Can Stanford's design school find a way to teach disruption and ethics at the same time?

Stanford trained a generation of designers to disrupt. Now with updated design programs, it's asking students to consider the consequences.

Rebecca Ackermann

It's the last few weeks of class in a course called the "History and Ethics of Design," and Stanford instructors Sarah Stein Greenberg and Jeremy Sabol confront their design students with a tricky assignment: Imagine researchers have engineered a way to prevent the terrible effects of alcohol poisoning while keeping the positive benefits of drinking—that warm, fuzzy feeling; the cool factor at parties. What new products could they invent with this breakthrough technology? How could they use design to help real people

with big problems?

For the students, the project brief is evocative and exciting. It aims to put them in the imaginary driver's seat, on the road to a better future. But if the specific hypothetical sounds eerily familiar, that's because it is. Stein Greenberg, who is also the Executive Director of the d.school, and Sabol designed the assignment with a real-world event in mind.

Juul, the wildly popular and sleekly designed e-cigarette that may have directly contributed to what the FDA called a youth vaping "epidemic," was first conceived by two Stanford design graduate students on a smoke break. They presented the concept of a safer smoking alternative as their graduating thesis from the university, before working for years in Silicon Valley to bring the product to shelves.

The e-cigarette's sexy form, and the company's hockey-stick growth, once exemplified the promise of design and technology moving in lockstep to satisfy customers and build profitable businesses. And Juul's success was a feather in Stanford's cap, with its founders' campus pedigree cropping up in headlines left and right. But in 2018, Juul hit an unanticipated wall. The FDA launched an investigation into the company, and warned that there was not enough research on the long-term effects of vaping to support claims that it was safer than smoking. (Later research has shown that it may be safer in some ways, but is equally destructive in others.)

In 2019, Congress took a closer look into Juul's marketing, concerned that the company was targeting kids and teenagers specifically, not existing smokers looking for alternatives. Last year, the FDA ordered Juul's products off the market entirely and the company cut a third of its employees to stay afloat—a crash landing for a once-buoyant design promise.

This fall, a decade after Juul's founders were profiled in Stanford's alumni magazine, and five years after the company was valued at a height of $38 billion, Stanford's d.school launched a new curriculum that might prevent its

students from designing the next Juul. In a move that exemplifies the d.school's new approach, the instructors of the "History and Ethics of Design" course posed a pressing new question to students in their classroom brief—one that former Juul employees claimed executives ignored for years: What could go wrong?

"We're trying to urge them to think about their own education and about this institution," says Sabol. "And in a critical way—in the best sense of critical—think hard about what we're offering them [at Stanford] and what's shaping them. Juul seemed really relevant. It gets at core issues of how design comes out of this door and goes into Silicon Valley."

Students in Stanford's Design 1 course, an intro undergraduate course that explores the fundamental skills, methods, and mindsets of human-centered design. [Photo: Patrick Beaudouin]

Building a design legacy

While some in the tech industry continue to move fast, break things, and get convicted of fraud, Stanford is evolving its curriculum toward creating a space for design students to gain the skills necessary for building sustainable tech futures rather than disruptive ones. Juul's devastating impact on America's youth serves as a cautionary tale for the type of

designers Stanford hopes to nurture. The courses in Stanford's updated design undergraduate and graduate programs bring a designer's role as moral agent to the fore of design education, and encourage students to plan for the complex constellation of benefits and consequences that any intervention sets off for generations to come. Instructors like Designer-in-Residence Lisa Kay Solomon, who teaches an elective called "Inventing the Future," are working with students to get their reps in on hard questions like, "Should we build it?" at Stanford before entering the wider world.

Stanford is well-known for educating engineering royalty from Google's Sergey Brin to Instagram's Kevin Systrom to PayPal's Peter Thiel, but the university has also been on the vanguard of the design discipline for more than half a century. As early as the 1950s, Stanford faculty Bob McKim and John Arnold taught classes in human factors and product design that combined mechanical engineering, psychology, and art into a fresh approach to problem-solving. McKim may even have coined the term "need finding," to describe the now standard process of understanding a context before setting out to address its problems.

In the 1990s, David Kelley, a Stanford grad and design professor there, cofounded the design consultancy Ideo, which would become synonymous with "design thinking," a human-centered design processes distilled into a repeatable methodology for innovation. And as design thinking approached the height of popularity across industries from tech to healthcare, Kelley founded Stanford's d.school in 2004 as the university's center for design and design thinking. Since then, Stanford's d.school has been a standard-bearer for design education, even advising other institutions on how to create their own programs.

But the past two decades have transformed the design discipline, the tech industry, and the world. The public perception of Silicon Valley, where Stanford is located, has gone from a fertile crescent of optimism and innovation—with "delightful" new consumer products like Juul and services

like Uber—to a locus of American distrust and frustration, where those same products have become the focus of congressional hearings and million-dollar lawsuits. Design thinking has faced serious criticism around its efficacy and equity, and just this year, Ideo significantly cut back its scope of operations.

Startup unicorns that differentiated their products through beautiful and seamless design (like Snapchat, whose founder Evan Spiegel has a BS in product design from Stanford) have declared enormous losses, and the tech industry at large has laid off almost a quarter million workers in 2023 alone. Add to that the threat of AI flooding into creative work—from design to journalism and beyond—that has many afraid for their career futures. In a world of precarious economics, rapidly changing climate, and multinational crises playing out 24/7 on our screens; the problems designers—and everyone else—need to solve today loom large, urgent, and complex.

Students in Stanford's Design 301, an introductory course for all Design graduate students that introduces students to the responsibilities of design work. [Photo: Patrick Beaudouin]

Designing a new design curriculum

Stanford's recent changes to its design programs reflect these shifts with a

broadening of the programs' focus and a sharpening of its students' skills around ethics and uncertainty so they can anticipate and metabolize the unexpected. The undergraduate and graduate design degrees are now what Stanford calls "Interdepartmental Programs" or "IDPs," which means that big chunks of students' courses must be taken in departments outside of design—and even outside of the School of Engineering. The intention is for students to develop expertise beyond the traditional design and engineering lenses, to support their choice of a "domain focus" from a heavy list of discipline-spanning fields of study—climate and environment, health and healthcare, global poverty and development, oceans, or living matter.

The school's leadership team has established guiding pillars for the academic programs to formalize their new direction: make, care, adapt, and spark. While "make" and "spark" speak to the material fluency and creativity that have long been a part of the d.school's vocabulary, "care" and "adapt" are freshly articulated concepts for the school—and the discipline. Human-centered design has always focused on people, but d.school leaders believe the concept of "care" deepens that commitment beyond an initial intervention and expands the pool of stakeholders.

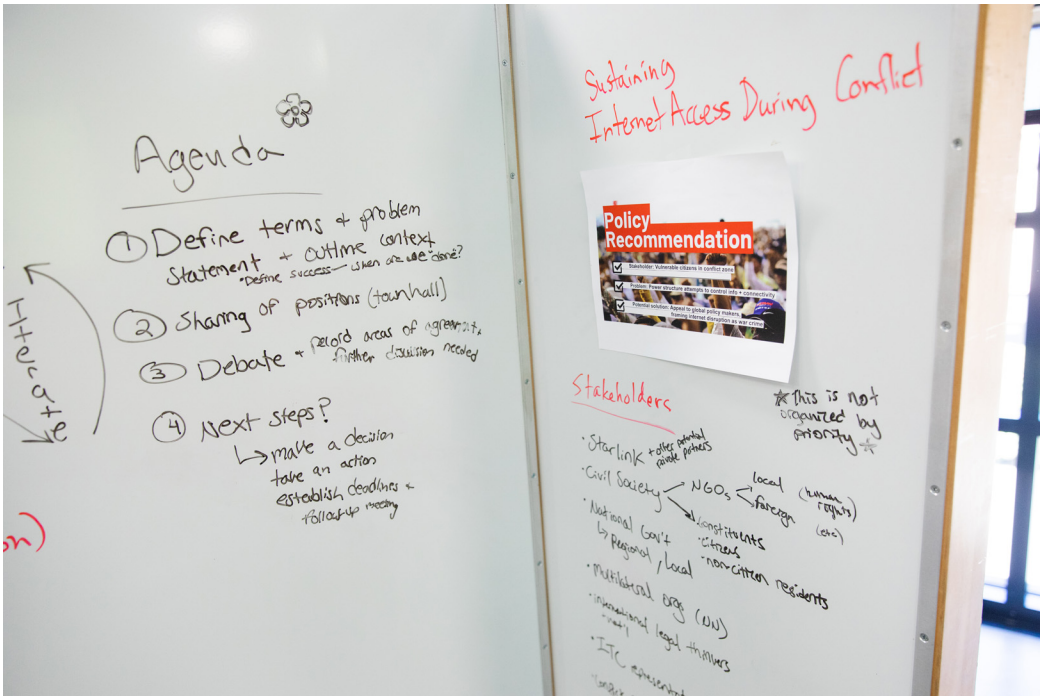
"It's recognition that we are one of many here on the planet, and that we're all this interconnected ecosystem," says Carissa Carter, academic director of the d.school. "Adapt" speaks to the creativity that designers now need to flex when everything from technology to politics moves at an ever-increasing clip and unanticipated consequences can't go unanticipated any longer. "Adapt is about being able to understand that the best laid plans will absolutely go awry," she adds. "How do we help students navigate that learning situation here so that they can be creators with that same ethos out in the world?"

Design majors are now required to take certain design courses like "History and Ethics of Design" at the beginning of their studies. It's one part of d.school's approach to equipping students for an uncertain and

interconnected future. Other changes include electives that integrate criticism with invention, like “Forbidden Design,” which this semester is all about AI Policy, or “Tinkering with Inequity in Emerging Tech,” whose syllabus includes books like Sasha Costanza-Chock’s *Design Justice*, and Ruha Benjamin’s *Race After Technology*.

Developing a critical eye alongside other design skills is the point, says Sabol, who is a humanities scholar when he’s not co-teaching the d.school’s flagship ethics course. “The picture we’re trying to give [students] of design work is that it’s not impossible to be an ethically sound designer. But it’s not something that you do and then you’re done with,” he says. “The worry that the thing is going in the right direction has to sit with other constraints: I want to make a living, I want to make beautiful things. Everything you do as a designer is going to have an ethical component.”

But leaving room for optimism and curiosity is important too, according to Ariam Mogos, who teaches “Tinkering with Inequity in Emerging Tech,” leads the emerging tech portfolio at the d.school, and has worked with UNICEF Innovation and the Lego Foundation in her own practice. “We try to be positive in how we think about technology,” says Mogos, who doesn’t believe that AI can replace thoughtful design work. “We don’t like to lean into techno-utopianism or techno doom-and-gloom either. It’s about understanding that tech amplifies human intent, and at the end of the day, that means it’s up to us. We have power—everyone—and it’s important that we all participate so we build that future together.”



A white board session during Stanford's Forbidden Design class, which teaches students to explore the social, cultural, and political ramifications of design work. [Photo: Patrick Beaudouin]

Designing for complexity

Design students (and their instructors) have never had to contend with more countervailing forces than at this moment in history and technology. Design today must balance creativity with criticism, beauty with ethics, and innovation with expertise. It's a complex set of demands, and Stanford's d.school isn't the only institution working to teach students how to fit all the pieces together. Sarah Rothberg, who teaches at NYU's Interactive Telecommunications Program (ITP) and graduated from the program herself, brings in both tech critics and makers to speak to her classes. "It's a struggle that I think is a productive struggle," she says of the back and forth between what her students must consider in their work. "How can you embrace what a technology can do for the betterment of the world, while also understanding the trade-offs? How can we counteract those? All that happening at once—it doesn't make it easy to teach all the time."

At Carnegie Mellon University (CMU), which has one of the oldest degree-granting design programs in the country, professor and CMU graduate Mark Baskinger is heading up a new "design fusion center" to provide a home for

design explorations across disciplines and practices. Their degree-granting programs have shifted too, starting a decade ago and adjusting since to incorporate big, complex challenges like climate change and social injustice.

“We have a whole class on power in society,” Baskinger says. “How can you be a citizen and a designer today and not entangle those two things?” Baskinger hopes that getting students to think this way will benefit them—and potentially the world—in the long term, if not in their first job out of school. “Maybe 10 years from now, they’ll be equipped to move out of whatever lane they’re in over to something that is going to be incredibly important on behalf of all of us. That is the value of our education specifically, but we’re not unique there. It’s a shift that’s happening in design.”

If the d.school’s program changes are effective, Stanford’s future designers could leave campus with the tools, skills, and mindsets to weigh complex options and evaluate the ethics of multiple paths forward at once. Those designers may stand in rooms listening to new research, and be the ones deciding when to start designing and when to ask, “What could go wrong?”

But the ways in which this new approach to design education will affect the discipline and the world are as uncertain as the outcomes Stanford’s design programs are training students to anticipate. Lisa Kay Solomon points out that the perspectives and practices she and other instructors are offering may not lead students along an already-established route toward success. “It’s not like because you do this, you get the product manager job at Facebook,” she says. “It’s because you do this, you’re now thinking and acting differently in the world. And we don’t always know how that will show up.”