall, and more social than the traditional residence halls. The open floor plans open up directly onto the landscape, inviting students to move freely between these flexible-use buildings and the rest of campus. Inside, movable furniture encourages students to "own" the space, testing configurations that complement their needs.

Implementing these flexible, experimental structures allows Dartmouth to learn what kinds of spaces students most need, insights that will helpfully inform the design and construction of more permanent buildings supporting student life in the future. Since the adoption of the House system, the new structures rarely sit idle.

FIGURE 19. Access to outdoors, open floor plans, and flexible furniture reinforce the experimental intent of the structures. The College's vision for residential life is one of intellectual engagement, community, and continuity.



Photo Credit: Jane Messinger

5. EXTERNAL PARTNERSHIPS

And, finally, as we look ahead to a large-scale recovery from the pandemic, the importance of securing funding through private partnerships also becomes critical as public funding and traditional private endowments may remain lacking before the economy is fully recovered

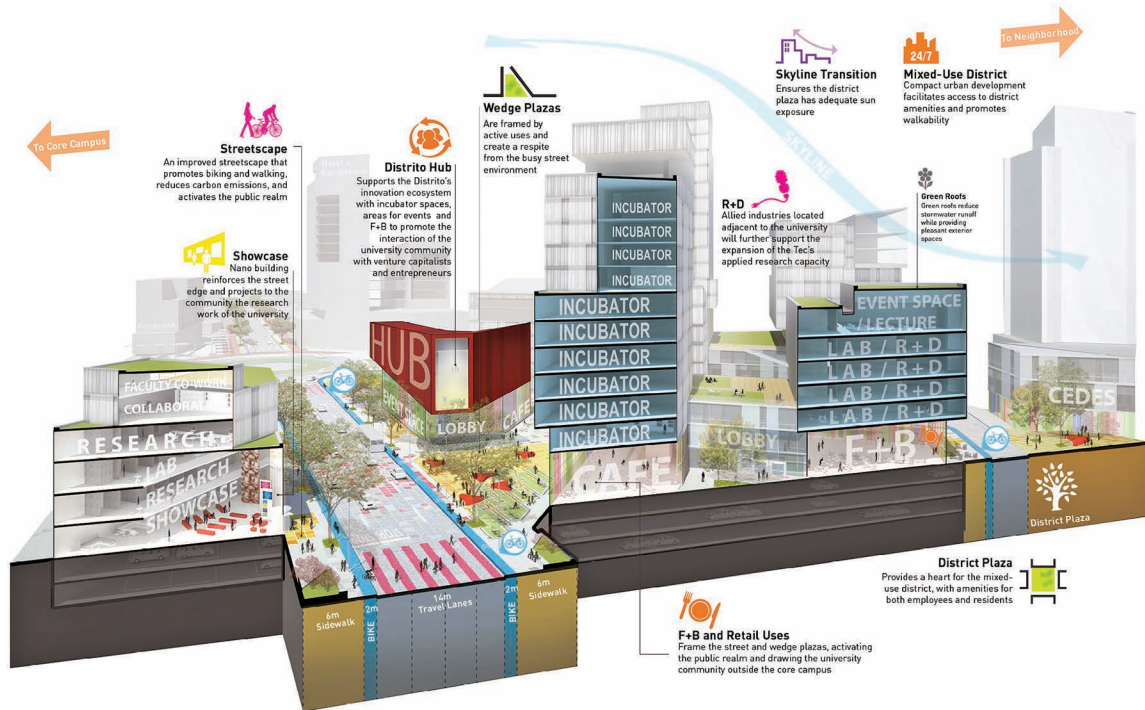
Instituto Tecnológico de Monterrey Research and Innovation District

Not only are external partnerships advantageous to universities in a time when the education sector has been thrown into flux by the pandemic, they also create symbiotic relationships with key industry partners. Innovation hubs give institutions financial support to create more robust programming for students, and they also create a pipeline from school to industry that is incredibly beneficial both to students and partners.

At Instituto Tecnológico de Monterrey, Sasaki's framework plan reinforced a strong academic core and reconceived the relationship of the campus to the adjacent surrounding districts. Underutilized land near the formal entry to campus was identified as the location of a new district that would drive the new Tec innovation ecosystem. At the heart of this new research cluster, the Innovation Hub will become a focal point for Tec innovators, venture capitalists, entrepreneurs and the larger community. It will support an innovation ecosystem by providing formal and informal meeting and event spaces like la Carreta Pavillion, a training center, cafe and incubators.

Fronting the Innovation Hub, and directly visible from the street and the core academic campus, a new plaza strengthens the public realm and signals a new path for a more open and

FIGURE 20. The Distrito Hub will be a new district focal point, where researchers, employees, entrepreneurs and the business community can engage with each other



accessible university district. The plaza will become a place for serendipitous encounters between students, faculty and entrepreneurs.

As the Tec expands its research capacity, it will rely on partnerships with allied industries located in close proximity to the academic core. Framing the new public space will be a series of mixed-use research buildings, each flexible enough to accommodate different research themes as the ecosystem evolves over time. Student housing, market housing, restaurants, cafes, and other supporting commercial activities will ensure that the district is vital and lively. Ground level uses will be engaging, transparent and prioritize uses that contribute to the energy and dynamic of the place.

6. IN CONCLUSION

Of course, the COVID-19 pandemic disrupted higher education as we knew it. But as with any disruption, there can be opportunities for positive change. This is particularly salient to the field of planning and design as innovative designers often find inspirations and breakthroughs in constraints and disruptions. Across the globe, designers and educators are grappling with how to create safe learning environments that could immediately adapt to the new realities we faced during the pandemic. More importantly, designers and educators should be looking into the uncertainties and new normalcy post the pandemic.

Covid-19 will not make in-person learning or an invigorating campus obsolete, nor might it be the last disruptive global event in our lifetimes. While the pandemic has accelerated the adaptation of new technologies, at the same time it has also helped people to realize the importance of physical interaction and spontaneity in creative pursuits. To better meet the evolving

needs of the post-COVID 21st century campus, designers must implement flexible design across scales, contexts, and continents. Flexibility should not be mistaken as lack of structure or order. Quite the contrary, a visionary design framework provides an adaptive roadmap into a dynamic and uncertain future.

REFERENCES

- Clauson, C., and R. Sheth. 2017. University-Industry Collaborations Are Driving Creation of Next-Generation Learning Spaces. *Planning for Higher Education Journal*. V45N4 July–September.
- Clauson, C. 2018. Planning for Diversity, Inclusion, and Equity. <https://www.sasaki.com/voices/planning-for-diversity-inclusion-and-equity/>
- Crow, M.M., and W.B. Dabars. 2020. *The Fifth Wave: The Evolution of American Higher Education*. JHU Press.
- Gorgati, V., and P. Savid-Buteler. 2016. Why Campus Matters: Reflecting on Models of the Future Campus Within a New Paradigm for Campus Living and Learning. *Planning for Higher Education Journal*. V44N3 April–June.
- Gorgati, V., C. Ceruzzi, and S. Lacker. Res Life Trends Accelerate as Campuses Re-Open Amid COVID-19. <https://www.sasaki.com/voices/res-life-trends-accelerate-as-campuses-re-open-amid-covid-19/>
- Patrick, T. 2019. Meet the Framework Plan: A Flexible Master Planning Approach. <https://www.sasaki.com/voices/meet-the-framework-plan-a-flexible-master-planning-approach/>
- Patrick, T., and R. Sugar. 2019. How to Transform Your Learning Environments for COVID-19.
- Pieprz, D., and R. Sheth. 2017. Singapore and Mexico Are Inventing the 21st-Century Campus. *Planning for Higher Education Journal*. V45N2 January–March.
- Sheth, R. 2019. Envisioning the Campus of Tomorrow. <https://www.sasaki.com/voices/envisioning-the-campus-of-tomorrow/>
- Zhang, T., and M. Grove. 2018. A discourse on Landscape Architecture: At the Intersection of Design, Ecology, Resilience, and Research. *Landscape Architecture Frontiers*. Vol. 034: 54–61