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Stanford, Carnegie Mellon take different interdisciplinary approaches to innovation — with the same great results

The universities cultivate fertile ground for budding entrepreneurs to grow their ideas into businesses.

Anna-Louise Jackson | SEPTEMBER 24, 2024

Many future founders arrive on campus the first time just like the rest of us, unsure of which major they'll declare, let alone whether their startup idea could be a billion-dollar business. The commitment to building a company — the confidence that takes — appears only once they're immersed in college life. On this count, schools deploying an interdisciplinary approach to innovation have an advantage: They cultivate fertile ground for budding entrepreneurs to grow their ideas.

Stanford University and Carnegie Mellon University are entrepreneurial powerhouses whose long-standing success results in part from their distinct interdisciplinary approaches to innovation. Even though they've carved out different paths, they are yielding similar results: students who go on to found successful startups.

A process for cultivating innovators

Formed in the early 2000s, Stanford Mussallem Center for Biodesign has helped to carry forward the university's legacy of innovation. Its original mission — to train future innovators to design and commercialize medical technologies — has expanded over the years to include advancing health outcomes and improving equity.

The center partners with every department on campus, though it primarily draws students from the schools of medicine, engineering and business, says Josh Makower, the center's cofounder and director, and a professor at the school of medicine. "By bringing people in with different backgrounds and giving them the agency — and also the time — to think about those problems differently, that's what really creates the 'aha' moments."

Before he was an entrepreneur turned professor, Makower worked in the corporate office for medical devices at pharma giant Pfizer. In the late 1980s, he was tasked with studying why once "explosively innovative" companies so often lost their touch after they were acquired. What Makower learned was that entrepreneurs starting out tended to focus primarily on finding the right technologies to solve the needs of their customers. Once those ventures were acquired, however, the focus became finding other uses for the same technology, and innovation withered.

Makower led an internal strategy team to build for Pfizer a replicable framework of innovation, which broke down the process into concrete, easy-to-comprehend steps. The concept proved useful even to people without a proven skill set — all they needed was the desire to innovate.

Years later, once at Stanford, Makower quickly discovered his undergrad and graduate students absorbed his innovation framework just as seamlessly as the pharma researchers. Stanford Biodesign has worked with more than 200 fellows since its founding. Some recent success stories include Shockwave Medical, which was acquired this year by Johnson & Johnson for $13.1 billion, and iRhythm Technologies, a publicly traded company with a market capitalization higher than $2 billion.

"What we have proven is we can give this process to folks who've never invented anything before, and if they're so motivated, they can become amazing innovators who create companies that help millions of people," Makower says.

Design at the heart of innovation

Twenty-four hundred miles to the east, in Pittsburgh, Carnegie Mellon University also continues to foster its own interdisciplinary approaches to innovation through efforts like the Joseph Ballay Center for Design Fusion. At a school renowned for its technology, engineering and computer science programs, the center seeks to partner on design-forward projects with other departments on campus to unlock new innovation opportunities.

"We're really looking to pull all the levers across the campus to unlock latent creativity," says Mark Baskinger, the center's founder and an associate professor of design.

Many students come to him and his colleagues with "great, big ideas" and the faculty are tasked with helping them get their ideas out into the world. "The question is: How do we get design involved as a catalyst for change?" Baskinger encourages students studying at the center to look outside their lane, particularly when trying to solve pressing global needs — and he says that students more than rise to the challenge. "They're makers," he says, "and they want to make great products."

Baskinger cites Carnegie Mellon's major role in Pittsburgh's burgeoning space industry and Astrobotic Technology, a robotics company founded by a Carnegie Mellon professor in 2007 that NASA selected to build rovers for upcoming lunar and planetary missions. The company employs more than 130 employees in the region, including several Carnegie Mellon alumni.

And last year, when NASA launched the Space Technology Research Institute to streamline the cycle required to design and test parts used in space travel, they announced the school that would lead it: Carnegie Mellon.