



How Innovation Can Thrive on Campus. Innovation has a long tradition on campus. But many universities are seeking new ways to get more students innovating. Programs that work outside traditional academic parameters, often called Innovation Centers, are having success. One contributor to their success is the spaces in which innovation teams operate. They are as organic as the process of innovation is.

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The question of how innovation can thrive on campus is one that must be considered within the traditional context of the campus. The typical undergraduate experience in American education is composed of a series of individual courses taken each semester or quarter, in an almost compartmentalized format. Classes meet on a regular basis for a specified number of hours per week. With the exception of survey courses that attempt to provide an overview of a broad field of knowledge, finding a correlation or relationship between or among individual courses is largely left up to the student. Once a major field of study is selected, courses tend to deal with narrower, more specialized topics in depth.

From a facilities perspective, typical "spaces" in higher education usually mean classrooms or laboratories, with limitations such as number of seats or workspaces, scheduling requirements, and predetermined pedagogies such as lecture, demonstration, or discussion. From year to year, the modus operandi rarely changes.

Enter a relatively new phenomenon—programs that work outside traditional academic parameters. Often called Innovation Centers, they function outside the traditional parameters of the semester or quarter system, taking interdisciplinary cohorts of students through rigorous projects in which they design, fabricate, and test a prototype that solves an assigned problem. Sometimes, students are paired with for-profit companies to test the commercial potential of an idea. The centers are not classrooms, but highly flexible, dynamic spaces that must meet a wide variety of demands, often on a 24/7 schedule.

Students work in groups in a specially designated place. There are no clock hours, but rather a time frame within which a project is to be completed. The student who gravitates toward this learning experience is moving away from the traditional instruction paradigm toward a more creative, self-controlled experience that emphasizes experimentation, encourages learning by doing, and fosters creativity.

In fact, America's universities have long been a major source of innovative ideas that became commercial successes. As U. S. Secretary of Commerce Gary Locke stated at a University of Michigan symposium in 2010, "Higher education is what is driving our local, state, and national economies. We know where innovation thrives in labs and incubators close to universities in places like Ann Arbor." University of Michigan President Mary Sue Coleman echoed Secretary Locke's remarks, pointing to a growing population of innovative, entrepreneurial students who had already founded one or more companies before they graduated. "We need to get out of the way," she said. "Give these students a little money, and they'll run with it."¹

Giving students what they need to be innovative on campus is an issue that was tackled recently by a Leadership Roundtable convened by Herman Miller. In late 2010, a group composed of leaders of university Innovation Centers, national associations tracking educational innovation, and architects and designers met to

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focus on the future of these specialized hotbeds of innovation. The deliberations focused on a number of questions:

What are the characteristics of a true innovator, and how do we create and nurture twenty-first-century innovators at our colleges and universities?

How does a team-based approach spur creativity and innovation?

What are the obstacles to developing a creative, innovative environment in a university setting?

What are the attributes of these creative environments that make them unique and supportive of the innovative mind?

Who Is the Innovator?

Roundtable discussions on the nature of the innovative mind produced a wide variety of opinions. A concept that repeatedly surfaced was that the Innovation Center both attracts and trains individuals to be “T-shaped,” a term used by IBM,² meaning an individual should have or develop both deep knowledge in a specific area (the stem of the T indicating depth) as well as a breadth of skills in different, related areas, (the top of the T indicating breadth). This combination of depth of knowledge and breadth of skills enables an individual to implement expertise in the real world.

Other characteristics of the innovative mind include:

- Self directed—has the capability to work with minimal guidance or management.
- Engaged—is focused on the project's goal and sees opportunities as experimentation progresses.
- Passionate—cares deeply about the work and its potential.
- Disruptive—takes risks, challenges standard assumptions, sees opportunities in initial failures.
- Empathetic—looks at other's opinions, perspectives, and work in a non-critical, non-judgmental way; remains calm amid chaos.
- Leadership Oriented—sees strengths in individuals, is comfortable working in a team environment, thinks strategically, and acts as a catalyst for others.
- Creative—promotes flexible thinking, sees multiple perspectives, can balance structure and freedom.
- Multitasker—can function independently and in a collaborative mode at the same time.
- Visionary—sees the big picture, has a global view and a rational approach to what he or she sees.
- Inquisitive—always seeks new solutions and approaches.
- Observant—notices trends, details, and events, and connects the dots to form a coherent and sometimes unexpected vision.
- Experimenter—engages in trial and error process; by experimenting, innovators

refine their ideas until they get it right.

- Listener—possesses a sonar-like capability that enables them to interpret and translate what is said into miniature ideas that are filed away for future use.

The Team Approach

Innovation Centers provide the student with the opportunity to function as an Inventor, Creator and Innovator. Each new assignment offers opportunities to develop these characteristics in an environment radically different than the typical university undergraduate experience. As one Roundtable participant put it: “Our program is more transdisciplinary than multidisciplinary. We want to help students discover and create products that create market value while serving real individual and social needs and minimizing impacts on the environment.”

In her popular book, *Leadership and the New Science*³, Margaret J. Wheatley described “Circles of Exchange,” self-organizing virtual networks that foster learning and creativity through action, reflection, and networked dialogue across disciplines. All members of the networked team share the responsibilities of leadership and learning in what is a fundamentally flat and democratic process. In this way each participant takes control of his or her own learning and work. In many ways, this describes the creative process that takes place in Innovation Centers.

Creating an innovative environment means more than providing space for experimentation. Innovation Center directors who participated in the Roundtable endorsed the concept of bringing people together in ways that spark creativity, emphasizing that ultimately who is in the space matters more than the size or shape of the facility. One important element of the search for a new product, process, or idea is the sense of community, making the quest a shared experience reinforced by interaction and engagement.

Working together on a project requires building trust, navigating different approaches to decision making, agreeing about ownership of ideas, collaborating across cultures, and managing communications and operations. Defining the creative partnership, establishing rules and then building a technological and operational infrastructure for ongoing collaboration among the student participants can significantly improve the chances of success.

Working together on a project provides many benefits:

- Multiple input in brainstorming sessions triggers rich perspective and deeper commitment to the project.
- Communication is both verbal and non-verbal; non-verbal communication is lost when working alone or in isolation.
- Working relationships develop more quickly when teams are formed to attain a common goal.
- Energy is easier to build and maintain in a team environment.

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- Feedback in the developmental process is quicker.
- The innovative process is social by nature; the lonely genius model is not as effective.
- A collective vision is achieved by sharing ideas, information, and work.

When students collectively come together to achieve a particular objective in a well-designed environment, cooperation, collaboration, and creativity will happen. As the old saying goes, "All of us are smarter than any of us."

Barriers to Creativity

Because of the unusual nature of the work that takes place in an Innovation Center, there are often barriers to its effective implementation.

Funding is always an issue. In difficult economic times when institutional resources are scarce, intense competition for what is available may mean that newer, experimental initiatives will be neglected in favor of more traditional, entrenched programs. Getting money at just the right time is also problematic, since colleges and universities work on annual funding cycles that don't match up well with real-world opportunities. And many projects need more than seed money to survive, and may subsequently be starved out of existence after a promising beginning.

Educational leaders must see innovation as a core process to institutional effectiveness, and align and commit resources to sustain it. To quote President Obama: "Cutting the deficit by gutting our investments in innovation and education is like lightening an overloaded airplane by removing its engine. It may make you feel like you're flying high at first, but it won't take long before you feel the impact."⁴

Academia has never been known as a risk-tolerant entity. Asking a venerable culture to accept fast-paced change invites opposition. The entrepreneur is by nature a risk taker, often unwelcome in a go-slow environment. Innovative programs must prove their effectiveness and worth to gain acceptance. Additionally, higher education has been described as a series of "silos" (departments, divisions, colleges within a university), where carefully created boundaries limit true collaboration and interaction. By its very nature, innovation tends to cross boundaries, creating new categories, and, in the process, introduces conflict into the culture.

The academic experience is constrained by a set of metrics not easily adapted to a "skunk works" environment. Because the very nature of the Innovation Center experience differs from the normal patterns of undergraduate life, it is often difficult to gain widespread support for something seen to be non-conformist or unconventional. Innovators need to develop measurements that quantify the success and potential value of work done in these centers, and insure that decision makers thoroughly understand the nature of the work, including its academic value and return on investment.

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Space Matters

Because the projects that go on in an Innovation Center have a different rhythm, pace, and goal than traditional college courses, the spaces that house creative efforts are special and unusual. There are both physical and psychological components to innovation. In a sense, the space provides an ecosystem in which ideas may grow. Ideas are not designed but rather evolve in a unique way with each project. Change, variability, and experimentation are components in the equation that leads to success.

Roundtable participants felt strongly that their spaces should support coaching, mentoring, and teamwork as well as formal instruction in an organic process where observation and critiquing of the group's work is encouraged. Interaction on a variety of levels was essential to project success. Temperature control, variable lighting, a pleasing color scheme, access to natural light, and movable, ergonomic workspaces and furniture all create an environment conducive for interaction. The space will house many users and stakeholders and must be able to easily evolve in order to support differing functions as new projects are introduced and different uses are discovered to expand its capabilities. A successful creative space requires all users and owners to work collaboratively, with the mindset moving from "mine" to "ours."

Many opinions were expressed on what makes a successful innovation environment. A successful center will have these characteristics:

- The ability to provide privacy for creativity while maintaining contact with co-workers and the outside world.
- Sufficient space for prototyping with room for fabrication.
- Flexibility to accommodate various preferences for workspaces.
- An absence of uniformity or predictability.
- A warm, secure, comforting environment.
- Easy access to needed materials and tools.
- Support for long work sessions (food and drink, break rooms, relaxation areas).
- An environment and a culture that encourage experimentation, reward success, and are non-critical of failure.
- Workspaces that can be temporarily "personalized" to promote ownership of ideas.
- A sense of playfulness.
- Sufficient opportunity for both visual and tactile interaction.
- Ready access to information sources.
- A ready refuge from day-to-day activities that distract from the creative mindset.
- Ample opportunity for group discussion.
- Appropriate space for demonstrations and meetings.

Putting It All Together

On the last afternoon of the Leadership Roundtable, participants were divided into three groups and given tools, supplies, and creative materials (Legos, design

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materials, foam board, construction paper, drawing implements). Their task was to design an ideal Innovation Center in two hours. The “final exam” was to present to the other groups the results of the team’s collaborative efforts. The participants had never met each other prior to arriving at the Roundtable site. The results were impressive, as seen in the variety of collaborative visions presented.

One group took participants through a virtual tour of their Center, identifying entryways, concierge area, conversation areas, individual workspaces, display and presentation areas, mini-kitchens, and even lifts to create temporary loft spaces. Work areas featured reconfigurable desks, videoconferencing stations, adjustable lighting, and two-way windows so that passersby could see work activity without distracting students.

The second group introduced their “Innovatorium” using a scale model they made from the provided tools and materials. This three-dimensional presentation displayed the concept of front and back porches, a variety of work and “play” zones, movable walls, a large video wall, easy access to the outdoors and natural light, and balconies for reflection and conceptualization.


The third group took an entirely different approach. Instead of a virtual tour or a scale model, they converted an entire room into an Innovation Center, relocating furniture and other objects, and labeling various parts of the room architecture to identify the components of their Center (including a sketch of a fireplace taped to a wall). They then took participants through a guided tour of the facility, at each stop explaining the features of that particular location.

What emerged from the exercise was a renewed conviction that by bringing together talented people to work on a collaborative project, imaginative and creative results can take place within a short time. As a final exercise, participants were asked to share what they planned to implement when they returned to their home base. The compiled list was long and ambitious. By acting as Innovation Center students over their time together, their own university-based work was validated, their professional expertise grew, and their respective institutions will likely benefit.

References

- ¹ Crain's Detroit Business web site, <<http://www.crainsdetroit.com>>, July 14, 2010 (accessed January 26, 2011).
- ² Beyond IT, “IBM's Role in Creating the Workforce of the Future,” September 2009.
- ³ Margaret J. Wheatley, *Leadership and the New Science*, San Francisco: Berrett-Koehler Publishers, third edition, 2006.
- ⁴ Brainy Quote website, <<http://www.brainyquote.com/quotes/keywords/innovation.html>> (accessed January 17, 2011).

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