TEACHING & LEARNING

d.

Two years ago I wrote the yearbook intro about our emerging emphasis on the role of *navigating ambiguity* in *design work*. I was excited to highlight our ideas in this area and convinced of their promise, and also aware that the topic wasn't yet on the *radar for many people*.

We couldn't have known then that we'd be living inside many of those lessons and concepts as fully as we did this year. While we cannot do much about uncertainty (imperfect or unknown information is a permanent condition of life on this planet), we can reframe and build a productive relationship with ambiguity. When this happens we become open to more than one interpretation of what might come to pass. This is a space where we can live and thrive as designers, educators, and shapers of the future. It helps us prototype in multiple directions as conditions continue to change, and allows us to sidestep the creative paralysis that occurs when events seem either inevitable, or too dizzyingly turbulent to face.

—Sarah Stein Greenberg

I could not be prouder of how the d.school community has responded to the challenges we've faced this year due to the pandemic. Over and over I saw examples of creative reactions to seemingly mundane challenges or problems where the answer might appear obvious.

Instead of "how do we put our classes online," people asked, "What can online teaching and learning allow us to do better?

Instead of "remote learning," I've heard "distributed collaboration," which quietly dissipates the assumption of a central authority from which everyone else is "remote."

I've observed (and experienced) many moments of stress and anxiety as tech platforms went down during classes or early experiments failed. But what stands out is our community's incredible capacity and appetite to learn, and the ability to rapidly transform our own learning into new approaches to classes, experiences, and methods for others.

And throughout the Spring as the national movement to fight racial injustice in its many pernicious forms collided with significant moments in the academic calendar, I heard story after story of our teaching teams creating meaningful space for students to process and react to the daunting realities and pressures of the world they inherit just at the moment that they are coming into their own as adults.

I believe that the current crucible will shape how we teach for many years to come. We are getting better and better at using a wider range of methods to engage people and networks. For the first time, most of our new design and learning tools are being built in the same digital mediums that will allow them to spread and be adopted by people beyond the d.school. We are working with students and communities on the issues that are most pressing for them, and our flexibility and adaptability as always is helping us to meet this moment.

Our approach for this time is simple: we prioritize care for each other and our students, and nurture human connection. We think in multiple scenarios and look for new opportunities. In this way we will continue to find and replenish the reservoirs of energy, imagination, and commitment we need to sustain our best work. In the coming pages you'll have an opportunity to see just what this can look like.

—Sarah Stein Greenberg

Table *of* Contents

This year was…challenging. In March 2020 the COVID-19 pandemic sent us all home and changed our plans, to say the least. As a community, we came together and persevered. We pursued new ways of teaching, pivoted classes, and doubled down on taking care of each other. This yearbook is divided into the following three sections:

YEARBOOK CREDITS:

Editor in Chief: **Carissa Carter**

Content Curation, Data Acquisition, and Analysis: **Megan Stariha**

Creative Direction + Visual Design: **Daniel Frumhoff + Erica Holeman**

Photography: **Patrick Beaudouin**

Section Intro Photography: **Naila Ruechel**

All of the work we do is a collective effort and made possible by the d.school team, our teaching community, and the students we serve.

1 Behind the *Curtain*

2 In Front of the *Transition*

3 Within the *Community*

1

Behind the *Curtain*

Artist **Naila Ruechel** conceived of and photographed the three section header photos in this yearbook. She created each image to match the specific theme of the section.

In her words:
I draw inspiration from everywhere, but I think on a subconscious level, my work is a direct reflection of my upbringing in Jamaica where I experienced a diversity of flora within a tropical environment. Deep, rich, vibrant colors and a warmth that embraced me like a blanket.

—Naila Ruechel

About:

Here's a sample of what happens behind the scenes of our curriculum and classes. Read on to learn about the topics that we've explored this year, the projects we've launched, and the feelings and learnings we've had along the way.

Worried about

Racist AI?

Educating our kids might be the only real *solution*.

by *Ariam Mogos*

The tech industry has tried everything from ethicists to algorithms in order to weed out the harmful bias in AI, *except for education*. Let's stop with the quick fixes and do the hard work of learning about our history, ourselves and others if we want to dismantle white supremacy in technology.

"Hello _____, call Ariam" *(Ethiopian accent)*. I sat there, staring at my blank phone screen. *"Hello _____, call Ariam,"* she repeated. Again, the call didn't come through. *"Mom, let me try,"* I said. Sure enough, the voice assistant had no trouble recognizing my *"standard"* American accent. The request was made and my phone started ringing. *"Why doesn't she reply to me?"* my mom said defensively. *"She's stupid and useless, delete her!"* *"Mom, it's not you,"* I said. *"It's the people who created her."*

My mom was excited about the voice assistant (which shall remain nameless) on her new cell phone, and that Sunday evening was a comic and painful reminder of how technology alienates those who are **not the default setting**. Her experience is too common amongst marginalized communities, and after years of the same challenges and growing scrutiny, the tech industry still **doesn't have a solution**.

Big tech is struggling to reign in racism, sexism and every other ism we know, and Diversity Equity Inclusion (DEI) efforts, weak legislation, lawyers and ethicists, and independent bias ratings have either failed or aren't doing enough. We've finally acknowledged that the root of the problem is the people creating technology who can't identify harmful bias, or are unaware of how their own unconscious biases shape the products they build. *So, what exactly are we doing about it, and more importantly what are we doing about the next generation of creators while a window of opportunity still exists?*

Instead of all the quick fixes that aren't working, what if we invested in the sustainable, tried-and-tested human solution: **Education**.

Our budding technologists need to be technically proficient in Python, R, and Lisp to build AI, machine learning and other emerging technologies, but there's also another layer of that education which is equally if not more important. This layer is composed of the knowledge, skills and moral courage to act to dismantle power dynamics that exist in technology, and not re-creating them if we want a more just world (without racist AI).

Where could we start? Through the creation of new emerging tech design experiences, here are some of the approaches we're experimenting with at the d.school:

1. Prioritize racial literacy and history in computer science education.

2. Reflect and act on our own biases as creators.

3. Recognize and make space for multiple perspectives.

1 Prioritize *racial literacy* and history in computer science *education*.

It's important for all children to believe they can be creators of technology, and it's also reckless for us to omit that technology has historically been designed as a tool to surveil and oppress Black and Brown communities. If we don't publicly acknowledge this history and put it in our textbooks, we will continue to be complicit in perpetrating harm that is masqueraded as "neutrality." It's imperative that K12 administrators, educators and tech companies investing in computer science education create spaces to examine the design of discriminatory technologies and how they're used; which is almost non-existent in today's standards or curricula, coding clubs and makerspaces.

Take for example the early Kodak film project. Up until the mid-1990's Kodak film was famously designed to center white skin tones, and as a result Black skin tones turned out under or over-exposed in photographs. In 1978 French filmmaker Jean-Luc Godard refused to use Kodak film for a shoot in Mozambique because he believed that the film itself was designed to be racist. Years later, Kodak only updated the technology with a flash so that South Africa's apartheid government could segregate and surveil black South Africans using a photo identification program (dompas). Today we have technologies like facial recognition software which centers whiteness and can't identify Black women, while also being designed to surveil and police Black and Brown communities.

The technology has evolved and advanced, but racist perspectives and oppressive design practices have not. It's critical that children understand how white supremacy has been ingrained into technology, past and present, if we want them to design a radically different future.

Reflect and act on our own *biases* as creators.

It's crucial for children to understand how bias is embedded in technology and data. The ability to reflect on how our own biases (shaped by identity and social status) influence the technologies we design is even more paramount for children. It can be challenging for adults to reckon with how their limited perspectives and unconscious biases can cause immense harm to others, which is why we need to start early in K12. If we do, we might have a world in which our budding technologists iteratively evaluate their creations and ask themselves:

- Am I creating this based on my own lived experience and expecting others who are different from me to use it?

- Who benefits from the technology I'm designing? Who could be harmed or left out? Who else needs to be represented?

- What stories is this dataset telling? What stories is this dataset leaving out? What was the historical context when this dataset was produced? How much do I understand or know about it?

- What don't I know? Who should I ask and learn with?

- I can put this out in the world, but should I? What are the implications that need to be considered?

Equipping children with these reflective skills could prevent **wrongful arrests, hiring discrimination** and **death by autonomous vehicles.**

Recognize and make *space* for multiple perspectives.

Design can be a spectacular arena for the "pluriverse", which anthropologist Arturo Escobar defines as *multiple ways of knowing, being and thinking that are rooted in specific places and communities.*

Children are creative and curious, and can be inspired by the diverse ontologies and perspectives amongst the peoples of the world, and in natural systems. Guiding them to channel this inspiration into design practices which shift the power dynamics in technology across race, gender, ability, culture, etc. can make our technologies profoundly more equitable and just. Centering and celebrating the lived experiences of non-dominant communities might not seem so difficult.

My mom has lived in the United States for over 30 years, and actively participates in her workplace, the community pool, and her place of worship, but she's always felt like a foreigner or the "other." While there might be adjustments made to her new AI assistant to center her perspective and her voice, it's symptomatic of a much bigger problem that technology will never be able to address, but I hope our future generation will.

Double Virtual

by *David Janka*

fter teaching Design for Health for three years, Emilie Wagner and I embarked on two new forms of our class in the 2019–2020 academic year. The first, in Fall 2019, was an accelerated course with a modified format that allowed us to explore different instructor roles and student team structure. Part of the motivation for these changes was to create space for us as a teaching team to question some assumptions about how our class should be structured and to consider new topics for future iterations of the course. That experience gave us the motivation, energy and time to invest in our second experiment with a totally new arena: Virtual Reality (VR) in Healthcare. Partnering with Caitlin Kalinowski, Head of VR Hardware at Oculus, we began designing a hands-on, interactive experience at Facebook headquarters for a Spring 2020 Pop-Out.

When the collective table was flipped over in March, we suddenly had a few extra layers of disruption to consider. We knew we still wanted to teach the class, but we were concerned that 'virtual' learning over Zoom wasn't going to be virtual enough for what we wanted to do. A personal, immersive experience with a VR headset is crucial for getting our students to understand this emerging technology and more deeply participate in imagining its future applications in healthcare. This key element of VR is called Presence: the subjective feeling that a virtual environment is real. It's the essential "magic" of virtual reality that you cannot explain. Fortunately, with the generosity of our partner and the resolve that the show must go on, we had the opportunity to send each student an entry-level VR headset. So now we had to design a class over video with a new technology that each student would be using individually in their homes. Did I mention that Emilie and I had never really done anything in VR before!

We wrestled with some key questions about how to deliver this multi-sensory learning experience and a lot of work had to be done with the technology itself in order to get setup. There was also a larger question: could we keep our students engaged for five hours on a Saturday? How could we preserve the energy of learning together that we design for at the d.school?

Our class was anchored around five areas where VR is currently being applied in healthcare. We wanted our students to have analogous VR immersion experiences to bring these use cases to life. One focus area was around how VR allows people in healthcare settings to "escape" and connect with the outside world. After hearing from an expert about how this has been explored at Johns Hopkins for patients during long hospitalizations or lengthy infusion procedures, we sent the students in small groups on virtual journeys together. Using the VR app Wander, students "traveled" together to locations around the world that had meaning to them. They could "co-locate" in a 3D map and have conversations together through their headsets–off of Zoom.

Emilie and I prototyped this experience before the class, traveling to our respective childhood homes in North Carolina and Massachusetts, as well as a "trip" inside the d.school together. This was a surprisingly engaging experience, bringing emotion to the surface with a feeling of presence, stimulating conversations and connection that felt especially powerful in a time of forced isolation. We knew that the intensity of a VR experience could take our design goals of empathizing and understanding to a different level, and that this type of stimulus would fuel discussion, reflection and ideation in new ways. That potential was confirmed and is a key motivation for expanding the one-day experience into a longer course.

Moving into this fall, we are teaching a quarter-long expansion of our Pop-Out class. With more time we are excited to leverage these immersive VR experiences in new ways and are asking new questions. What is the right balance of on-screen, off-screen and in-VR time? How should we design for the transitions between video conferencing and VR immersions? Although we had shared immersion experiences in groups of two or three, we want to see what might happen if the entire class can be together in a VR classroom or environment. Can we teach there? Can we create something there? What artifacts can we bring back from a VR space into real space? How does co-locating in VR space foster team dynamics or facilitate getting work done in different ways? We're also asking, how can we push our students, and ourselves, to talk about VR concepts at deeper, more nuanced levels? As an emerging technology, we believe that many different types of stakeholders should participate in the exploration and design of VR experiences in healthcare. Beyond that, we are excited to learn more and share how VR can be part of a rich learning experience for our students at the d.school, and beyond.
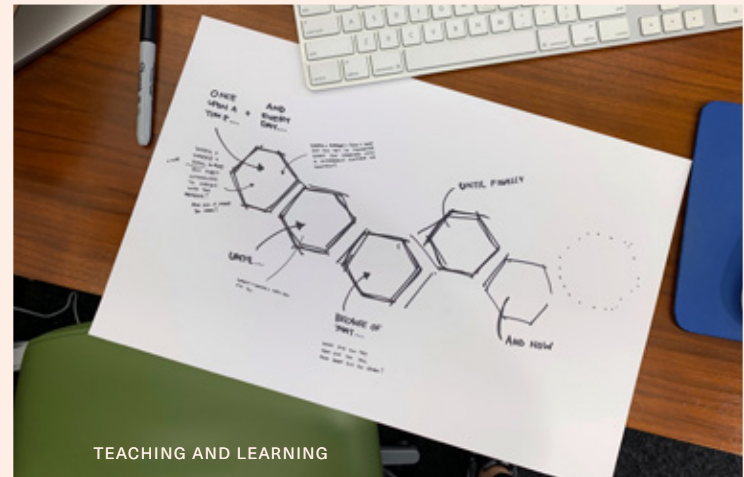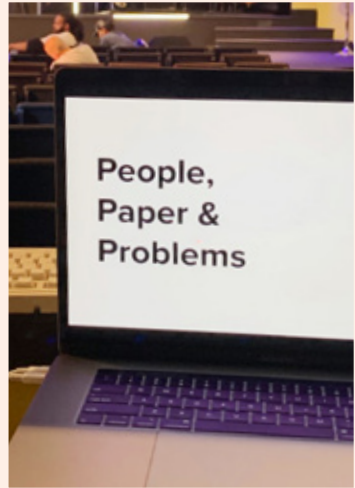
The New d.school Starter Kit

by *Seamus Yu Harte*

The d.school Starter Kit is a three–hour course designed to help anyone give students or co-workers a chance to learn and practice design mindsets and methods. Initially conceptualized as an "in-person" learning experience, because of the pandemic we rapidly shifted the curriculum to be optimized for distributed learning.

This project involved a year of building, deconstructing, experimenting, tearing apart, reconfiguring and everything in between. The final version is available for free on the d.school website.

WORK IN PROGRESS

REMIX

People, Paper & Problems

Rest Room Re— fresh

by *Hannah Joy Root*

The d.school's Environments Collaborative popped up again this year to apply fresh designs and paint to a couple of our restrooms. Bathroom-goers can either enter a California coastal redwoods forest or an Indo Pacific coral reef en route to their favorite stall.

Unlike the rest of our spaces that sees a lot of movement and redesign with the movable furniture and fixtures, our bathrooms are fixed. The new designs are meant to feel alive and take visitors on a micro–vacation (a theme carried on from the previous designs). Due to the COVID-19 shutdown there's one piece still unfinished: elements of education. When we return, we will add life–sized animal decals in the stalls, cool facts about each ecosystem, and ways we can all contribute to their conservation.

The illustrations were done by Xiao Mei and the project was managed by Hannah Joy Root. Painting was executed by Xiao and Hannah Joy.
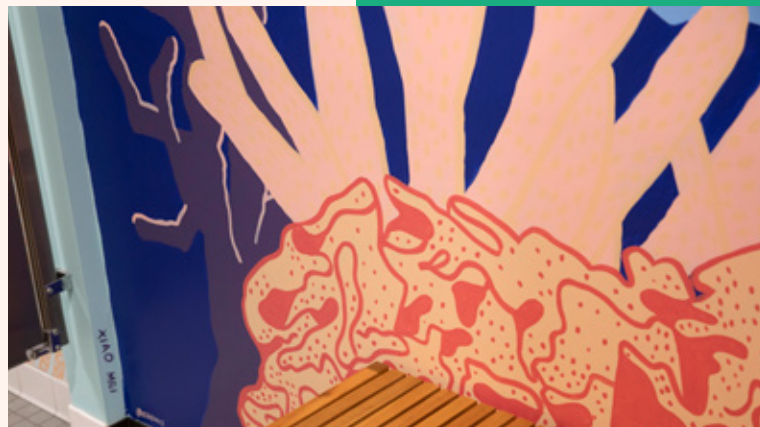
Stay Tuned: Two more restrooms will be getting their refresh once COVID-19 building access restrictions have been lifted. Be on the lookout for our solar system and watershed themed restrooms, illustrated by Ian Moore.

The

Extreme
Pivot

by *Manasa Yeturu*

"What matters?" I asked as I stared at 28 faces laid out in a grid on my computer screen. Then, I requested our students turn off their screens and take a moment to reflect on that question for themselves. It was week nine of spring quarter, and Black Lives Matter protests had sprung up around the country in response to George Floyd's murder. In just under two months we had seen the world radically change. Design for Extreme Affordability (Extreme), a course focused on social impact, had to shift its context in real time.

Start with awareness.

What constraints exist?

Personal?
Professional?
Environmental?
Cultural?

ME

YOU

US

Difficult speaking up for myself

Lives with multiple People (limited space)

Single mother of 3 with limited time

Caretaker of elderly family

Responsible for youth (teacher)

Interested & willing to engage in short windows over 3 weeks

Runs own business (impacted by Covid-19)

Shared virtual spaces options are phone & WhatsApp [no video]

Lives with multiple family members (limited space)

Limited WIFI & shared data plan

Male family member has to be present for conversations

Shared tie to Indian culture but power socioeconomic dynamics & differences exist

In the 17-year history of the course, there had never been a time when travel had been completely grounded. Global user research had to be remote. Our partner organizations faced constantly shifting global and local challenges. Prototyping seemed impossible with students in different time zones. We were halfway through our two-quarter, very hands-on, team-based class where students were set to travel around the globe, and the whole thing had to be made virtual. As a teaching team we had a week to decide: can we move forward with the class?

We did move forward. And, we learned a few things along the way about what matters when you have to make extreme pivots.

Start with *Awareness.*

In Extreme, we often talk about how important it is to understand both our partners and our users. That usually involves an immersive in-country visit by our student teams. But this year, all of it had to be remote. When making that pivot, I introduced the Me+You+We framework–encouraging our students to reflect on what constraints and identities exist at each level [personally/professionally/environmentally]? In a constantly shifting environment, it became even more important for students to build trust with both their partners and end users and be conscientious of how they were holding emotional space for themselves and others. Remote research wasn't easy, but it allowed our students to build deep connections with and reliance on the real experts– the partners and the communities they serve.

Own the *Ambiguity.*

All of us were constantly swimming in an ocean of ambiguity this spring. Being transparent about what we didn't know and communicating often about what we did set a culture of trust within the class, with our partners and the communities we were working with. When things were changing on an almost daily basis, it became vitally important to balance optimism and clarity with real talk.

Talk Less. *Engage More.*

Design thinking is a "learn by doing" culture. But when suddenly constrained into an all virtual remote environment, how do you engage? We lectured less and coached more. Every hour-long class session was under 15 minutes of lecture and 45-50 minutes of an activity or team conversation. Class time was reduced and replaced with additional coaching time, personalizing the experience and simultaneously pushing students to be the drivers of their own learning experience. It pushed us to not just make one huge pivot, but constantly evolve. We made mini-pivots based on the needs of each student team and their partner.

Build for *Meaning,* not *Perfection.*

It was an experiment and none of us knew if it was going to work or not. But what I did know is that we could design around and commit to building experiences that were meaningful for our students, for the partners they worked with and for the communities we aim to serve. As we tried, failed, pivoted and moved, we made sure to infuse in our work the commitment to a set of values.

At the start of the quarter, I asked the class "What does empathy mean in a crisis?" and listed out five tenets for holding ourselves accountable. For us, it meant: Holding emotional space for ourselves and others; being transparent; owning our commitments; evolving our actions as needed; and finding moments of learning, opportunity and growth. These tenets moved us forward, and at the end of the quarter after a roller-coaster of collective and individual challenges we created not one solution or experience, but rather a set of meaningful insights, moments and experiences for Extreme 2020.

Navigating the unknown waters of 2020 felt and continues to feel like the visual that is often used for showcasing what design process actually looks like–a wiggly, topsy-turvy, chaotic mess. While the circumstances differ, being challenged with moving through complex evolving constraints in a social impact design course parallels in many ways the lifelong experience of practitioners and communities focused on making progress on the wicked problems of racial injustice, socioeconomic disparities, education gaps and other inequities that are built into the fabric of our societies and systems. Attempting to move through, understand and make tangible impact on these issues has always been and will continue to be messy. But by repeatedly reminding ourselves and coming back to 'what matters' individually and collectively we can build meaningful threads of change.

Here's to focusing on *'what matters'* in 2020 and *beyond*.

Yes, You Can Design-a-Cow

by *Karen Ingram*

How does one introduce a technology to someone right as it is being developed? That's the question I grappled with as an Emerging Technology Fellow, focusing on synthetic biology.

What is synthetic biology? At its core, synthetic biology is focused on engineering life to collaborate productively with humans.

The work of scientists and technologists is important. Many stakeholders will not have the knowledge, vocabulary, or expertise to understand the science, *but they shouldn't have to*. Through conveying this complicated information, we allow for input from those who will be affected by the science, which is imperative if we are seeking a world with more equitable technologies.

Synthetic biology is already here

There are several Genetically Modified Organisms (GMOs) on the market and in production. GMOs are a product of synthetic biology. Here are some examples:

Insulin
The first commercial product to hit the market was human insulin, harvested from yeast in 1980. Traditionally, insulin was harvested from cow or pig pancreas. The process was patented by UCSF and Paul Berg at Stanford, licensed by Eli Lilly & Co, produced by Genentech, and made insulin more readily available.

Cattle
In tandem with animal husbandry practices, genetic engineering techniques have been used in livestock production, for example, cows. Decades of work from researchers at UC Davis has been covered in the mainstream press and has provided us with a roller-coaster view into the regulatory hurdles involved in potentially introducing an engineered organism into the food supply for human consumption.

Chestnut Trees
After a blight was introduced inadvertently in the 1800s, the American Chestnut has slowly become extinct. Geneticists at SUNY Syracuse might be close to achieving regulatory approval for an American Chestnut tree, which would make the "Darling 58" the first GMO aimed at maintaining an ecosystem.

Plant–fertilizing Microbes

Plants like soybeans and peas contain microbes in their roots that naturally fertilize them through a process called "nitrogen fixation." This negates the need to use costly nitrogen-based fertilizers, which contaminate waterways and cause greenhouse gasses. Companies are providing solutions that encourage microbes living in the roots of cereal crops like corn to produce the same effects.

Bt Crops

Several crops on the market, including corn, cotton, potatoes, and eggplant contain genes from the bacterium Bacillus thuringiensis (Bt). These genes produce a natural pesticide, reducing the usage of chemical pesticides. Bt crops are being planted by farmers around the world, including farmers in the U.S., South Africa, The Philippines, and Bangladesh, and Bt crop regulatory approval is pending in many more countries.

Plants as Biofoundries

The basic research conducted by The Patron Group, at the Earlham Institute in Norwich, UK is focused on exploring the plant Nicotiana benthamiana as a platform for sustainable biomanufacturing of useful chemical compounds. The plants could be used to produce compounds for medicines, but also for pest control.

Introducing Synbio With a Design Activity

Looking at cows as an example; what do we value about them? What could we potentially change? It's important to open up the design space to allow students to move away from the obvious. We may not want to change a cow, but we might want to enjoy a burger. Perhaps we should investigate making changes "de novo" (see opposite) and exploring the technology used to produce meat without cows. In the first synthetic biology design exercise, students both design their own cow and wrestle with the implications, positive and negative, that might arise from bringing it to life.

The learning experience is open-ended, and encourages creative thinking; there's no right or wrong answer. Students can postulate on what might be feasible vs. what's difficult; what's fantastic and what's pretty ordinary. The very real ambiguity of designing with biology abounds.

Through critique and feedback, Design-a-Cow and other synthetic biology design exercises are meant to pique curiosity and inspire questions. Emerging technologies impact us all, and it is through engagement and query that we can embark on making technologies that work for, and represent all of us.
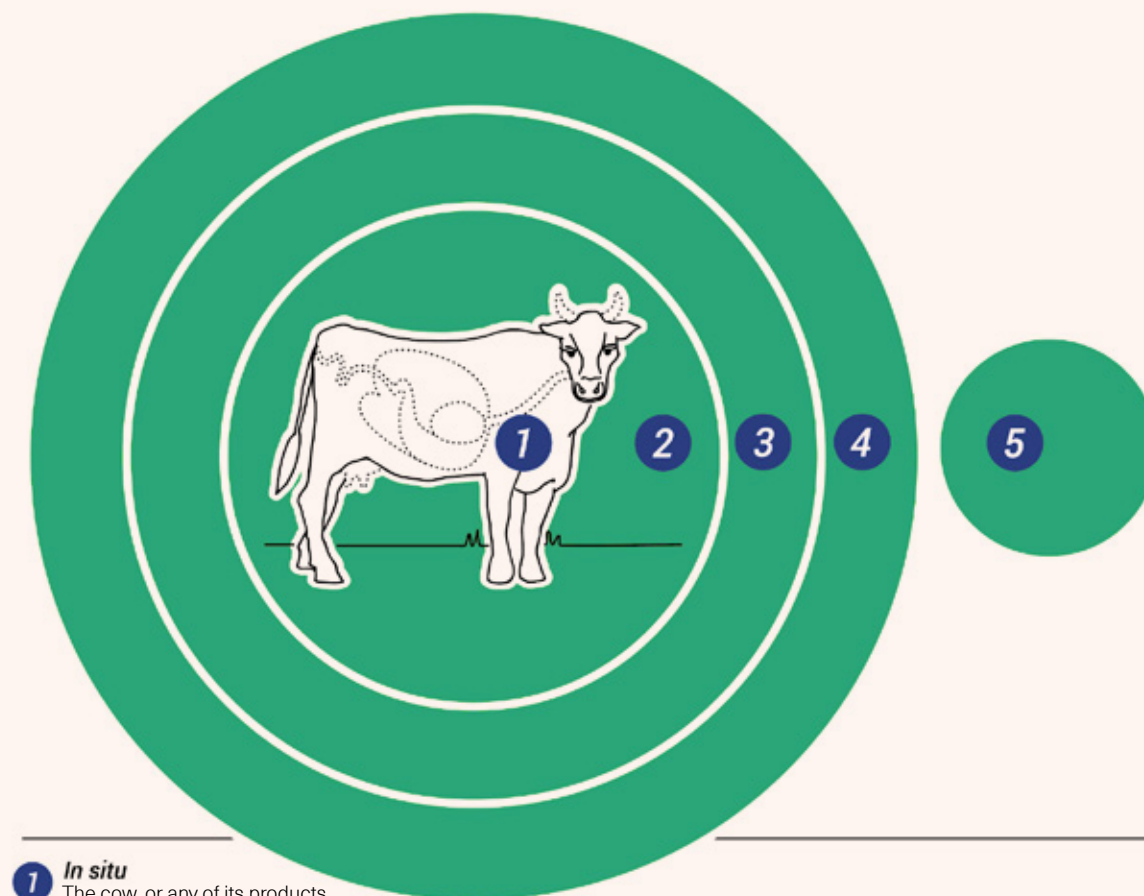
1. In situ
The cow, or any of its products

2. Alter ego
Another self; a change in how we typically think of cows

3. De novo
Other sources that could create the valued products a cow makes

4. Momento mori
Bring back or preserve wild animals similar to cows, or bring back valuable traits that no longer exist in a cow's genome

5. In concordia
Things that a cow interacts with, or is dependant on, that could be modified
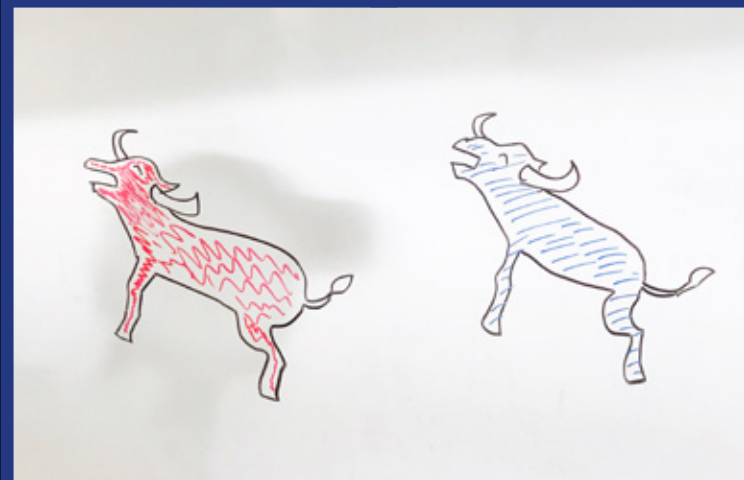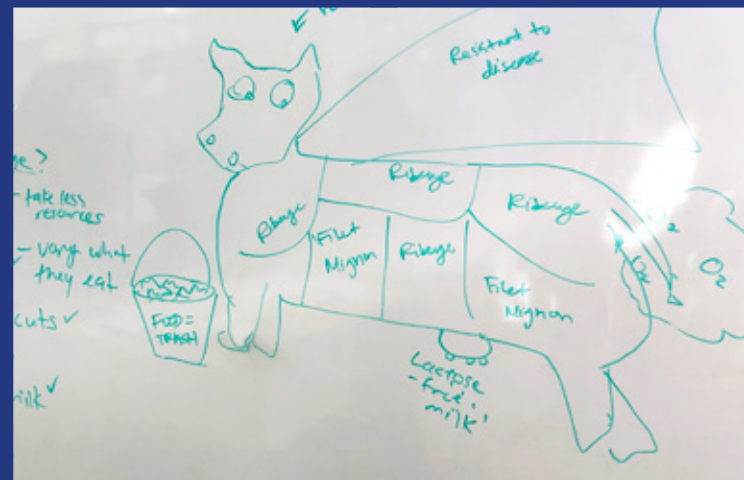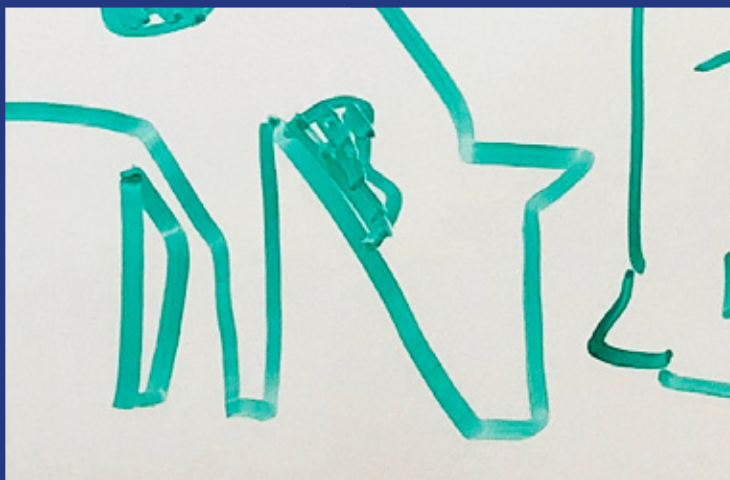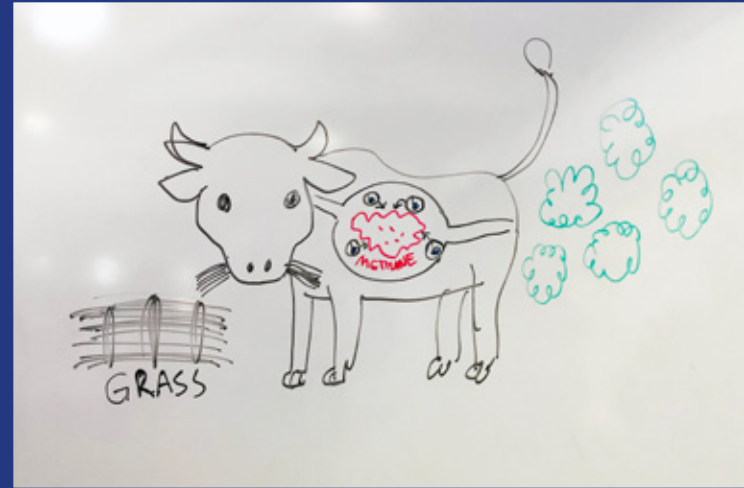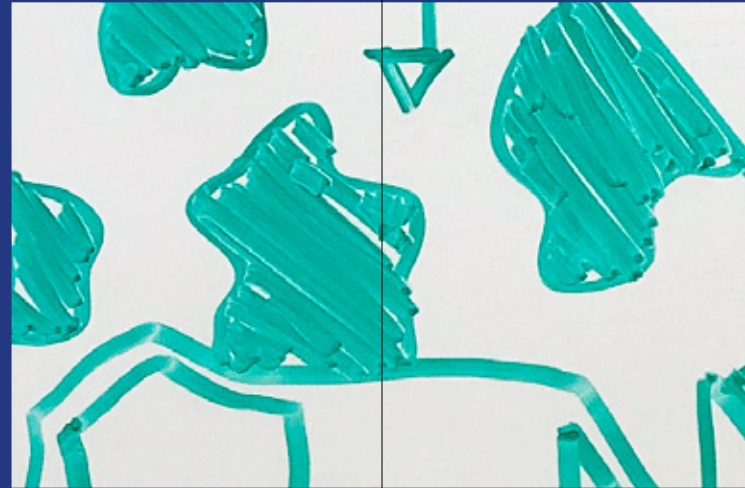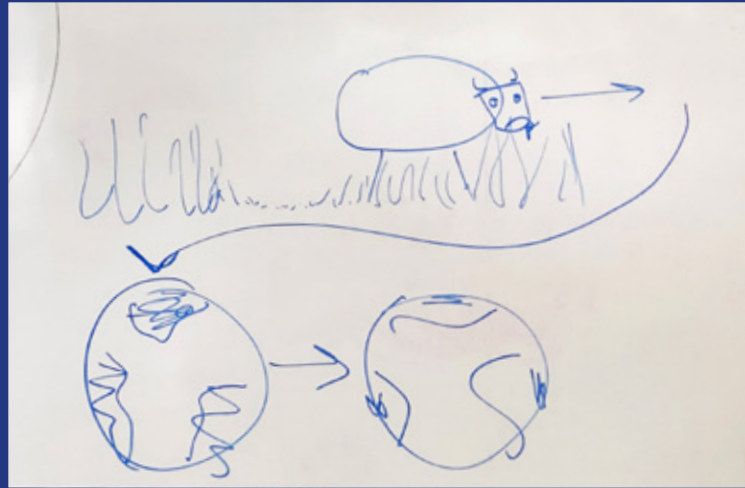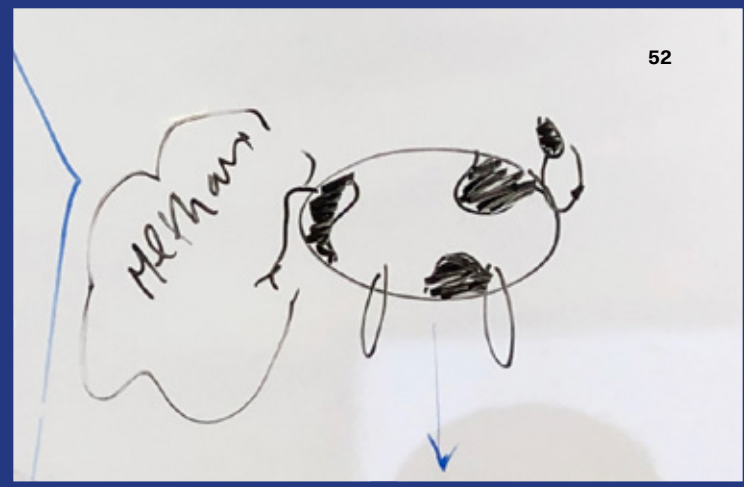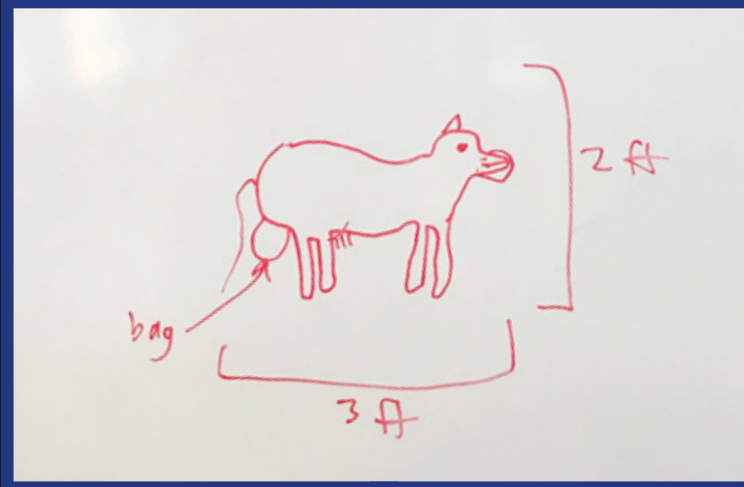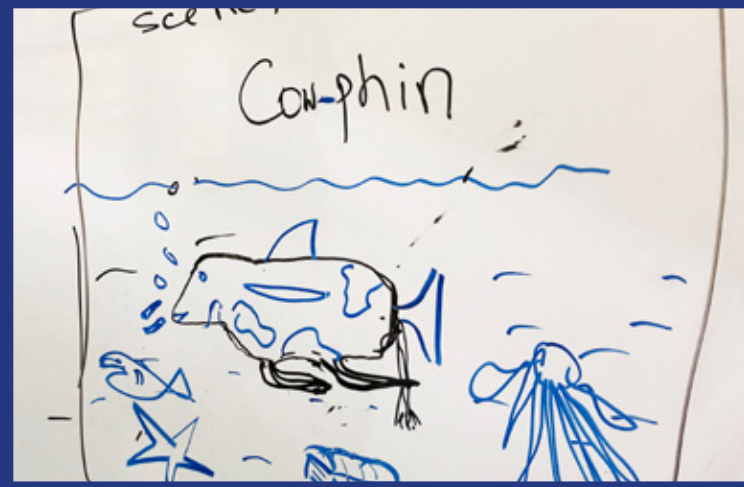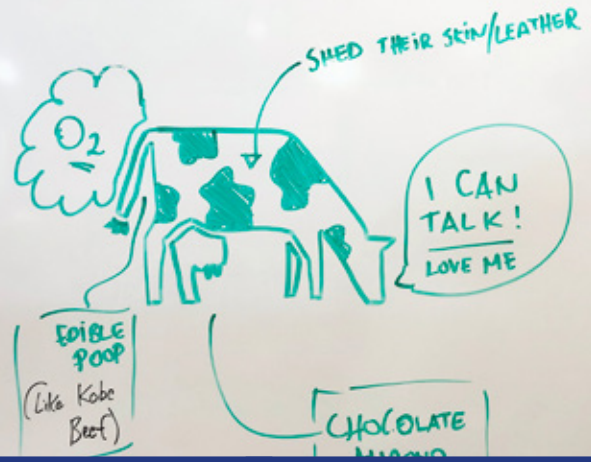
Vote by Design

by *Lisa Kay Solomon*

Incubated as a d.school pop-up class, *Vote by Design* reframes the question of "what candidate or political platform do you like?" to "what is the job of the President?," and "what is most important in doing that job well?"

Created by Designer in Residence Lisa Kay Solomon, futurist Nancy Murphy, and neuroscientist Brie Linkenhoker, Vote by Design is a nonpartisan, issue-agnostic, experiential workshop that helps students explore their understanding of leadership, leadership qualities and what it takes to be a leader, particularly in future crisis situations. It shifts the focus away from defending a position to a more discovery oriented posture that allows for primary source investigation, historic reflection and civic exploration: What is the original "job description," as defined in Article II of the U.S. Constitution? Why was it organized as an elected position with a finite term? According to the founding document, what are the stated responsibilities and qualifications of the U.S. President? How do we interpret the job now?

From this level-setting and exploration of the written "requirements" of the job, students then explore what's most needed to do that job well: What past experiences, leadership qualities, and personal attributes would make someone most qualified and able to do that job? And, how might we use history to understand what "good" has looked like in more nuanced and specific ways? And what might we need from this leader in the future? What crises might we anticipate, and what will be the leadership actions required?

Vote by Design opens the door for students to do important self-reflection, dig deeper into what matters to them, learn more about each other and feel heard. As one student shared in her feedback, "I felt comfortably pushed to develop independent opinions and truly be able to support these claims. I feel that Vote by Design affected how I see the American electoral process as it educated me on past elections, campaigning skills, and how to analyze/determine what each voter truly wants in a national leader."

Since its debut in the fall quarter, Vote by Design has been turned into a free digital curriculum with teacher support material available on **www.votebydesign.org**. It's been run with thousands of students from diverse geographic and political backgrounds, partnering with civic education and community organizations such as the National Writing Project, Citizen Film, Close Up Democracy, iCivics, Citizen Film and even the Chicago Bulls! And, it was recently awarded a 2020 Fast Company Innovation by Design award in the learning category.

Paired Assignments

The Personal *Health* Project
and the Patient *Volunteer* Project

As told by: *Dennis Boyle*

In most *design work,* a main principle is that you are trying to invent or innovate for people other than yourself. These paired assignments pose an alternate approach: embarking on a short personal design challenge as a *learning* and *empathy strategy,* while launching into a longer effort focused on changing someone else's life.

One context that is highly suited to this approach is around designing individual behavior change in the context of chronic health problems. People die sometimes because it's so hard to change one's habits, like quitting smoking or eating poorly. Designing a way to support people to ease into better habits, not just end bad habits, can be transformational. But personal behavior change is just about one of the most difficult things you can tackle as a designer. The intimate knowledge of how behavior change works that each designer learns by doing their Personal Project helps catalyze a deeper level of effectiveness in the simultaneous Patient Project.

Even if you're working on a different topic, **consider whether devising a smaller personal project within the same theme would help you get to deeper insights about the nature of your work as a designer.** Many of the people who try this assignment find it subverts their expectations about the relationship between the designer and the designed-for, raising many interesting questions about how you might rethink this in your own practice.

Reflection: The Teacher

You can make a lot of money by designing drug delivery services to help people who are already quite ill. But there's much less out there that helps people avoid chronic illnesses. I want to foster more design work in that area. For example, can you help more people who are in the pre-diabetic stage avoid getting to the point where they get a diabetes diagnosis?

I work with some doctors who agreed to help me find patients who would volunteer to be part of a class. They just needed to want to change their lifestyle in some way. Because they are real patients with a chronic condition like heart disease, cancer, or are recovering from accidents, we protect their identities throughout the whole process. Most of them are in their 50s, 60s or 70s, and most of our students are in their 20s, so that's an interesting dynamic too.

Each volunteer patient is teamed with two student designers, most of whom are coming from engineering, business, or medicine–they are still early on in learning about what design really is. They meet once a week and are in contact daily. For the first few weeks, the students are trying to understand their volunteer patient, what they want to achieve, and the things in their life that might be preventing this change. Then they begin experimenting: each which they try a different prototype and figure out what works for the patient. The final product is a video that documents what happened.

This goes hand in hand with the students' Personal Health Projects. They do two, three-week long projects with another student, trying to change something about their own health. They want to do things like get more sleep, run eight miles, drink more water, start CrossFit, or eat less sugar. They often choose things that are too ambitious, and realize they need to scale back and start smaller–that's the first important insight.

The students coach each other, document the other's progress, and make little videos about their partner on how successful or unsuccessful they were. Telling the story helps them reflect and figure out what was actually driving the results. These personal projects are little rehearsals for the real thing. They get into the mode of being empathetic to someone else while being empathetic to their own needs, and especially how hard it is to change behavior. They start to use some of those insights on the process of behavior change with the patients: they listen more and grow more understanding.

It's profound to do the personal and patient project simultaneously for a few reasons. Getting to know a person that has a chronic condition...that is not a quick, easy challenge you knock out. You have to get this person to trust you so that you can start communicating, and figure out what they really want to do. Usually they start with things that they were told to do by their medical team. There are things they'd rather do that don't surface until a month or two into the process.

The students begin to notice how designing in accountability and reinforcement through social experiences is a profoundly important strategy for behavior change. New habits are easier to acquire if you do them with someone else, like going on a walk with a friend or eating dinner with family. The students start to make connections about the social nature of health habits, like "Wow, that really applies to my patient volunteer who is quite lonely." They'll try things like going grocery shopping with their patient and then preparing dinner together: not because that's the long term solution, but because that's a prototype that will tell them a lot about what might work based on the person's reaction to it.

The first few weeks of the project are sometimes slow while the empathy and trust is developing, even though the doctors are doing cartwheels because some of these patients haven't opened up to anyone before. When the students start coming up with experiments like getting a FitBit and seeing how it works, or making a chart of how many times a patient smoked in a day... then a weird transformation happens. By week 7 or 8 something starts to click, and at 10 weeks there's a story there. Something that can really work. They have a plan moving forward for how to sustain what they are doing in a way that usually overlaps with their spouse or family. We've had a great deal of success: the intervention of these students is so powerful, energizing, and empowering.

Dennis Boyle

Reflection: *The Designers*

Ben
Alpers

"When we met our patient-volunteer, she was at most mildly optimistic that she could 'lose a few pounds.' What we initially thought was apathy towards the project, we later discovered was actually an internal disempowerment she felt, caused by her history of chronic condition management in which she was used to always 'following doctors' orders' when it came to her health."

"In engaging her in the iterative design process, we saw her regain her personal agency by starting with small experiments, eventually building to the point where she became excited about cooking and improving her nutrition, and even tackling her sleep habits (which she wouldn't even consider it at the beginning as she thought it would be too difficult). The course gave her a new perspective on her ability to take control of her own health."

"I saw numerous times students and patient-volunteers were able to use design to change their mindsets about their ability to make changes in their lives. What's profound is that this outcome is not what anyone expects or signs up for. We are always surprised to find our outlooks change, and perhaps even find the idea itself surprising that it was our outlook that needed changing in the first place."

"Working on a personal health project while also working with our patient-volunteer leveled the playing field, so to speak. For our patient, we could tell from the beginning that she was uncomfortable divulging her thoughts and experiences in a one-sided way, so it was imperative that we each went around and shared how we were doing with our projects as well. Through this interaction, I realized I had witnessed first-hand the influence of the uneven power dynamic that is inherent in healthcare settings. Too often, a patient is coming to a healthcare provider for answers to their questions, but because of the provider's status leave with answers that aren't best suited to their lifestyle. I saw quickly that we needed to be there to help uncover the answers with her, not for her."

"It was only when my partner and I shared our experiences that we could balance this dynamic, eventually so that our patient-volunteer opened up and shared feelings and stories related to her health, particularly around how her family dynamic played a role. Without that, she would not have been comfortable doing so and our collaborative process would have suffered. Ultimately, patients don't want to feel like research subjects or talked at, they want to be heard and feel like someone is there with them to figure it out together."

RONN
Hamalainen

"'Behavior change' is a hot topic in both the health space and in culture today, and there's truly no better way to really understand it than to actually try to do it for yourself, with a partner, in a structured environment. One of the biggest takeaways I had from this project was the importance of accountability and of focusing on one factor at a time when making ANY behavior change."

"Those in the class who tried to change multiple things (drink more water! exercise every day! AND meditate!) actually didn't do any of those things well, while those who focused on just one variable achieved it successfully, and went on to change more behaviors over time. This really stuck with me and has helped me implement ongoing changes in my life and prioritize my time."

"What this assignment taught me is a reflection of what the healthcare system as a whole needs to do. Most of today's diseases are now chronic and lifestyle-related, so it's no longer an issue of lack of knowledge or technology. Patients know what they should be doing for their health. Knowing what you need to do is one thing, but actually doing it is another beast on its own, and we need partnership/accountability to do this. I think health coaching and other accountability programs will be the norm in healthcare soon, and I now have the basis for understanding them."

TEACHING AND LEARNING

Sarah
Jacobson

"The relationship I created with my patient partner during this project had a profound impact on me. It has shaped the way I think about my career, my relationships, and my own health."

"Doing my own personal health project was instrumental in developing empathy with my patient. At the time, I was doing physical therapy for an injured knee, and I set a goal of doing it five times per week. Realizing just how difficult that was for me allowed me to have more honest conversations with my patient partner, and she even started to hold me accountable to my goal."

"Another "aha" moment came from my student partner. Ironically, she was also doing physical therapy as her personal project, and at first we thought we could share prototypes since our needs were so similar. One day she came to class with an extremely detailed Excel spreadsheet that detailed her exercises. I felt overwhelmed by the spreadsheet and ultimately devised a visual calendar with rewards for reaching milestones. Though we had the same goal of adhering to physical therapy, the solution that worked for my partner was quite different than what worked for me. Care must be individualized to the patient and what motivates them."

Amanda
Zwarenstein

"I don't think we would have been successful with our patient projects if we hadn't done our personal health projects. There is no way to internalize just how difficult behavior change is until you try to do it yourself. It's not logical, it's not rational, and it's impossible to understand why someone would continue doing something they say they don't want to do without experiencing it first hand. Having projects run simultaneously also allowed me to apply learnings from one to the other and vice versa. I learned that designing for behavior change requires support, accountability, and determination, and having more opportunities to play around with the balance of these pieces was great."

"Having my own personal health project allowed me to find more common ground with my patient-volunteer as well, and we talked about my progress and challenges from time to time. So much of your progress is determined by how you think you're doing, and hearing another point of view from someone a little farther removed can be liberating and helpful."

Rorgio
Bornhausen Demarch

"I'm a trained physician from Brazil. My field is lifestyle and preventive medicine but I am also very interested in design. I used to say that 'only design can save medicine.' And this is no joke. I truly believe that helping people to live a healthier life is at the bottom of solving the largest part of healthcare problems."

"Obviously it is not easy to achieve that, but through this assignment I came to see how using design to grow more empathetic toward patients' needs is a great way to promote change. Learning to listen, to understand others, to help them find possible solutions for their problems, to try these solutions, and try again in case the first ones don't work, to celebrate progress and then move forward to another challenge is a mindset all physician and healthcare professionals should have on hand for their daily jobs."

The Right

by *Emily Callaghan*

Amount of New
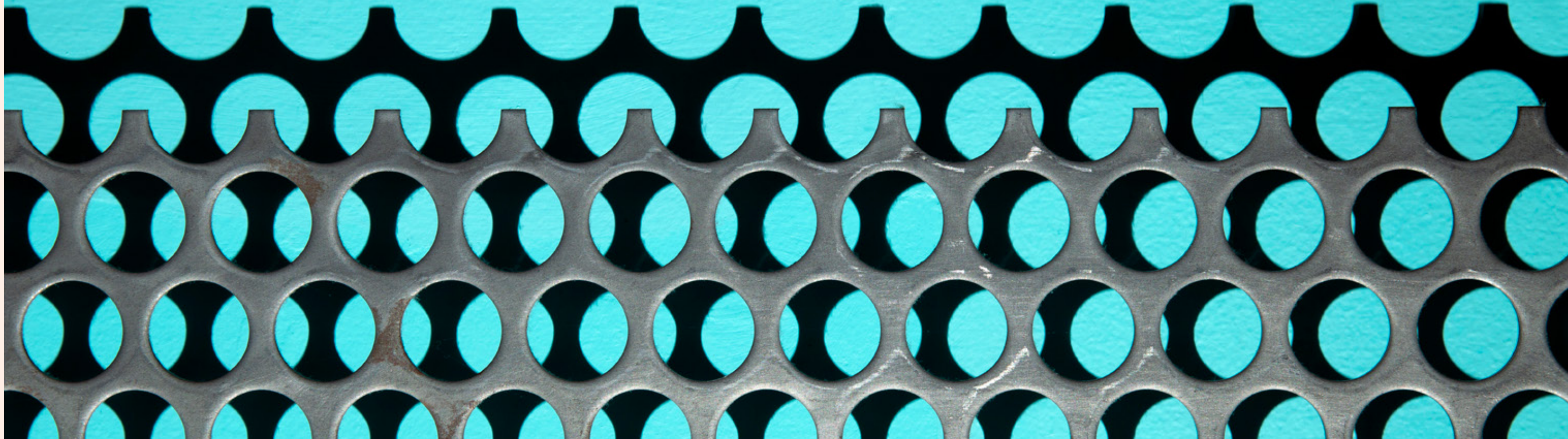
This year, I co-taught *Designing Machine Learning* and *Redesigning Finance.* Both were entirely new and thrilling intersections for me: new teaching collaborations, new content areas and new quarter-long class durations. That's a lot of new. Just the right amount, I think.

'Ve practiced and taught design in a wide range of organizations and schools. I've tried it on in so many fitting rooms and made it the go-to in my wardrobe. It's become that favorite pair of jeans that always fits, yet at times looks tired, worn and risks finding itself in the donation pile. I find that if I don't refresh design, it gets stagnant. So how do you make design feel new? This is a challenge that keeps me deeply engaged.

I think about my design work in three buckets: (1) design education, (2) consulting, and (3) experiments. The thread through all of them is learning–for others, but also for me. As an instructor, when I'm learning myself, I'm at my best for my students.

Alongside the resounding leadership of Michelle Carney, Seamus Yu Harte, Bruce Cahan and Amy Xiong, the newness and required learning for me in Designing Machine Learning and Redesigning Finance fired up a challenge to my creativity and navigation. It made me question myself and take new and familiar steps to guide students as they navigated these different and complex problem spaces, often very new to them, too.

The learning that happens with the right amount of new makes me feel equal parts excited and nervous. Of course, I appreciate a sprinkle of "you got this" self-talk, and encouragement from my cheering squad. It feels like disembarking the Hong Kong to Macau hydrofoil, equipped with a smile and the ability to use a map but not knowing the language, where to go or how to get there.

I have a model that helps me think about my work in a mix of ways; I call it the **creative maturity model**. I use this with others and in my own work.

Using Tools   **Making Tools**

Practice · Communication · Facilitate · Teach · Coach · Mentor
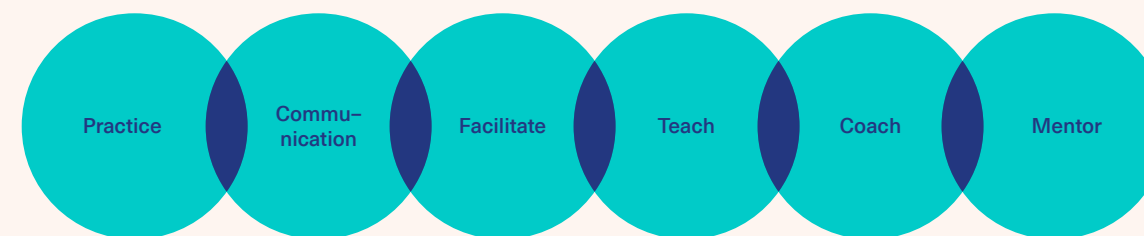
I use it to consider the breadth of how I'm challenging myself to learn. I use it to categorize the experiences of my career. I use it as a wayfinding tool to think about where I am and where I might go next. I've visually mapped my resume onto it. In the past, it felt like a tool for sorting– things seemed to fit more discreetly into the bubbles. Now, it's more of a blur.

As I consider how my experiences with Designing Machine Learning and Redesigning Finance map to the lenses of the model, I can parse and call out pieces of the challenges and teaching experiences, but the crisp circles would be better represented as smooth lines, brushed and meshed with a juicy watercolor stroke. I was a total novice and beginning my practice as a virtual teacher, facilitating team dynamics and mentoring students to find thrill in the ambiguity. As teaching teams, we were communicating across worlds of knowing and expertise to find common ground, terms and ways of teaching and coaching students to lean into curiosity over confusion.

This year of blurred teaching and learning was just the right amount of new.

Learning from our students

by *Maureen Carroll*

As we grapple with how to best engage our students with the design abilities in this turbulent time, we are challenged to rethink the nature of teaching and learning at the d.school.

It requires a reframing of how we *co-construct meaning* with our students in their contexts, how we *share authority* in our classrooms, and how we design *meaningful experiences* that our students will embrace and use to create positive change in the world.

or the past three years, at the end of classes, we asked each student to respond to the prompt: *"I used to think…and now I think…"* and have been analyzing that data in a variety of ways.[1] We see this as a unique opportunity to understand what learning at the d.school looks like through a student's eyes. This spring, we conducted fifteen additional interviews with d.school students to understand their journeys.[2] It was a delightful, surprising and richly textured experience. *Here are some of the things we learned, a mix of triumphs and tensions. Some of these things we've heard before, others are new.*
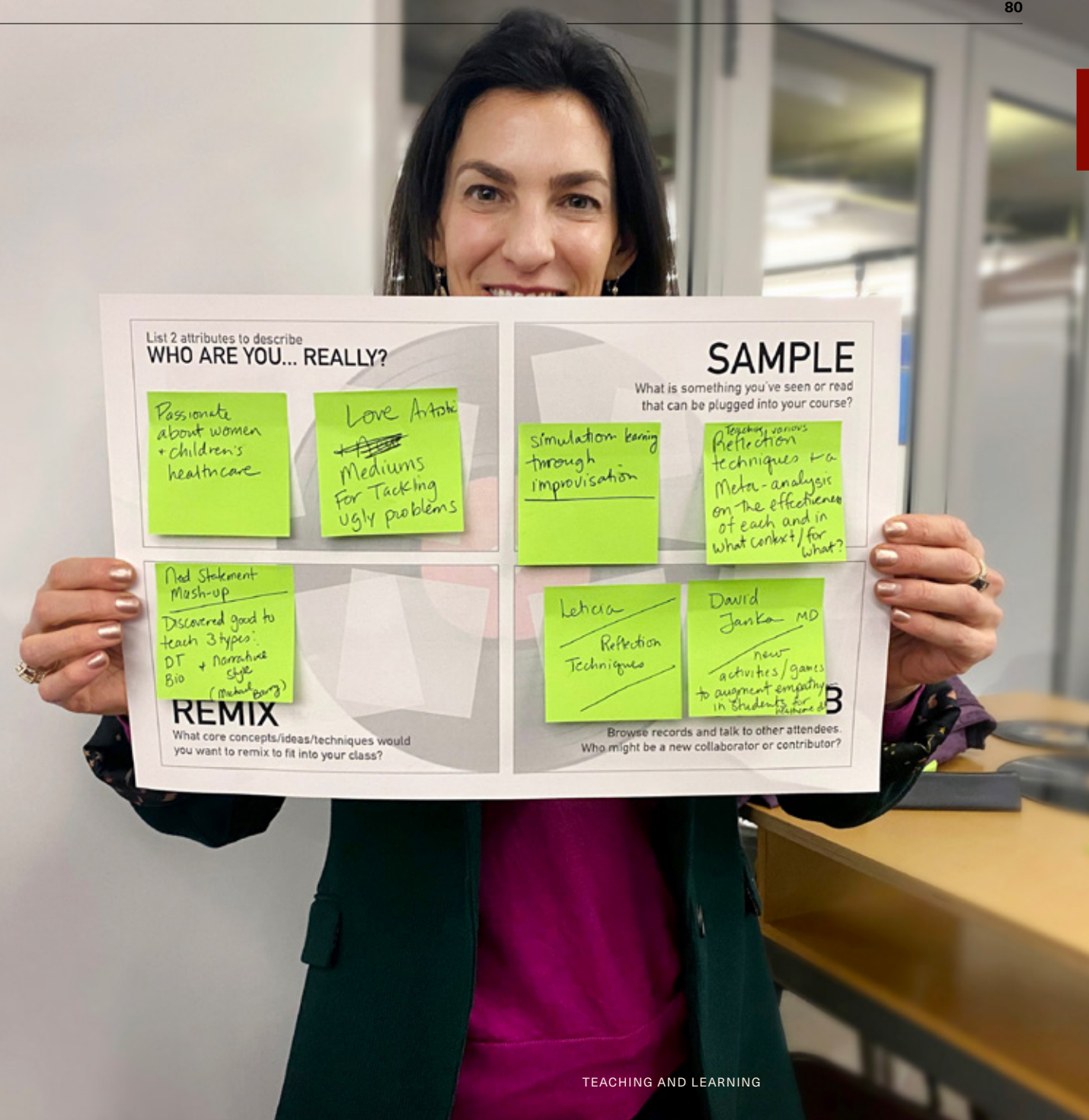
Personal Connections

Design Language

We Learned:
One of the most important things that matter to students is forging deep connections with their fellow classmates. These connections were uneven across classes.

Students' Voices:
"I was so pleasantly surprised at how close I felt to the people in the class. Most classes you don't know the names of students and I think I could probably go back and remember things from every single one of them. And so I was pleasantly surprised in the ability to develop relationships because of this journey that we were all we are going on. In addition to the content that was something that stuck out more than any other class I have taken. It created deep connections- it was almost a fast course on how to create deep connections."

But these kinds of deep connections did not happen when students felt that a sense of competition rather than a sense of collaboration permeated their class experience.

"It felt like a competitive versus a collaborative class culture. I felt that if I did not have something great to share it felt like it was the end of the world. There was more of a right or wrong answer. Your name was up there on the whiteboard. That's intense and especially when you don't have the culture. I didn't know these people."

We Wonder:
How might we create a classroom culture where students really get to know each other? Why is this important to our students? What kind of activities might we design to foster these deep bonds? How might we create a class culture that leverages/reconciles/connects salient aspects of competition and collaboration?

We Learned:
Students need to own the language of design in ways that make sense to them. Language is about culture, identity and power.

Students' Voices:
"The d.school teaches a language. It's not a new way of thinking, it's a new way to talk about things. This matters because the language affords ways to share things, improve things or change things."

"...design gives people a language to let communities speak for themselves and that it is a way to give back people power."

We Wonder:
How are students translating design in ways that are meaningful and resonate with their life experiences through language? How can we support students on this journey?

Equity & Co-Design

We Learned:
Students challenge the status quo as they examine questions about equity and design.

Students' Voices:
"One of the things I've always thought of is the issue of diversity...and to what extent those spaces have been dominated by people who come from high socioeconomic backgrounds, people whose parents have been professors, people whose parents have been to college, people who have had racial privilege or gender privilege and what that plays out in design. There is always this conversation of liberatory design. Those conversations have always been driven by people with a lot of privilege...I've thought about it and I don't know what the d.school can do about it. I wish there was a

more critical conversation about aspects such as colonialism, aspects about class and to what extent those aspects influence our design process. And who had power and who doesn't have power in the design work."

"How can we take schools to communities so that we can create designers within communities or from the communities so we can reduce the idea of us going to them?"

We Wonder:
What new courses can we build? How might we further understand and reimagine equity-centered design in our classrooms using National Equity Project frameworks?

Identity
Who am I/we? Who are our users?

Power
How are we respectively situated (relative to opportunity, institutional power)?

Context
What is our situation, our equity challenges?

Partnership
Given the above, how can we create a partnership that is liberating for all in the process?

Intention
...so that what we design generates increased equity.

Navigating Ambiguity

Connections to Other Coursework

We Learned:

Students come to the d.school with many experiences that have taught them to avoid ambiguity. Creating opportunities for students to practice this design ability helps build both their comfort and their ability to navigate it.

Students' Voices:

"I think starting to be comfortable with the fact that you're going to have some time during the process of design where you don't necessarily know what the next thing is going to look like and that sometimes that means taking a risk and making a decision and seeing where it goes and accepting that it may not be where things end up ends up working out at the end."

"The more you are uncomfortable constantly the better it gets."

"I think those things are hard but really worth doing."

"The ambiguity was a lot…it can be stressful- the lack of feeling like you have progress or whether you did the next step right and the iteration of possibly going back and forth between ideas."

We Wonder:

How can we continue to set expectations that normalize ambiguity? How can we spread design experiences that help students see ambiguity as an opportunity rather than as a roadblock?

We Learned:

Some students struggle to reconcile the approaches they are learning in their other courses with the new ways of thinking and doing that they are learning at the d.school.

Students' Voices:

"I guess I thought of the d.school as this colorful place where a bunch of magic stuff happens inside of a box and you leave and you're like brilliant and you have all these ideas about how to do things better. It felt like a place to get answers to questions."

Students make attempts to reconcile these different approaches with varied results.

"I try to bring mindsets like Yes, And, into lab meetings and bring scientific rigor into my work at the d.school."

And they acknowledge the differences in the kinds of problems they face.

"It was even harder than when I had to do it for my Ph.D. research and I think it's because you have to accept that, at least with my background, that in order to progress you have to put in some kind of quantitative metric and you can kind of paint like a finish line. And you have to accept that that's probably not going to happen… because it's a much more multifaceted problem that you can't assign a number or some kind of classification to everything."

We Wonder:

How might we create spaces for conversations to help teaching teams learn more about how to support students' journeys on how to reconcile these different approaches? Where do the learning approaches in other disciplines converge and diverge with d.school methodologies and pedagogy?

Instruction

Students are aware of and appreciative of the thoughtful design that goes into their classroom instructional experiences. They feel a sense of comfort and a sense of agency when they know they are supported by their teachers.

Students' Voices:
Students appreciate the structure, agency and tools that characterized their class experiences.

"I could see that the class was based on a lot of structure, planning and intention in each activity."

They liked having choices about how they participated in class activities. This included things like choosing topics, project partners, or deciding who to interview.

"We had a lot of responsibility and agency in the process."

The way the class culture was established influenced students' experiences. When the teaching teams modeled different activities this created an expectation regarding everyone's participation.

"...diving in fully is the expectation and students realize that everyone was expected to give one's full self, not just dip a toe in the pool. It felt more like an unscripted, expressive invitation to explore rather than a recitation or declaration."

We Wonder:
How might we have more conversations among teaching teams to explore the intentionality behind instructional design? What can we learn from and with each other?

This project gave us an opportunity to dive more deeply into our students' experiences. And as we listen to our students' voices, we are continually reminded that, as educators, our goal should always be to learn as much as we teach.

[1] The "I used to think... and now I think" prompt is a well-known reflection protocol in education. Our initial inspiration to use it came from the book **I Used to Think…and Now I Think**, edited by Richard F. Elmore.

[2] These interviews were collected from students who had taken classes at the d.school. They included students who were enrolled in Ph.D, Master's degree, Distinguished Career Institute, and undergraduate programs who studied in the Graduate School of Business, the Graduate School of Education, and whose majors included computer science, bioengineering, business, and learning design and technology. The quotes here are anonymized but used with the students' permission.

In Front of the *Transition*

About:

The COVID-19 pandemic forced us to transition from our traditionally in-person, highly hands-on and group work-oriented classes to an entirely remote and distributed way of teaching, learning, and working starting in March 2020. In this section we share how we took on this transition.

The Great Transition

by *Glenn Fajardo*

knew it was coming. San Francisco, where I live, had already been under a state of emergency for two weeks. My brain was trying to distill 12 years of distributed collaboration experience as I was gearing up to help coach teaching teams to prepare for a virtual spring quarter. And yet, I had no idea on Thursday, March 12, that it might end up being the last day I stepped foot inside the d.school in 2020. It was so... sudden.
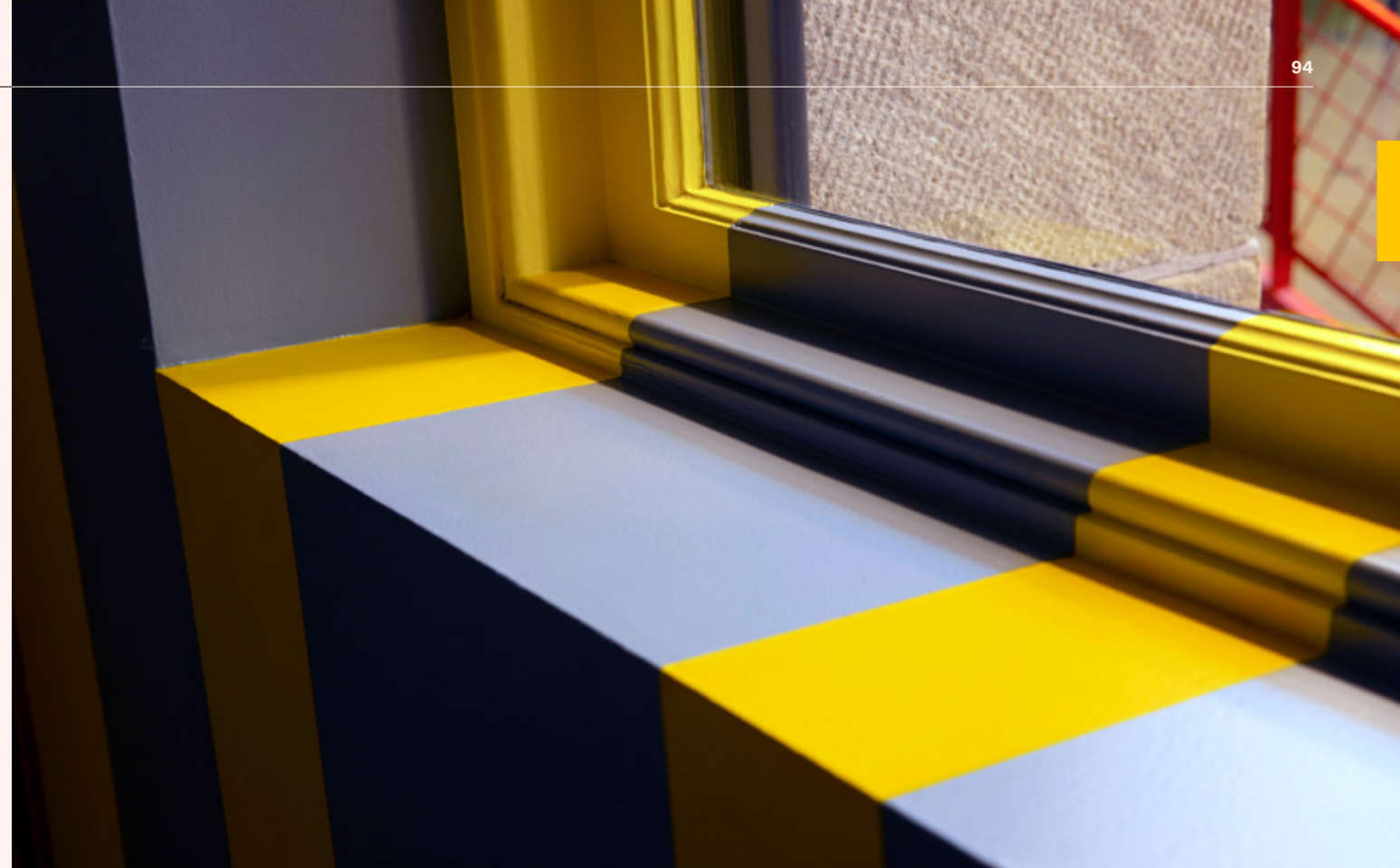
The abrupt transformation from in-person to virtual was like a sudden substitution in cookware. Most instructors were used to having a saute pan, a nonstick fry pan, several size pots, perhaps a Dutch oven, all used on a four burner stove. Then overnight, all our instructors had to cook with was a round-bottom wok over a 100,000 BTU wok burner. It's...different.

When you're one of the few people who has extensive experience using a wok–i.e. teaching virtually, how can you help your colleagues and community make that great transition from one context to another? When I reflect on our community experience, I think of these five points:

1 Give folks a doable, tasty taste. At a March 23 demo of a virtual class, we focused on simple things that showed how a virtual class could be fun and experiential. We didn't have to feel trapped in an unfamiliar context.

2 Get food on the table. As skilled chefs that cook up amazing d.school classes, we're aiming for exquisite meals. When we're in a completely new world, with all that went on in 2020, it's ok to celebrate just getting food on the table. Seriously, something as basic as learning how to use breakout rooms, that's a win. Yum.

3 Hang out in the kitchen together. One of my favorite parts of Spring 2020 was hanging out with other instructors in a kitchen called Virtual Trickster, where we shared teaching tricks we were cooking up. It was a more intimate gathering where 6 to 12 people could demo, try, talk shop, and share space.

4 Go beyond the obvious technique. This is a corollary to #2. While we want to celebrate getting food on table, we don't want to always settle for the obvious. When people first start using a wok, the tendency can be to make everything a stir-fry, when you can deep fry, boil, stew, steam, smoke. Similarly, as we support each other's growth in our virtual teaching practice, we need to push each other beyond the obvious use of a tech tool, and think more creatively about affordances it makes available to us.

5 Experienced hands can reassure. I knew I had specific approaches, techniques, and know-how I could contribute during this time of virtual transition and transformation. But one thing I hadn't fully considered before is this dynamic: It can be really reassuring to everyone that there's at least one member of the community who knows what to do and has a sense of possible paths forward. Being there as a security blanket and a backstop can be a form of service and leadership.

We made it through The Great Transition. Will we ever go back? What new kitchen skills will we develop? When we are reunited in space with our old familiar tools, will we incorporate our new ones?

Design Thinking at Home

by *Bernie Roth*
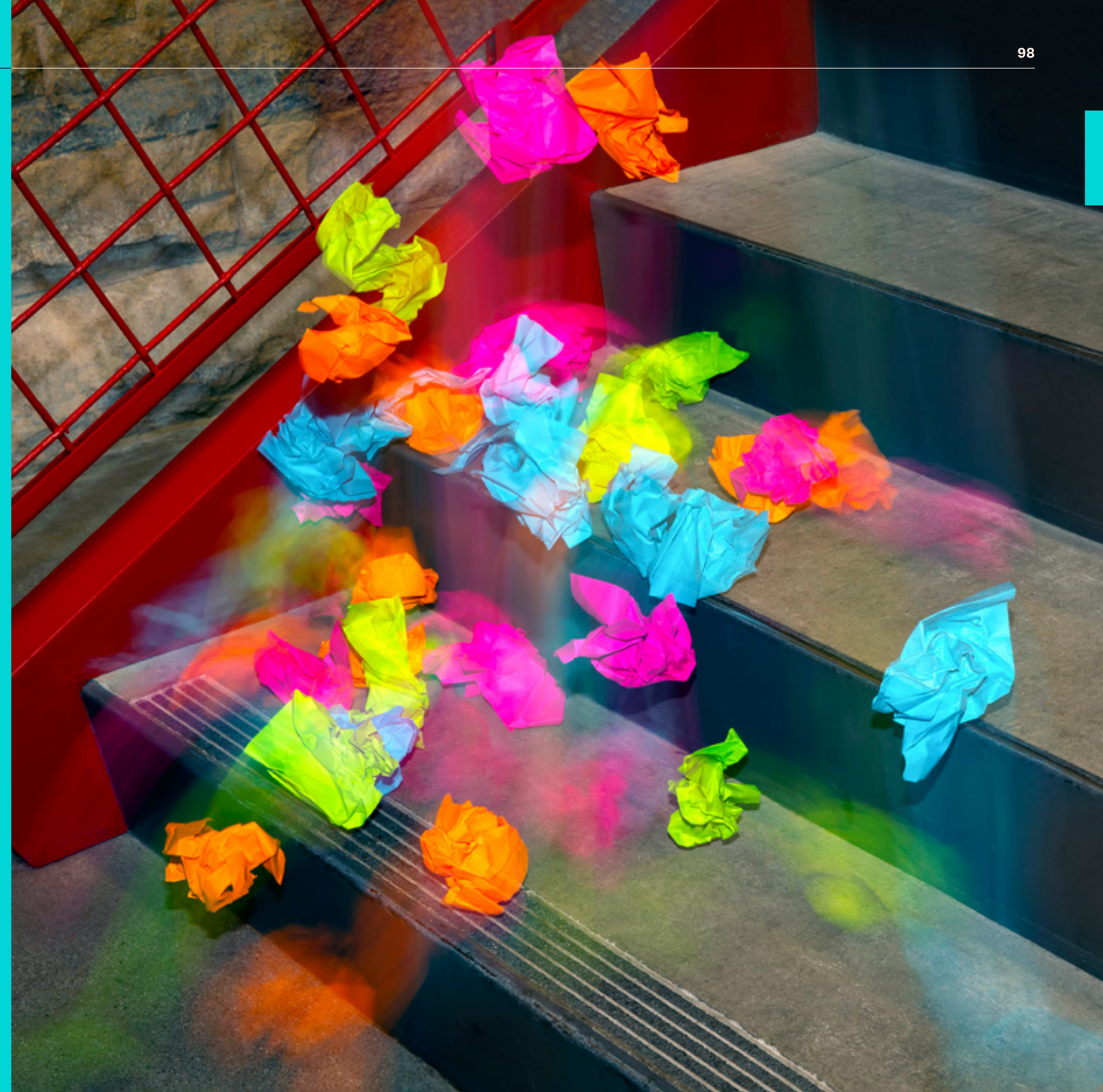
I n the d.school we use design thinking to work on problems that mainly deal with other people's issues. Usually we are dealing with an entire category of people, not single individuals. For example, although we might work on finding ways for seniors with reduced mobility to use city buses, we rarely would worry about our own aunt Felice, unless of course she represented the typical or extreme rider. Even if we ventured into our own family, we would almost never apply design thinking to our actual daily activities. When we do get personal, we usually treat generalities such as designing your job, or your life, or making yourself more creative. Yet life is full of specific issues that we need to attend to daily, the problems we need to deal with are not transformative in nature, they just get us through the day.

Most such problems get handled easily without any special effort on our part. However, we all have issues that either linger or take on special significance. In retrospect, I find that the "tough" problems in my life are not any more difficult than the problems I solve daily without hesitation. The difference is in the way I see the problem and myself. Do I see the problem as something I can handle, or is it something insurmountable? A lot depends on my

self-image. If I think of myself as a problem solver, then even if I hit a barrier, I will find my way to a solution. If I think of myself as helpless, then once I hit a barrier in my thinking, I label the problem as unsolvable. In my opinion, the best thing d.school classes can do for students is to give them a sense of personal efficacy. Once they experience the power behind taking control of an arbitrary piece of their world and changing it for the better, they have a good chance of transforming their self-image into seeing themselves as problem solvers, and that influences their thoughts and actions in new ways.

As an example, a friend was very upset over an unexpected change in policy in a care facility she had expected to move into next year. Due to COVID-19 induced construction delays, she was being asked to start paying her monthly fees six months before she moved in. My friend has a limited income, and she could not imagine where the money for the extra six months would come from. She was very upset at the prospect of having to change her plans and find a less desirable care facility. She was defeated. She had yielded to the constraint "I don't have enough money." Fortunately, I was not emotionally involved, and could almost immediately imagine several workable solutions. The proposed solution that she liked best was: "Three

of your grandchildren no longer live at home, so your daughter has an empty-nest. You could move into her house for six months, rent out your house and use the extra income to pay the unexpected charges." Not exactly rocket science! So, how come my friend who is a bright Stanford graduate did not see this, and other equally obvious solutions to her dilemma.

I know that she does not see herself as a problem solver in areas having to do with money. My friend's self-image includes the idea that she does not understand much about money. So, once the obstacle of needing the extra six month's funds appeared in her life, she was defeated in terms of figuring out how to handle it.

So in addition to empowering students to think of themselves as problem solvers, what else does the d.school teach that could assist with the ups and downs of daily life? Although we could apply a formal design thinking process to every problem at home, it is probably overkill. Clearly, it would usually be a mistake to apply a lengthy formal process, such as the old standby:

Empathize, Define, Ideate, Prototype, Test, to each everyday problem at home. Yet, some of these process elements taken on their own might be incredibly effective tools. Similarly, the abilities we strive to teach: *Navigate ambiguity; Synthesize information; Learn from others; Experiment rapidly; Build and craft intentionally; Move between concrete and abstract; Communicate deliberately; Design your design work* are useful in building confidence in a student's problem solving ability.

For me, many productive implementations have resulted from the use of one or more of the mindsets:

Human centered, Bias toward action, Radical collaboration, Culture of prototyping, Show don't tell, Mindful of process.

Still, when I recall the satisfaction I felt in solving problems at home, by far the best results seem to have come from reframing and the transcending of imagined constraints. Looking back at some of these "insurmountable" problems, I am amazed at how very simple the solutions turned out to be. A very important skill was learning to reframe both problem statements and the way I see issues and actions. Reframing is one of the key tools used by mental health professionals, designers, and other problem solvers.

Reframing a problem statement can be done in many ways. My favorite involves turning the desired solution into the problem statement. In effect, I am changing the desired answer into the question. For example, if the problem statement is "How do I repair my bed?" I first ask myself what I would achieve if I repaired my bed. If the answer is

that I would get a good night's sleep, I would reframe my question to be "How do I get a good night's sleep?" Clearly the reframed problem statement has a much larger solution-space than the original problem statement. If I was still stuck after reframing, I could reframe again by asking what it would do for me if I got a good night's sleep. If the answer is: I would feel more rested. The newly reframed problem becomes "How do I get more rested?" Which has a larger solution-space than just getting a good night's sleep.
It is also important to be able to reframe how one sees issues and actions. Every issue and action can be seen in multiple ways. Some of the choices are not functional and can even be destructive; others are functional and constructive.
It is important both in problem solving, and in regard to social and mental health to be able to reframe your actions and your views of issues so that they support your intentions.

In the d.school there are now a few courses that deal directly with solving problems at home. The trend seems to be to increase their number. It is a fruitful area for design thinking, and it is good for the world to bring design thinking into everyday life.

Designing Bridges

by *Milan Drake*

Designing Bridges is a series of questions posed to d.school instructors and students that range from the lighthearted to the metacognitive. From "What is your experience sheltering in place?" to "How might we make the awakening in this moment last beyond this moment?"

Designing Bridges was born out of the efforts to build and sustain authentic communities within and outside of the d.school as well as the exposed realities of two global, public health crises–COVID–19 and racism. This goal of *Designing Bridges* is to document how curriculum, pedagogy, and emphasis on designing a sense of community confronts societal structures of old and builds bridges toward establishing new norms and spaces.

Both the questions asked and the answers given reflect an honest perception of the action, beyond words, that it requires to draw awareness to social determinants that exist in our society and our academic institutions. *Designing Bridges* represents the capturing of who we are as a d.school, how we support each other and our students, and most importantly, how we design to be leaders in resolve.

We made a deliberate effort to check in on how instructors and students were holding up while sheltering in place. We took it back to the old school–how humans used to communicate back in the early 90's: the phone, and removed the need to stare at a screen. The response was epic.

1

We Were *Overwhelmed & Overloaded*

The feelings overwhelmed and overloaded were commonly shared with me during four phases of check-ins:

Phase 1: At the very beginning of the shelter in place (SIP)
Phase 2: The days and weeks following the SIP
Phase 3: In preparation for the spring quarter, and lastly
Phase 4: The days and weeks following the start of the spring quarter.

It was common to hear that instructors pushed through all these phases with the students' well-being in mind.

2

Boundaries Were *Dissolved*
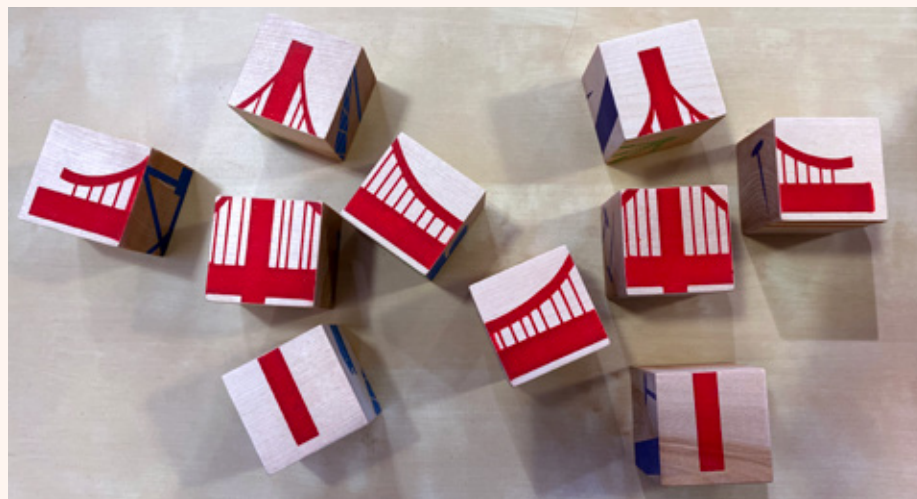
There were once clear boundaries between work and home, family and business. The lines that protected the sacred spaces of homes, families, and personal time went from crisp to blurred to obliterated. The classroom embodied all space and time.

3

Emotions Weren't *Anticipated*

The social emotional ups and downs during the SIP created a "saw-toothed reality" for instructors. None of us could have anticipated what SIP would be like. What did end up happening was over time each instructor's saw-toothed experiences were no longer surprising or shocking...it became expected. With that, emotional connectedness, motivation, and creativity slid up and down the teeth on a saw several times throughout each day, each week, or even every class.

4

Class Drops Were *Hard To Take*

It was disappointing to have students drop or withdraw from d.school courses. Some took a leave of absence from Stanford and others focused on other courses. Naturally, some instructors shouldered taking the student decisions to drop, personally. There was an obvious hope that the planning, collaborations, the guest lecturers, and all that goes into designing a class would come to fruition with and for the students. Having students feel they need to remove themselves from your class, your presence, your space of care, is a lot to take in.

5

We Never Stopped Getting *Our Bearings*

The onset of the pandemic required a much–needed external and internal grounding, reflection, and assessment. Instructors stated they appreciated the space and time to just get their bearings and figure out how to transition to the virtual platform. Another common theme connected to needing a moment to get grounded was the appreciation of the Teaching + Learning Team and the leadership displayed in this process. The messaging was clear from T&L,

"we are here whenever you need us."

6

We Were All *Different & Together*

We learned a lot about ourselves, how much space our homes truly have, and the strength of our wifi or the lack thereof. Every teaching team felt the impact of COVID-19, SIP, and the virtual teaching transition. Home situations varied. Some members were single and living alone, others were single-parents now shouldering the role of "overnight educators" with multiple children. What remained a prevalent occurrence was that every team, and I do mean every team, came up with ways to support each other and give people space to adjust, care for family members, be a parent, and support each other in and out of class.

7

Phones Felt *Good*

"Can we just call them? Just call to say....hello?"

The simplicity worked. The phone calls were a pleasant relief and break from the long hours staring at computer screens.

8
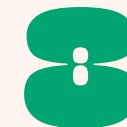
We Gave Extra *Support to Students*

The T&L Team built a digital Student Handbook, and instructors responded to the virtual classroom setting with resounding love and support for students. Support came in the form extended office hours, frequent post-class Zoom time, uniquely designed in-class breakout sessions, pre and post check-ins, and more. What I noticed more than anything was the thoughtfulness and long duration that instructors made themselves available for the sake of every student's well being.

9 Solitude Came In *(Heavy)* Doses

For anyone who has ever spent more than 30 minutes at the d.school, it is a place that you just seem to want more. It's not just the building, it's the people. Instructors shared with me the rigors of isolation. Again, that looked differently for each person. For some, it brought newfound freedom and time for hobbies or catch-up with family and friends. For others, the days tallied just how long it had been since physically seeing another human, hugging another person, or being able to visit public places.

10 We Tried For *Human Connection*

Instructors commonly expressed the efforts they made to capture and replace human connection in the virtual classroom. Some felt they were able to do so. Some felt they missed the mark but could not stop reaching for it. Some discovered new types of human connection.

11 There Was *Power in Listening*

COVID-19 made a valiant effort to ravage our campus, our d.school community, our city, our state, our nation, our families, our health, and more. However, COVID-19 did not expect to be combated by the listening ears and hearts of every d.school instructor. Instructors found ways to ensure whatever each student was wrestling with was heard and not ignored. Though this was appreciated and welcomed by students, it took a lot of work to coordinate making sure students were heard and responded to. Every instructor's effort was met with reciprocity and appreciation from the students they served.

12 We Did Some Incredible *Design Work*

Lastly, but possibly one of the more popular commonalities amongst instructors I spoke with was the feeling of doubt in providing students with a high quality design learning experience. Some thought the online platform constrained their design work. Others pointed to the original design of the class and the need to rebuild it entirely as getting in the way of learning. Some highlighted not being in the same place as their students, or missing the hands-on quality of their teaching. What I saw was designers, designing. Yes, some were designing in unfamiliar territory. But the result was more beautiful than many instructors give themselves credit for. They survived while serving with love and being connected, in spite of being apart. They made history and they definitely *"designed their design work."*

TEACHING AND LEARNING

Farther in Fellowship

by *Glenn Fajardo*

On April 15, I was already happy that Tax Day got pushed back. And then I got the call from Carissa: "Glenn... it's time." She asked what I thought about being a Teaching Fellow at the d.school this summer, given the relevant experience I could bring to today's teaching challenges.

For 12 years, I've been a practitioner of distributed collaboration, working with people and organizations across the globe engaged in social impact work. I've taught many classes and workshops on how to be creative together when far apart, such as Design Across Borders at the d.school. Now was the time to bring that expertise farther in when everyone had to be farther out.

I was *thrilled* for the opportunity to *push boundaries* in community and joined the *Teaching & Learning* team for the summer. My fellowship focused on how we teach, learn, create, and relate in a distributed world.

Explore *Distributed* Learning

Within this, I explored five themes:

Human Connection

Networks

Difference and Diversity

Attention Shift-ability

Physical and Multi-sensory

I integrated these themes into the inaugural d.school Course Development Summer Camp, where the Teaching & Learning team supported instructors in pushing the limits of what's possible in distributed learning experiences. I'm also creating additional instructor resources around some of my exploration themes. Those resources will be part of our post-camp "Trails" that we'll make available to the d.school community.

I'd like to thank Carissa, Kelly, Megan, Milan, and Seamus for so warmly including me as part of the Teaching & Learning team this summer. I'd like to thank the entire d.school Home Team for having me around. I'm reminded in these times that the d.school truly is a community and a mindset. In a socially distant world, we can go farther together by finding new ways to unlock our collective creativity.

How to *survive* a
Rocketship
Explosion

or a *reflection* on the *teaching &*
learning experiments launched
with *Design Work* 2020

by *Kelly Schmutte*
& Seamus Yu Harte

Hook.

That's what astronaut Nick Hague told our students in Design Work 2020 after sharing a video of one of the most triumphant failures of his career—his rocket ship exploding.

Here's the story:

On October 11, 2018, Nick Hague climbed into a rocket. He had been training his entire career for this moment. Then, 37 seconds after lift-off—the rocket exploded. Thankfully, 33 seconds after lift-off Nick and his co-pilot Aleksey Ovchinin were ejected from the rocket and safely landed somewhere in rural Russia where a team of doctors and scientists had already been dispatched to—well—welcome them home safely.

Nick went on to share how the difference in that critical moment of life or death went in his favor because of the countless men and women that work tirelessly to successfully launch a mission. "No one gets to the moon alone," he said.

Six months later, Nick and Aleksey climbed back into a (new) rocket. Then, three hours later, Nick and Aleksey were floating in space with their new friends onboard the International Space Station ready to conduct experiments for the next six months in microgravity.

Lucky for us, Nick was one of the last guest lecturers to visit our class. Our "d.school rocket" blew up just after he left. Suddenly, we found ourselves ejected from our planned trajectory of navigating some of our most ambitious teaching and learning experiments in years.

Unbeknownst to us, Nick had just shared the most important lesson we'd need to know for the months to come:

"You survive something like this because of the people *around you.*"

Backstory.

Just like Nick and Aleksey, we had been working for a few years on what would become the experiments of Design Work 2020. And just like Nick and Aleksey, we suddenly found ourselves dazed and confused in a metaphorical rural field once COVID-19 blew our rocketship into a new trajectory.

Just as Nick had been training for years to become an astronaut, Design Work 2020 was one of the most ambitious teaching and learning experiments we'd done in a while—and it too was years in the making.

To summarize quickly, after identifying the ability to navigate ambiguity as the designer's superpower a few years ago, teaching and learning experiments have been underway to design and develop an optimal curriculum for this learning outcome. From one-off workshops to redesigning the seminal undergraduate design course ME115a with David Kelley, curriculum experiments large and small led the team to an exciting driving question last year:

If NASA doesn't start training people to be astronauts by launching them into space, then why do we start training people to be designers by launching them into ambiguity?

With that question in mind, we started crafting experiments that would allow us to expand the runway of a student's experience here at the d.school:
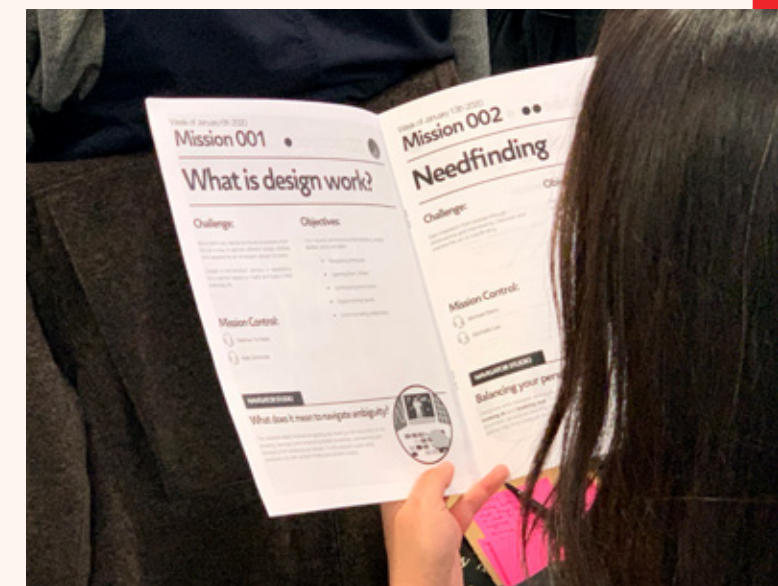
Experiments.

Modifying Quarterly Flight Paths

Inspired by how NASA conducts "space camp," an earth-bound training period for astronauts, we made Design Work 2020 a two-quarter commitment. The first quarter, or "basic training," was designed to go deep on skills and abilities to build confidence. The second quarter, or "advanced training," was where they'd launch into a more traditional project-based mission.

Modifying Weekly Flight Paths

From years of teaching, we know an unnecessary amount of student time and energy is wasted on team coordination for design projects needing to be completed outside of class time. Knowing that the first quarter was going to be about going deep on skills, we took the traditional M/W class block and double blocked the time for Mondays during the first quarter (eg, 1:30–5:20 on Mondays instead of 1:30–3:20). More in-class time on Monday allowed us to create "Monday Missions."

Monday Missions
(vs. Design Projects)

Monday Missions were 2–3 hour micro project-based learning experiences geared toward a specific skill or ability, rather than an entire design process. Imagine how astronauts practice space walking missions in a pool before attempting them on the space

station. From topics like designing the future of Memorial Church, pitching the next Pixar film, and building a cardboard transport pod to carry precious personal cargo, our missions were diverse and designed to safely push students outside of their comfort zone. Of course, designing and delivering a quarter's worth of Monday Missions is a lot for only two instructors, so we again looked to see how they did it at NASA.

Mission Control Directors

Inspired by how NASA leverages expertise by having different people direct different aspects of a mission from mission control, we invited veteran teachers to co-design and lead Monday Missions. This leveraged the expertise across the teaching community, exposed students to different ways of thinking and allowed the core teaching team to keep an eye on how the macro learning experience was unfolding knowing the micro lessons are being directed by experts. But diving so deep into skills on Monday required us to find balance on Wednesday.

**Wednesday Navigator Studio
& Spotlights**

Similar to how NASA would have a post-flight debrief to learn what happened and how to improve, Navigator Studio was the complement to Monday Missions, creating space to unpack the skills they'd applied with their teams on Monday, and step back and look at broader design strategies through real world case studies presented by the teaching team.

And similar to how we had "Mission Control Directors" come in on Mondays, often we asked people that had "been to the moon and back" in their own worlds to come in and share their experience with our students. We called these Navigator Spotlights. One student reflected, "I loved being introduced to the myriad of ways design can be applied."

**DESIGN WORK
2020**

Conclusion.

This was just a handful of the many experiments we had in motion. And we are just as excited about our big question: **"If NASA doesn't start training people to be an astronaut by launching them into space, then why do we start training people to be designers by launching them into ambiguity?"** today as we were in the fall.

But as the old saying goes,

"If the bridge you're on falls, then nothing else matters."

And to update that for this story,

"If the rocketship you're on *explodes,* then nothing else matters."

When our rocketship of curriculum experiments exploded with the COVID-19 pandemic, nothing else mattered but the people on it—our students. And all of our effort immediately went into making sure our students were okay as people first—

and students second. And that meant letting a lot of our experiments go. It is hard to say how these experiments would have played out over their full trajectory. But there are some promising indicators.

Quantitatively speaking, we were able to document a decrease in the moments where students self-reported being in the "panic zone" compared to the same reflection activity run last year.

For various reasons, many of the students needed to remove themselves from the two-quarter commitment once they were required to leave campus in the spring quarter.

That said, many of the students that made it out of "Basic Training" showed a notably increased confidence in the ability to navigate ambiguity, compared to other students in the spring quarter.

Fall is coming and we've already begun rebuilding our next rocketship. This time we'll be launching to and from strange new worlds.

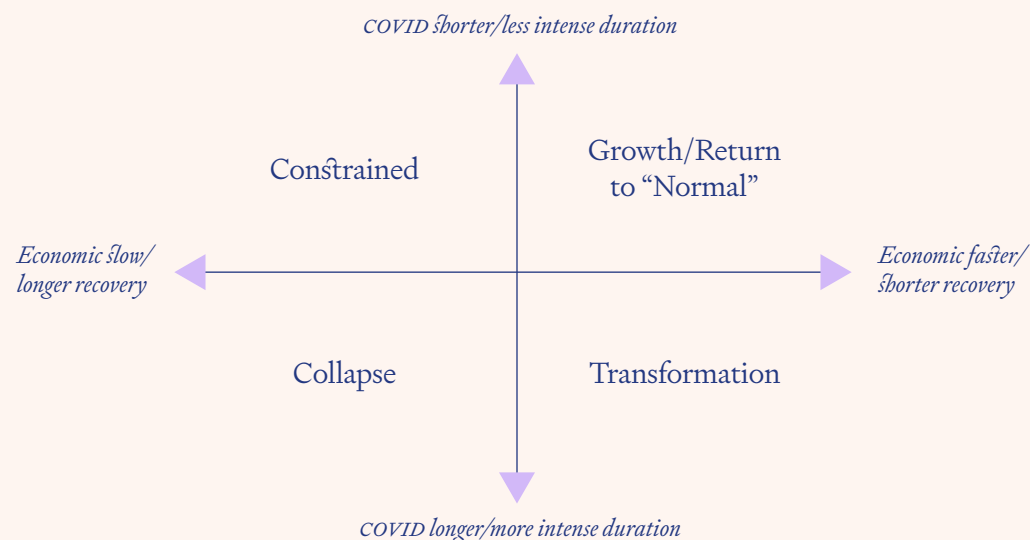**Failure is an option. But it's nothing to fear. We know we'll survive. Because of the people around us.**

Which future?

by *Lisa Kay Solomon*

In a world filled with increasing uncertainty and unknowns, how do we productively plan for the future? While we can't predict, we can learn how to "rehearse" the future to be more prepared. **Scenario planning** is a technique that helps teams have well-designed conversations about the future, especially when they face major uncertainty and change. It has been used as a strategy tool in organizations for over 50 years, yet is more relevant and necessary than ever.

Scenarios are multiple, alternative stories about how the future could play out, which encourages teams to challenge their own assumptions and think creatively about change.

In March, shortly after COVID-19 abruptly transformed life as we know it, the d.school leadership team immersed themselves in a scenario planning sprint to explore how it could imagine what life might look like as the acute and drastic change of the pandemic played out over time.

COVID *Shorter/less intense duration*

Constrained

Growth/Return to "Normal"

Economic slow/ longer recovery

Economic faster/ shorter recovery

Collapse

Transformation

COVID *longer/more intense duration*

Will the *duration* and *intensity* of the pandemic be long and drawn out, or *shorter* and more *episodic?* Will the depth and impact of the economic impact be *wide* and *expansive* or more *resilient* and *short-lived?* Would there be a "*return*

to normalish" future where life would resume in ways that we recognized, with modified in-person campus life returning? Would there be a more *"constrained"* scenario, where life was far more modified, based on economic

constriction? Would there be a *"collapse"* scenario, were the pandemic intensified and the economic impact was *lasting?* Or would, there be a *"transformation"* scenario, where the economic recovery and tech innovations might

# help *overcome* the impacts of the pandemic? *(Note: we made an intentional choice not to build this one out)*

or each of these scenarios, we explored different types of needs and requirements in these worlds. What might campuses look like? What do students and faculty need to feel safe and supported? What choices could community and organizational leaders make to help ensure a baseline of safety and wellbeing? By exploring a range of possible futures for how the pandemic and recovery might play out, we not only imagined a wider range of potential solutions to support our students, our teams, and broader communities, we also become more imaginative, flexible and resilient in the process.

Even as new uncertainties emerged, the scenario planning process helped anchor our design teams into robust options among any future, allowing for action and experimentation over paralysis and dread. For example, the culture team explored ways to reimagine fostering a community of care and connection. The teaching and learning team fostered experiential learning through distributed and remote formats, while holding on to empathy and human connection. This process pushed our own abilities to navigate ambiguity, experiment rapidly, design our design work, and move between abstract and concrete in more fluid ways.

As our scenarios helped inform our internal choices, we started sharing them with different communities to support more agency, imagination, and co-creation in the face of uncertainty. The UIF team incorporated futures and scenarios into their global hackathon, and later used it as a conversation with higher ed leaders. The K12 lab supported 3 week scenario thinking design sprints with over 30 schools, engaging hundreds of school leaders, administrators, teachers and students in the process.

As a result of this work and its impact, we are exploring new ways to expand our futures work for and with our communities. Stay tuned!
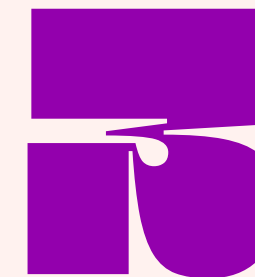
Within the *Community*

About:

Community has kept us going, propped us up, and forced us to think hard about what we stand for, how we can be more equitable and inclusive, and how we support each other, especially when we are not able to be together. Keep reading to learn about the ways we've built community within the d.school, teaching teams, and amongst students.

Pop–Up

Record Store

by *Milan Drake*

"Music does a lot of things for a lot
of people. It's transporting, for sure.
It can take you right back, years back,
to the very moment certain things
happened in your life. It's uplifting,
it's encouraging, it's strengthening."
–*Aretha Franklin*

The Queen of Soul's words
rang true in our 2019–2020
Pop-Up Record Store. The
Pop-Up Record Store is the
metaphorical offspring of Rasputin's
Records and the d.school library of assets.
Yep, that cool. Instructors come to the
record store, collaborate and share ideas
with colleagues, and discuss and create
courses with instructors past, present, and
future all through musical connections.

Our record store was filled with crates of
albums, just like a record store you'd visit
in real life (if we were not sheltering in
place) except these albums are designed
by instructors giving their insight and
knowledge, tips, and insight on teaching
awesome classes at the d.school.

Each album was created by individual
instructors and included the following
tracks with description and reasoning
for each:

Track 1: What **song** or **album** best
describes any **course/class/workshop**
you have taught/led?

Track 2: What **song** or **album**
best describes the **students** you
have served?

Track 3: What **song** or **album**
best describes your **collaborative**
experience with other teachers?

Track 4: What **song** or **album** best
describes WHY you want to **teach
at the d.school?**

Alumni/ Citizen Creator Event

by *Charlotte Burgess-Auburn*

For ten years, we ran our Pitch Night pretty much the same way, broadcasting our Winter and Spring offerings in a high-energy night of grab-and-go info from dozens of teaching teams to hundreds of students. Always lively and fun, it was also pretty frenetic.

In the Fall of 2019 we questioned that format. Was there a coalition of students for whom that kind of format doesn't work? We wondered, what if we offered a menu of different ways to dip a toe in at the d.school? Would we see a more diverse group of students apply? At the same time, we were launching the Citizen Creators posters into the world, celebrating the work of alumni who could be inspirational models for our prospective students.

We asked the question, "What is the full arc of the experience of becoming, being, and having been a student at the d.school?" How can we begin to link each of these phases to one another and create a connected community of learning, teaching, and practice in design? After all, even though we may place them into the buckets of "prospective students, current students, and former students" each of them is still just one person at a particular point in their journey.

And so a grand experiment was born, a suite of three back-to-back-to-back events open to every part of our community. We lined ourselves up squarely with Alumni weekend and planned the mother of all d.school events: A lunchtime info session on our classes, an afternoon gallery opening and celebration of alumni Citizen Creators, and an early evening laid-back Alumni meetup barbecue. Each one available to all. And all on the same day.

The benefit to our current and prospective students was to understand what a d.school class could mean in their personal educational journeys and beyond; from the instructors of a class; from the Citizen Creators—alums who have leveraged their d.school experiences in their own contexts; and from alums who came back to visit because it was a meaningful part of their educational career.

Over a coffee from the barista stand in the afternoon, everyone could peruse the gallery of giant posters, connect in person with the Citizen Creators, hear their stories, and see "Oh, that might be me in two years…" as we presented each of them with an art print of their individual posters.

At the Alumni Meetup, students embarking on a Stanford degree talked with alumni to ask about their experiences over tacos and sweet tea, and alumni found a place to reconnect with their design community. Alumni of the d.school were out in force, but we also heard about great conversations from a couple of women who were graduates of the design program in 1974, and they weren't the only pre-d. designers in the house.

Our teaching teams and staff communities rallied to the cause. It was Milan's very first d.school event. It was his first week at the d.school! The Creative Hustle pop-up class came to join us on their break. The feeling of having all of those alums there with us and our students was really special. It feels even more special since we can't do any of that right now.

At the info session, propelled by popcorn and fizzy drinks, students and alums alike were able to mix and mingle and see what the vibe of being at the school is, to learn from people who had taken classes as well as hearing what the class might be like from the teaching team.

In a normal academic year, this might have been just one of a half a dozen really big community events at the d.school. It just so happens that this was the only one we pulled off before COVID-19 sent us all home for the year.

We usually have a rule about too many events in one day, but we remember this one so fondly—despite the achy feet. We could shake hands with a new student and introduce them to the teaching team of a class that might be perfect for them. We could hug our Citizen Creators to congratulate them. And we talked for hours (in person! without a face mask!) to alums, students, teaching teams, and staff. They are all our community, and we miss them all.

Studio Hours

Organized by *Megan Stariha & Hannah Joy Root*

Each week, from the fall until the pandemic, d.school students were invited to Studio Hours. This lunch and learn featured free food and mini-lessons taught by d.schoolers. From doodling to layout to cardboard construction to algorithms and more, students experimented with making in many different mediums. The hour was also a community-building moment where students could connect across classes.

Summer Camp

by *Glenn Fajardo & Kelly Schmutte*

"Clearly, we won't be able to convene *in-person* for a d.school Teaching Summit anytime soon. We need a way of bringing the *teaching community together*." "Maybe we could have a two day, all-day virtual Summit?" *(blank stares across the grid)* "Uhhhh yeeeeahhhh... Scratch that!" "What if, instead, we held a Summer Camp for instructors? We could run activities to build community and help everyone get prepared for teaching in the Fall?"

The d.school experimented with its first Course Development Summer Camp in 2020. We brought together a cohort of 18 teaching teams to craft their distributed learning experiences for the upcoming fall quarter. The camp experience itself was meta: we demoed distributed learning possibilities by hosting a learning experience about creating learning experiences.

Our top three goals were to:

1. **Build community**
2. **Support course design**
3. **Inspire experimentation.**

We broke into four cabins to make it more personal and create thematic "horizons" to explore: **Agency**, **Gathering**, **Making**, and **Networks**. Teaching teams developed their courses and horizon experiments, getting feedback and support from their cabin-mates along the way.

Summer camp was also a larger experiment in creating a community-wide course design program, which will hopefully pave the way for more in the future.
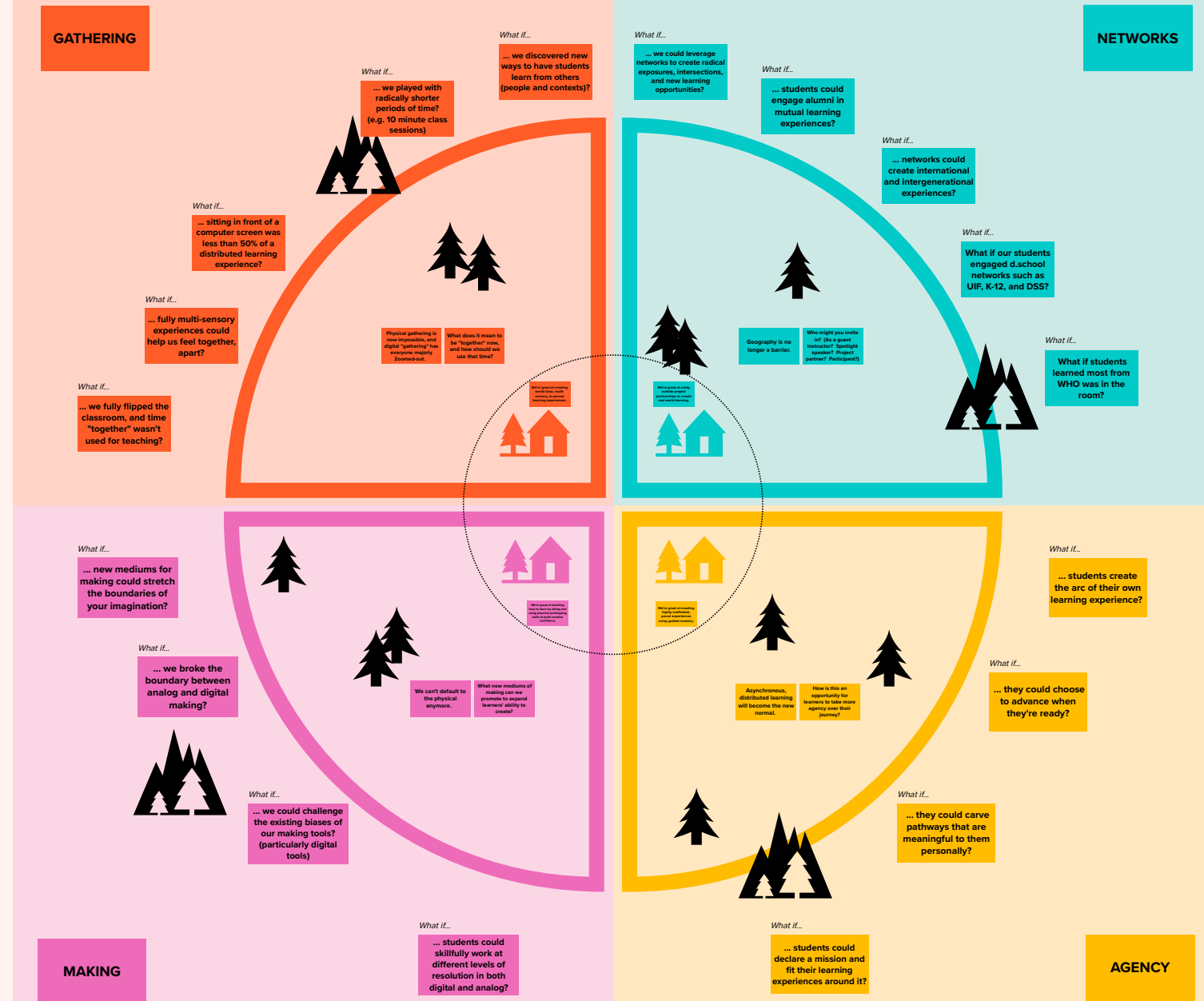
The virtual context of camp enabled a longer-form learning experience. Course development and teaching community percolated and marinated over several weeks. Camp had a three-part structure:

Explore. Episodes 1–3 were about zooming out and diverging into many possibilities for each course.
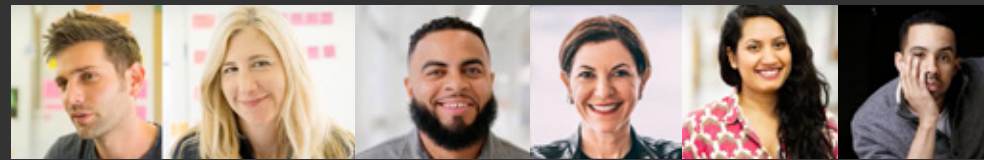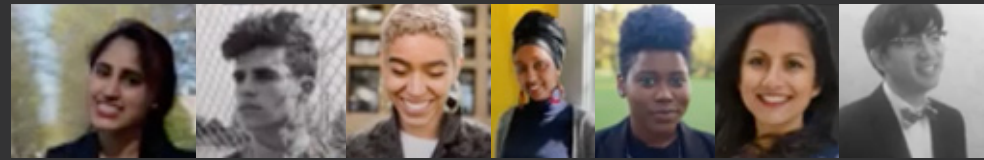
Nature excursion. A three-week period for individual teams to create the arc or their courses.

Practice. Episodes 4–6 were about testing out exercises, practice teaching, and getting feedback from students and each other.
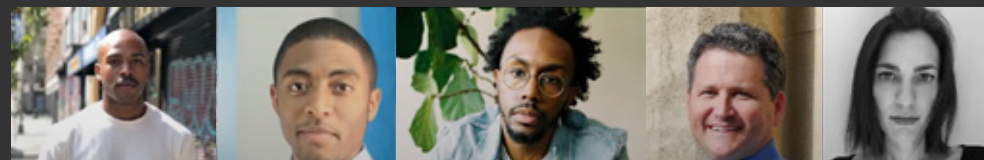
Was camp effective? Are our teams prepared for a quarter of teaching their experiential courses virtually? Have we built a community that will continue to thrive through the quarter and beyond? Should we do this again? These questions are all top of mind as we move out of our cabins and into the fall quarter.
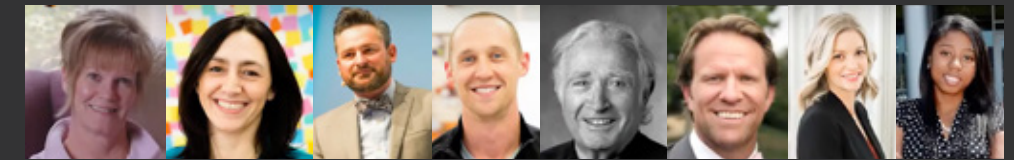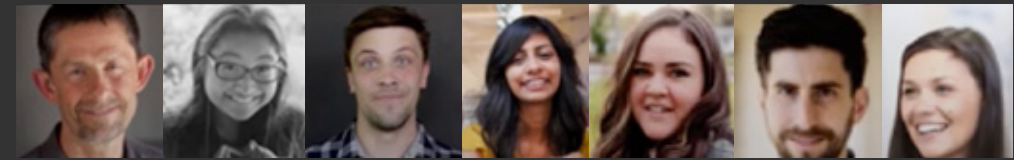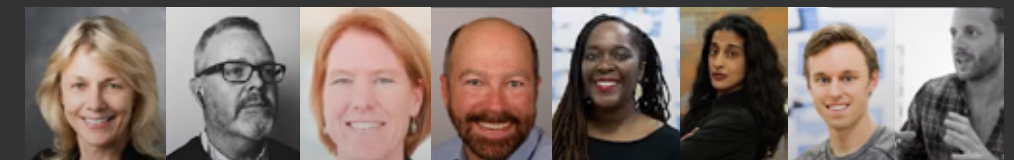
GATHERING

What if… … we played with radically shorter periods of time? (e.g. 10 minute class sessions)

What if… … we discovered new ways to have students learn from others (people and contexts)?

What if… … sitting in front of a computer screen was less than 50% of a distributed learning experience?

What if… … fully multi-sensory experiences could help us feel together, apart?

Physical gathering is now impossible, and digital "gathering" has everyone majorly Zoomed-out.

What does it mean to be "together" now, and how should we use that time?

What if… … we fully flipped the classroom, and time "together" wasn't used for teaching?

NETWORKS

What if… … we could leverage networks to create radical exposures, intersections, and new learning opportunities?

What if… … students could engage alumni in mutual learning experiences?

What if… … networks could create international and intergenerational experiences?

What if our students engaged d.school networks such as UIF, K-12, and DSS?

Geography is no longer a barrier.

Who might you invite in? (As a guest instructor? Spotlight speaker? Project partner? Participant?)

What if… … What if students learned most from WHO was in the room?

MAKING

What if… … new mediums for making could stretch the boundaries of your imagination?

What if… … we broke the boundary between analog and digital making?

We can't default to the physical anymore.

What new mediums of making can we promote to expand learners' ability to create?

What if… … we could challenge the existing biases of our making tools? (particularly digital tools)

What if… … students could skillfully work at different levels of resolution in both digital and analog?

AGENCY

What if… … students create the arc of their own learning experience?

What if… … they could choose to advance when they're ready?

Asynchronous, distributed learning will become the new normal.

How is this an opportunity for learners to take more agency over their journey?

What if… … they could carve pathways that are meaningful to them personally?

What if… … students could declare a mission and fit their learning experiences around it?

Gathering

Making

Networks

Agency

Lap Desk Surprise

Made by *Ignacio Arriaga* with *Hannah Joy Root*

Looking to give staff a touch of the d.school in their work at home and expand the postures available to them, Hannah Joy Root and Ignacio Arriaga conceived, designed and built lap desks for the full-time family. Made using two types of foam for heat management, sized to fit a MacBook Pro and a coffee cup, and hand-branded, the 50 lap desks were built by Ignacio in his garage and backyard and then hand-delivered. This very special surprise gift was the highlight of the summer for many of us.

← Hand–delivered by Ignacio, the gift was a surprise.

← He photographed each recipient upon delivery, and here is a shot where the camera was turned on him!

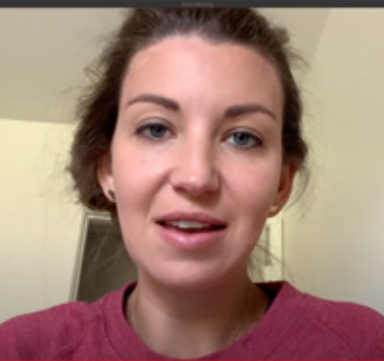◄ Branded and shellacked, the surfaces dry in Ignacio's garage.

Bold fabric covers two layers of foam to help moderate heat.
↓

"How about we pick-up the phone and just call every-one!"

by *Kelly Schmutte & Megan Stariha*

This spring, Teaching and Learning found ourselves struggling to know how best to support students. We mobilized a "Student Community & Support Task Force" and brainstormed ways we could continue to offer community-building events and ways of connecting online. At first, we asked a few students what events would be interesting to them, but we realized quickly that student bandwidth for making new connections was really low. They didn't have room for more gatherings. It seemed much more valuable to reach out to students and just talk to see how they were doing.

We'd already talked to a few students, so why not call them all? **A core team of Megan Stariha, Kelly Schmutte, Hannah Joy Root, Milan Drake, and Amanda Tiet reached out individually to nearly 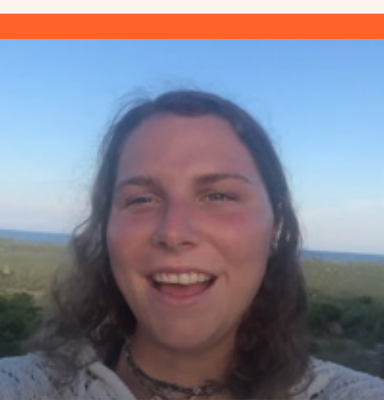200 students over the second half of spring quarter.** Students were surprised and incredibly appreciative of the outreach. Many were so grateful for their d.school classes and instructors that they also participated in a special surprise thank-you video for our spring teaching teams.
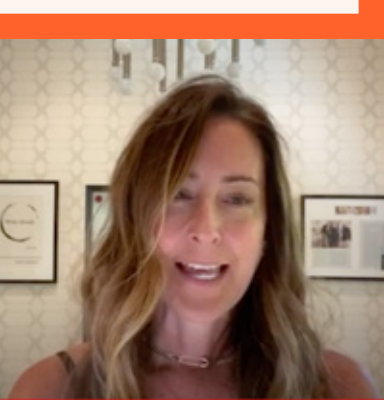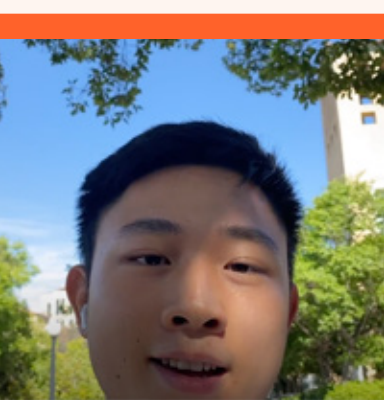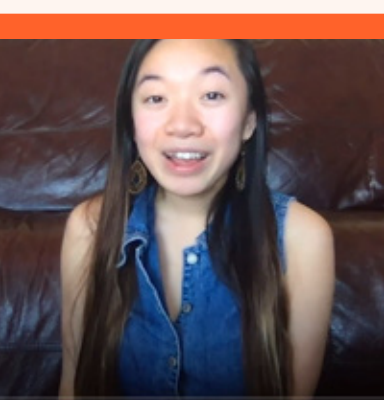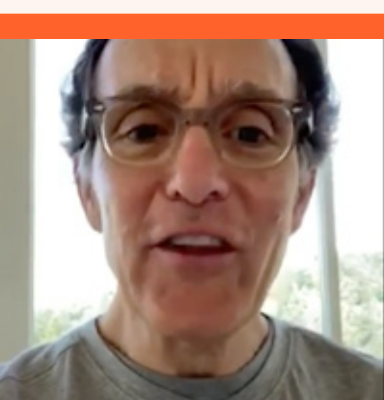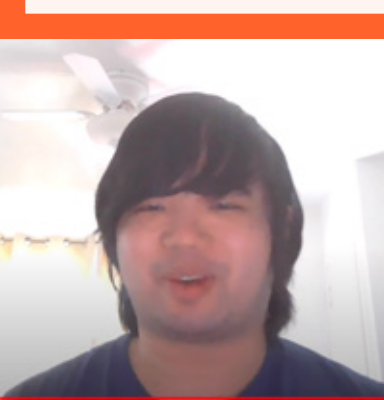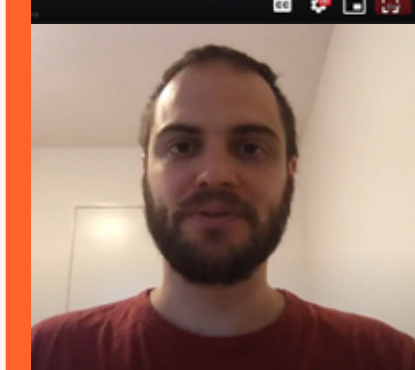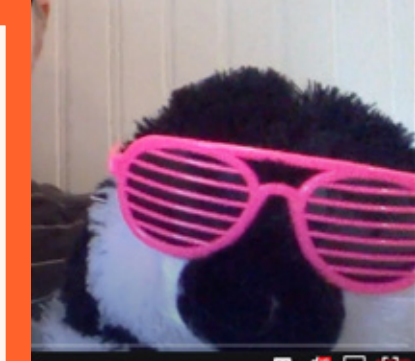
Our *Commitment* to Diversity, Equity, and Inclusion

The d.school's mission is to *help people unlock their creative abilities and apply them to the world.* It reflects our foundational belief that design should be accessible to all, and that everyone is creative.

We believe design can help create the world we wish for. Design can activate us as creators and change the way we see ourselves and others. Design is filled with optimism, hope, and the joy that comes from making things change by making things real. We believe that diversity leads to better design, and opens up a greater range of creative possibilities.

The nature of design affords people the opportunity and privilege to shape the world that they–and others–inhabit. This is power. In a just world, that power is shared, prioritizing the voices and ideas of people most impacted by the intended and unintended effects of new designs. We aim to actively confront and challenge the mindset that design can only be used by a privileged few.

Given our ideals, we have work to do.

Every institution has a history, and ours is rooted in a limited set of perspectives. For example, the d.school is at an intersection of two systems of predominantly white, male, western thought and power: the field of design, and an elite university. These systems are full of visible and invisible barriers to equity. Our diversity on the basis of race, ethnicity, gender, sexuality, socioeconomic class, ability, religion, citizenship status, and additional backgrounds and identities is not as broad and deep as it can and should be.

We are committed to changing this picture. To achieve our mission, we need to tackle systemic barriers to diversity and inclusion, and build a fundamental sense of belonging for all members of our community. If we are successful, our community will be more diverse and all members will feel included and honored. Our work will evolve to incorporate values, ideas, and tools created and led by historically marginalized thinkers and doers.

While doing this work we will always be learning: from each other, from experts in equity work, from other designers and educators, and most importantly, from our students.

Over the past several years our efforts have been characterized by individual learning, facilitated discussions, and thoughtful programmatic changes in many different parts of the d.school.

As always, we're learning by doing. This period has helped us align around equity and inclusion as priorities that touch every part of our work. Our journey will continue to evolve over time as we grow toward more unified approaches and establish measurable goals and accountability.

Current Work

Future Directions

Here is a selection of our recent actions:

- Annually publishing demographic information about the composition of our student and instructor community has helped us understand who is at the d.school and who is underrepresented;

- Providing small grants to d.school classes that included a focus on diversity, equity or inclusion has resulted in new curriculum, projects that explore design and equity, and increased racial diversity among our students;

- Redesigning recruiting and hiring procedures with inclusion and equity at the center has dramatically changed the pipeline of designers we've hired for new projects;

- Offering tiered pricing and travel stipends for several key programs open to the public has increased applications from individuals and organizations for whom pricing has been a barrier in the past;

- Embedding experts in diversity, inclusion, and equity work in d.school workshops for professional audiences as "auditors" has provided instructors with candid feedback from learners' perspectives;

- Partnering with and learning from experts from the National Equity Project, Code 2040, and inclusion experts at Stanford has been fundamental in helping build a shared vocabulary and deeper skills in addressing diversity, inclusion, and equity;

- Providing training opportunities to d.school staff and instructors for personal reflection and advancement (at the d.school and with other organizations) has resulted in strong alignment towards shared equity goals;

- Engaging over 100 members of the d.school community past and present to craft this statement over a period of nine months has served as an initial way to capture d.school values, activities, priorities, and intent going forward.

In addition to continuing the practices described above, in 2020–2021 we will place new focus on the following goals, which don't yet have precise solutions attached:

- More comprehensively track and assess the outcomes of our efforts to increase diversity of participants in the learning experiences offered across the d.school;

- Integrate newly established inclusion and equity practices in hiring and recruiting into all hiring across the d.school;

- Build on and spread existing curriculum on ethics in design research, including the ethics of conducting design research and designing for or with vulnerable or less privileged populations;

- Identify and adopt the right practices for determining equity milestones by which we can concretely measure and share our progress over time, leading to greater accountability and ways to hold ourselves to our values;

- Champion and develop new tools that help designers consider the equity and broader ethical implications and consequences of their creative work as a core tenet of design values, activities, priorities, and intent going forward.

Student & Instructor Data

by *Megan Stariha*

TEACHING AND LEARNING

The 2019–2020 academic year had planned disruption (offering fewer number of classes in fall) as well as unplanned disruption (distributed learning amidst a pandemic in spring), but many characteristics of our student and instructor communities remained consistent.

In 2019–2020 we offered:

26 for-credit offerings and
14 pop-outs + workshops

Number of Classes
The number of classes offered in the 2020 academic year, 26 for-credit offerings and 14 pop-outs, was lower than in the previous few years. This shift was due to a continued emphasis on two-quarter classes, an intentional contraction in for-credit offerings in fall, then unexpected distributed learning in spring quarter meant many of the location-specific pop-out courses opted to defer.

Number of Students
Mirroring the fewer number of classes, the number of students served in the 2020 academic year saw a commensurate decrease. The number of students who took more than one d.school class also went up 3%, with those taking 3 or more classes increasing by 9% year-over-year. We are encouraged to see the students who are enrolling in our classes are sticking around to deepen their design work.

Unique Students in For–Credit Classes:

372

7% Fellowship
9% Doctoral

52% Masters

31% Undergraduate

and an additional

Unique Students in Pop–Up/out Classes:

305

30% Fellowship + Community

12% Doctoral

41% Masters

20% Undergraduate
1% Unknown

Diversity in Degree
Our classes continue to maintain close to a 3:1 ratio of graduate:undergraduate students across both for-credit and pop-out courses. Increasingly, undergraduate students are enrolling in for-credit (+6%) and pop-out (+5%) classes. This paired with a continued presence of fellows (an area of emphasis in 2018-2019) leads to a diversity of perspectives and experience levels within classes.

For Pop–Up/Out classes we rely on our teaching teams to let us know their final student rosters and there is variation to how the data is submitted. This results in the 1% unknown grade level. Pop–outs are allowed to admit up to 50% of their class from beyond the Stanford community.

Diversity in *Discipline*

Year-over-year, the percentage of students in d.school classes from across the seven schools remains relatively consistent. Compared to the general Stanford student body, we have higher numbers of Fellows (+7%) as well as students from Business (+19%), Education (+7%), and Earth Sciences (+3%). Engineering students enroll in d.school classes proportionally to their representation on campus (~30% of undergraduate and graduate students). Humanities & Sciences, Law and Medicine are persistently the disciplines underrepresented in our classes.
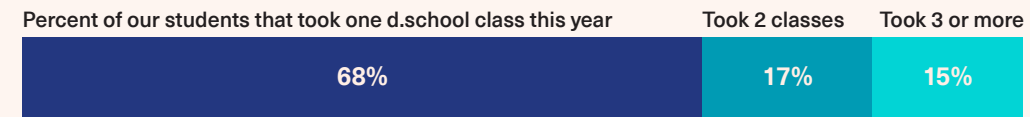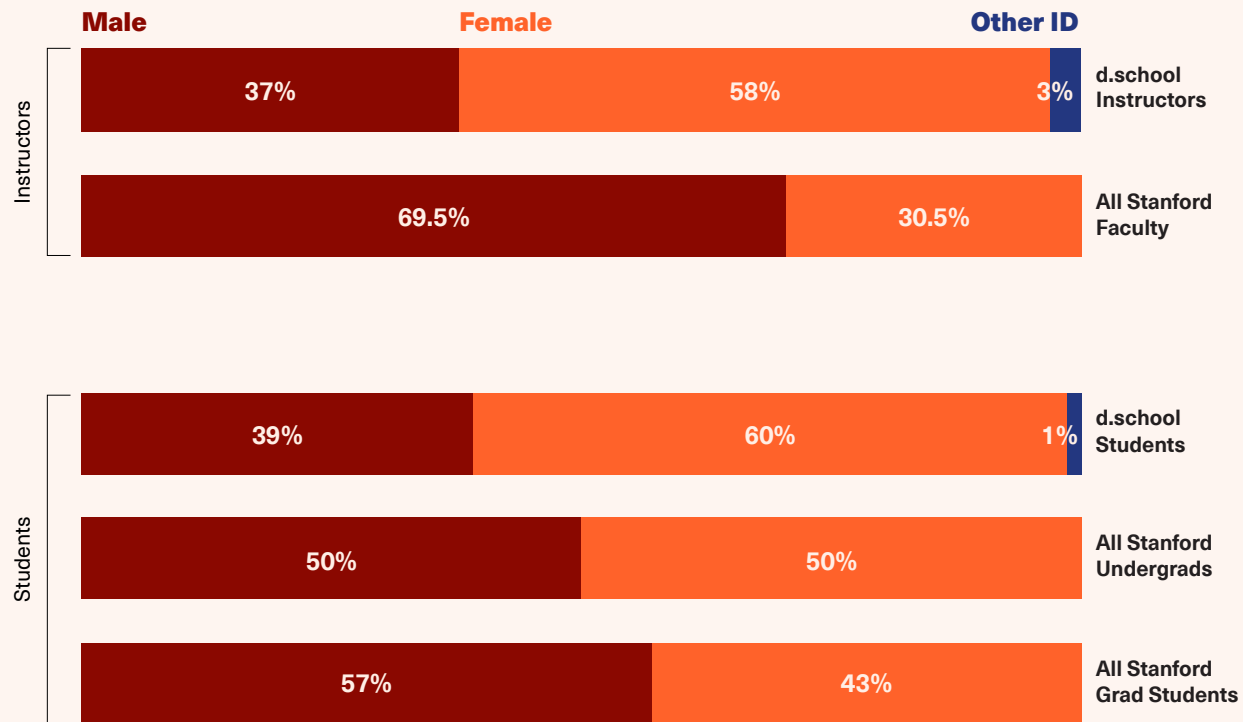
Graduate Students

24% Humanities & Sciences
4% EarthSci
8% Fellows
7% EarthSci
11% H&S
26% Engineering
37% Engineering
1% Fellows
4% Law
4% Med
10% Education
13% Medicine
30% Business
7% Law
3% Education
11% Business

d.school Students
Stanford Students

Undergraduate Students

1% EarthSci
21% Engineering
4% EarthSci
26% Undeclared
36% Engineering
50% Undeclared
33% Humanities & Sciences
28% Humanities & Sciences

The 2019-2020 academic year continued a trend in a higher number of students (32%) opting to take more than one d.school class. There was a notable jump from 19% in 2017-2018 to 29% in 2018-2019 that persisted into the most recent year. Of the students who took more than one class, nearly half (15%) enrolled in three or more classes. Among the students who took multiple d.school classes, the diversity in discipline increased, apart from engineering students who still enrolled at a high level. Further, a majority of these students cited their reason for enrolling in a d.school class being to enhance the work they do in their home discipline.

Percent of our students that took one d.school class this year | Took 2 classes | Took 3 or more
68% | 17% | 15%

By *Gender*

| Male | Female | Other ID |

Instructors

| 37% | 58% | 3% | d.school Instructors |
| 69.5% | 30.5% | | All Stanford Faculty |

Students

39%	60%	1%	d.school Students
50%	50%		All Stanford Undergrads
57%	43%		All Stanford Grad Students

The d.school continues to skew female in both our instructor and student populations. It is notable that our community of instructors is fairly balance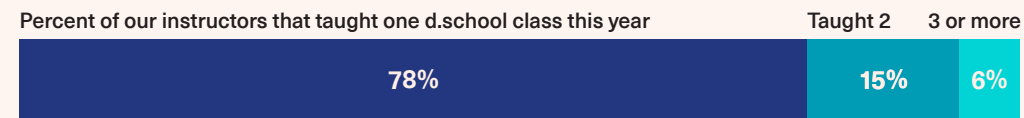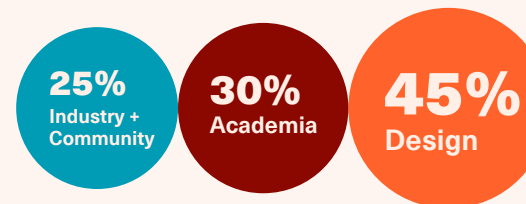d in terms of gender, especially because design is a historically male-dominated profession. Amongst students, we trend female more than Stanford's graduate and undergraduate populations.

Amongst *Instructors*

The total number of instructors who taught in the 2019–2020 academic year was scaled back proportionally to the number of classes taught. Of the 83 total instructors, 20% were new to teaching at the d.school.

Remarkably, in the abrupt transition from in-person to distributed learning in the spring and all the demands that came with shelter-in-place orders, almost every teaching team persisted. We were once again inspired by our teaching community and their commitment to students as they redesigned their courses to be taught in this new format.

83

80% returning instructors

20% new to teaching at the d.school

25% Industry + Community

30% Academia

45% Design

Percent of our instructors that taught one d.school class this year

| 78% | 15% | 6% |
| | Taught 2 | 3 or more |

Racial *Diversity*

The racial diversity of our teaching teams is close to that of Stanford's faculty. Twenty-nine percent of our instructors are non-white, which tells us we have room to improve our instructor representation across racial identities. Our student population mirrors the Stanford student body closely.

Note that the demographic IDs that Stanford uses for faculty differ from the ones they use for students. We've attempted to compare as best we can in order to provide context.

d.school Instructors

Stanford Faculty

5%	2%	Black or African American
9%	18%	Asian or Asian American
2%		American Indian or Alaska Native
3%	<1%	Native Hawaiian or Pacific Islander
	4%	Hispanic or Latina
71%	67%	White (non–Hispanic)
6%	1%	Multiracial
5%	8%	Declined to State/ Other

d.school Students
Grad + Undergrad
For–Credit Classes

Stanford Students
Grad + Undergrad

2%	5%	Black or African American
19%	21%	Asian
34%	22%	International or Nonresident
	<1%	American Indian or Alaska Native
<1%	<1%	Native Hawaiian or Pacific Islander
1%	12%	Hispanic or Latino
9%		
29%	32%	White
6%	7%	Two or More
<1%	1%	Unknown

2019–2020 *Instructors*

Adam Thomason
Alexei Wagner
Ann Grimes
Annie Brett
Ariam Mogos
Barry Svigals
Brandon Middleton
Brie Linkenhoker
Bruce Cahan
Bernie Roth
Caitlin Kalinowski
Carissa Carter
Carolina Perez
Chris Yeh
Christina Wodtke
Danielle Barnes
Dara Silverstein
Dave Baggeroer
David Janka
David Johnson
David Kelley
Deborah Rhode
Elysa Fenenbock
Emi Kolawole
Emilie Wagner
Emily Callaghan
Emily Kelly
Eric Hartge
Erika Roach
Erika Woolsey

Frederik Pferdt
Gigi Kalaher
Glenn Fajardo
Grace Hawthorne
Hannah Jones
Heather Tompkins
Holly Truitt
Jane Cho
Jason Solomon
Jeremy Utley
Jessica Brown
Jessie Brunner
Jill Vialet
Jon Feiber
Jules Sherman
Kajal Khanna
Kal Joffres
Kate Maher
Kathryn Segovia
Kelly Schmutte
Kevin Chand
Kursat Ozenc
Laura McBain
Lecrae Moore
Lee Sanders
Leticia Britos Cavagnaro
Lisa Kay Solomon
Londa Schiebinger
Louie Montoya
Manasa Yeturu

Marc Chun
Margaret Hagan
Marlo Kohn
Marta Guy
Maureen Carroll
Meenu Singh
Michael Barry
Michelle Carney
Michelle Jia
Mohammed Soriano-Bilal
Nari Gathers
Nancy Murphy
Nazir Agah
Nell Turner
Olatunde Sobomehin
Perry Klebahn
Rachelle Doorley
Robert Sutton
Saara Khan
Sally Madsen
Sam Seidel
Sarah Stein Greenberg
Scott Doorley
Seamus Yu Harte
Stuart Coulson
Susie Wise
Ted Matthews
Tina Seelig
Yusuke Miyashita

2019–2020 Classes

Fall 2019

For–Credit
Design for Health
Justice by Design
Design Thinking Studio
Visual Design Fundamentals

Pop–Out
Controlling the Narrative
Creative Hustle
Designing Masculinity
Designing the President
Empathy as a Tool for
    Difficult Conversations
Island in the Storm
Storytelling for Inclusion
Teaming for Design
—
SGSI: Adventures in Design Thinking

Winter 2020

For–Credit
Justice by Design
Design for Extreme Affordability
Designing Healthcare for Social Justice
d.leadership
Inventing the Future
Design Work 20/20
Designing Machine Learning
Needfinding in the Wild
Coaching Design Thinking
Safe by Design
Negotiation by Design

Pop–Out
Reining in the Seas
Ritual Design For Better Workplaces
Shuffle the Deck
Tell Your Story

Spring 2020

For–Credit
Design for Extreme Affordability
Designing Healthcare for Social Justice
Designing for Digital Agency
Beyond Pink & Blue
Oceans by Design
Creative Gym
Interviewing Intensive
The Design of Data
Redesigning Finance
Launchpad
Design Across Borders

Pop–Out
Design for Health
Going to Scale or Going to Fail?

For–Credit
For–credit courses are design experiences that flex students' design abilities. Some courses are comprehensive "Core" classes, covering many design abilities. Others are more focused "Boost" classes which focus on 2–3 design abilities. All For Credit courses are rigorous design experiences.

Pop–Out
Pop-outs are short experiences offered entirely off campus in an appropriate context for the topic of the course. Members of the community are often admitted to each class. No credit offered.

COVID–19 Cancellations
Due to the pandemic, we needed to cancel six classes in spring 2020. All d.school classes are experiential and many require on-site learning or field work. Given the need to rapidly shift to online-only learning, we canceled classes that were too tricky to format-shift at short notice.

glenn fajardo

Carissa Carter

Karen Ingram

Milan Drake

Seamus Yu Harte

megan stariha

kschmutte

Teaching + Learning 2019—2020

Left to right, top to bottom:

Glenn Fajardo,
Distributed Learning Teaching Fellow

Carissa Carter,
Director of Teaching + Learning

Karen Ingram,
Emerging Technology Teaching Fellow

Milan Drake,
Community + Curriculum Lead

Seamus Yu Harte,
Experience + Curriculum Lead

Megan Stariha,
Program Manager

Kelly Schmutte,
Special Projects + Curriculum Lead

Thank you!

Keep Teaching

by *Carissa Carter*

No matter where you're from, or what type of schooling you've had, I'm confident that you can name a teacher that's had a profound impact on your education.

Richard Kollen showed me the power of primary resources in historical research when I was in 12th grade. He took our class to the town archives, gave us white gloves and a day, and told us to find a story that had never been told. What?! There are layers of history that aren't set in stone? That a high schooler could uncover? He showed me that I had more agency than I thought, and simultaneously made clear that what has been written is only one person's version of the truth.

When I was extra-interested in the Coriolis effect as a first-year in college, Rónadh Cox took my questions about how it changes near the Earth's poles seriously. They were beyond the scope of her expertise or the oceanography class I'd taken just for fun, but over the course of a few days she investigated them on her own time and got back to me with answers. I'd never witnessed a teacher "not know" before, and I felt really special that an established professor spent her own time on something to help spark my own interest. I went on to major in geoscience because of her.

As a second year graduate student in product design, the late Bill Moggridge made the time to meet with me every other week and talk about my thesis project. He wasn't part of the teaching faculty, but took me under his wing anyway. I'm still not sure why. At the time, I had no idea what a legend he was or how lucky I was to have his mentorship. I'd bike over to his office at IDEO and he'd take a look at my work. Often, he'd bring a new framework that he thought I should consider or challenge me to make a model to explain my ideas differently. He helped instill and stoke my own love for maps. He met me where I was and then kept turning the crank–the ultimate guide.

From many vantage points, it's been a tragic and devastating year. Looking back on the last 12 months, the bright spots for me have all been related to the exceptional teaching we do at the d.school. Whether packed in-person in a high-energy classroom or distributed across the world on Zoom, our courses stayed thoughtful, challenging, and relevant. I'm so proud of our winter and spring instructors, flipping their classes on a moment's notice from analog to digital. I'm so grateful to the Teaching + Learning team, selflessly guiding, building, planning, supporting our teachers and students all while acutely feeling the effects of the pandemic and problems with society in their own lives. I'm so thankful to work at the d.school surrounded by a community that cares for, challenges, and builds on each other.

Great teaching is timeless. It fits into small moments or fills big emotional gaps. It doesn't pause if there's a pandemic. It finds a way through escalating racial violence. It comes into focus even more when we lose our heroes.

I've learned so much from all of you this year. Keep teaching,

—Carissa Carter