"Scaling Up" and Adapting to Crisis: Shifting a Residential UX Studio Program Online

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Abstract
Our undergraduate UX program at Purdue University launched in 2016 as one of the first UX-focused undergraduate degree programs in the United States, intentionally designed to support the unique characteristics of a residential, research-intensive, land-grant institution. We designed multiple overlapping studio experiences that formed multiple connections among cohorts, supporting mentorship, cognitive apprenticeship, the construction of social bonds, and reflection on one's own development as a designer. Our program was experiencing quick growth, with our cohort size growing from 20 students in 2016 to 50 students in 2021. With the onset of pandemic restrictions, the challenges of "scaling up" and the challenges of building a virtual studio pedagogy thus met. Our "hidden curriculum" of peer feedback and tacit learning, critique as a means of socialization and feedback, emancipation of the self, and allowance for identity formation pointed towards studio properties that were central to our pedagogy and needed to be reformulated or rethought. I describe the resulting "dimensions of crisis" that impacted our pedagogy and practice, the new supports for studio learning practices that we designed, and how these changes may lead to lasting changes to our residential program once the restrictions of the pandemic subside.

Keywords
UX design; hybrid pedagogies; praxis; identity formation; critique; hidden curriculum

Introduction
Studio education has changed shape in the last two decades, impacted both by the increasing number of design disciplines that have emerged in relation to new technological capability (Faiola, 2007; Friedman, 2012) and the increasing profile and power of design in industry and everyday life (Kolko, 2018). While the roots of studio education—situated in the social and creative terms of the *atelier* or studio master—still live on in many art and design programs, there has also been interest in exploring how the "essence" of studio pedagogy might be adopted and adapted in other disciplinary contexts or emergent design disciplines (Gray, 2016). These emergent views of studio have prompted a range of points of reflection on what studio *is* (cf., Cennamo, 2016), what elements are core to or characteristic of studio pedagogy (Klebesadel & Kornetsky, 2009; Shulman, 2005), and if we can create a comprehensive list of the properties—that in whole or in various combinations—that define studio experiences (e.g., "recipes" in Jones, 2020).

While there are numerous and interesting challenges that have been experienced in traditional art and design disciplines relating to studio practices, ranging from financial pressures of austerity in the neoliberal university to shifting technological expectations to changing expectations around the power-laden roles of tutors and students, I wish to focus on the

uptake of studio in new design disciplines. Building on Buchanan's (1995) "four orders of design," new areas of design practice that reference—yet exceed—the outcomes defined by traditional modes of design that are characterized by their outputs (e.g., sign and symbol systems for graphic design; physical products for industrial design) are increasingly relevant and connected to the uptake of design as a strategic force in shaping our everyday lives. From the roots of interaction design in the 1990s in the Netherlands (Höök & Löwgren, 2021) to more recent attempts to define systemic design, strategic design, service design, and user experience (UX) design, among others, the world of design has expanded dramatically. Even so, the framing of studio pedagogy, particularly in the scholarly tradition, has remained relatively static, with practices still often bearing direct relations to the roots of the studio at *École des Beaux-Arts* or the *Bauhaus* (Cennamo, 2016). In this paper, I will seek to describe how a group of faculty at a large Midwestern US university built upon various elements of traditional studio pedagogy, adopted new models of engagement with students and disciplinary knowledge, and sought to explicitly engage with dimensions of power in the studio. I will use the dual tensions of "scaling up" a program in user experience (UX) design alongside the additional challenges brought by the COVID-19 pandemic to reflect upon the ways in which studio practices can support individual and instructor differences at scale as a *praxis*, claiming commitments towards inclusivity and accessibility while also challenging student and instructor expectations of rationality, power, and the role of design in supporting social change.

"Scaling Up" and Adapting to Crisis

Our undergraduate UX program at Purdue University, a large research-intensive Midwestern US university, launched in 2016 as one of the first UX-focused undergraduate degree programs in the United States (Gray et al., 2020; Vorvoreanu et al., 2017). We built upon a number of pedagogical philosophies, focusing our efforts on building a residential, studio-based program that incorporated several key features: active learning pedagogies, a supportive and emancipatory environment for student learning, and attendance to the social organism of studio engagement that would support students in learning to be and become successful professional designers. From the beginning, we envisioned multiple overlapping studio experiences that would form multiple vertical integration connections among cohorts (Gray et al., 2020). This vertical integration would then support mentorship, cognitive apprenticeship, the construction of social bonds, and reflection on one's own development as a designer. We proudly built out our studio-based program as a residential experience (although we did not have a permanent studio space of our own until Fall 2019), attempting to bring together the best of the traditional art and design studio environment, while also seeking to box out or limit the worst excesses of studio in these traditional contexts (cf., Anthony, 1991; Blythman et al., 2007). Put simply, our goal was to create a studio experience that was supportive, engaging, cohesive, and committed to the emancipation of students (Gray et al., 2020) as they became the type of designer that they wished to be in a discipline that was—and still is—under active negotiation and change (Kou et al., 2018; Lallemand et al., 2015).

We intentionally sought to limit common studio challenges around competition, rude or obnoxious behavior that took advantage of instructor power through a reclaiming and repositioning of the *hidden curriculum* (Dutton, 1991; Martin, 1976) as a force for good. In doing so, we leveraged the critically-focused notion of praxis (Varner et al., 2020) to describe not only which studio practices we wished to adopt that connected with our overarching values

and moral philosophy regarding design, but also the trajectory and directionality of these practices in informing new ways of being that could be adopted by students to inform their future practice. In the wake of concern regarding the reductionism of the *design thinking* movement (Kolko, 2018; Laursen & Haase, 2019), we also rejected "cookie-cutter" or "recipe book" approaches to design learning that allowed only one philosophy or perceived process of design to dominate, and instead built in opportunities for students to engage with multiple philosophies of design, including human-centered and user-centered design, participatory design, co-creation, digital civics, critical design, feminist design, and speculative design.

These were challenging pedagogical decisions to make, and then even more difficult to leverage to inform intentional changes to the learning experiences we designed for students to engage with these forms of complexity. By far, one of the biggest barriers to executing on a program that was explicitly not "one size fits all" was program size. Even before the pandemic's effects began to be felt in the United States in March 2020, as a program faculty we had been sitting uncomfortably with challenges to scaling up our studio efforts. Once the program was mature in 2018 with three overlapping cohorts, we used the vertical integration of three of our undergraduate studios to facilitate peer mentoring, critique participation, and starting in 2019, "shepherding," to allow for project teams to have a mentored experience that also contributed to feedback on their final documentation. These efforts had led to relatively high levels of cohesion and sense of community as reported by students in their weekly reflections on our Slack workspace, but still resulted in challenges in playing out the curriculum on a practical level. These issues of scale came to a head in January 2020, as we sought to teach 45 students in our introductory studio using a project-based learning approach that had been dreamt for 20 students back in 2016, and then productively engaging an additional 31 students at an intermediate level and 25 students at the advanced level through vertical integration. In the following sections, I will primarily focus on our introductory studio due to its large enrollment, but will also seek to connect some of this emergent complexity to other aspects of our pre- and during-pandemic instructional practices.

Identifying Dimensions of Crisis in Our Pedagogy as We "Pivoted"

In our introductory studio, we engage students in four collaborative projects across a 16-week semester. Our first project cycle began with two team members working collaboratively together on project 1 and ended with 4-5 team members working collaboratively on project 4. This organization of student teams meant that we had to identify ways to support 22 parallel project teams for the first project cycle—and then augment this support on projects with mentors from our upper-level vertically-integrated studios. This worked out well enough, but then we were suddenly confronted with other scaling challenges once we went fully online in March 2020. Many questions emerged as the pandemic news deepened: How do we maintain the socialization of students in the midst of an international crisis? How do we identify and support students who have issues of access and equity that may impact their learning? How can we manage to identify "hidden" areas of concern across so many students? How can we address differences in physical and digital participation that may privilege certain kinds of interactions by students with certain capabilities? How can we engage in forms of critique that were unfamiliar in our physical studio, but essential in the online pivot? How could we quickly assess the technological assemblages of Slack, Discord, WebEx, Zoom, and other communication tools and identify new means of supporting student communication, feedback,

and learning? And how can we support more than ten parallel project teams for our final project sequence with support only given virtually? All of these issues allowed us a new perspective on the studio culture we had been designing for four years at that point. What does a studio-based program look like when the physical studio is dark and unoccupied, students are spread across the country joining Zoom from their own homes, and the "buzz" of activity can only occur in less tangible (and perhaps less familiar) forms on collaboration tools such as Miro, Zoom, and Slack?

The challenges of "scaling up" and of identifying a pandemic-aware set of values for our studio culture thus met our "hidden curriculum" of peer feedback and tacit learning, continuous provision of critique as a means of socialization and feedback, emancipation of the self, and support for identity formation pointed towards key values that had become central to our pedagogy and needed to be reformulated or rethought. These resulting "dimensions of crisis" broadly encompassed aspects of our pedagogy and practice which we sought to take up in a reflexive, critically focused mode of engagement:

- Encourage means of socialization and management of wellbeing
- Discover new ways to engage in critique, both as a means of feedback and as a much-needed form of socialization
- Wrangle technology to allow for multiple forms of physical and digital participation
- Identify and support students that are adversely impacted by the pandemic
- Enculturate students into the culture of studio without physical presence

Managing Feelings of Grief and Redirection

This reintroduction of "wickedness" into our studio curriculum across these dimensions of crisis was challenging to manage—in fact, before the pandemic began, we had just begun to stabilize key parts of our studio practices after four years of active curriculum development. Not only did we have to find ways to help our curriculum and students "survive" the pandemic, we also needed to identify and balance—anew—the stressors we were placing on our students, determining whether these stressors were just, timely, and ethical. These design and pedagogical challenges came alongside our humanity as instructors; we were trying to manage the effects of the pandemic ourselves while also attempting to extend care labor to our students, many of whom were facing new forms of precarity relating to finances, physical health, or caregiving responsibilities.

Figure 1. Our studio space before the pandemic (left) and after the onset of pandemic with required social distancing and Plexiglas shields (right).

For me personally, this forced reshaping of the program came with feelings of grief which took many months to resolve. Grief because we only had one full semester in our newly furnished studio space, with the last of the furniture ironically delivered on the last day where classes were allowed to be held on campus, doomed to be unused for much of the year. Grief because of the additional barriers and uncertainty that I could see that our students were facing (and that we validated to form a response through an online survey in March 2020), and that we would need to consider alongside our course expectations. Grief because the assumptions we had baked into our pedagogy had to be identified, extracted, and in some cases, rejected—with no time to form a comprehensive or well-studied replacement. Grief at a greatly impacted student experience that for many of our students would dominate their five semesters of studio instruction. Yet this same grief also provided a path to reconsider and rethink studio practices that we as a group of instructors were just beginning to solidify. From pragmatic considerations such as not having printed out materials for each week of studio class that were just a filing cabinet away, to having to discover new digital tools to build and maintain classroom energy online, to finding ways to be inclusive and caring in aiding students who were forced to quarantine and isolate that moved beyond our traditional attendance and participation practices.

Reimagining Supports for Critique and Identity Formation as an Emergent Studio Praxis

Building Critique Assemblages

We began by considering modes of critique, since this area represented the largest departure from our physical studio practices. What had begun in our program as a more or less direct translation of the "gallery walk" and "pinup crit" from traditional design disciplines such as graphic design, in which I trained, had become unwieldy, uncomfortable, and perhaps even inequitable. While a gallery walk of 4-5 projects across 20 students early on in our program history was eminently manageable and even exciting for students, a gallery walk of a dozen or even more projects with more than 40 students directly prior to the onset of the pandemic had become a logistical nightmare. In the physical studio, we had run out of spaces for students to post their work on the walls and whiteboards, and a full gallery walk alongside report-outs from each team with questions took two or more hours to conduct. What had begun with the goal of

encouraging cross-pollination of project ideas among students had become stressful for students, with difficulty in maintaining student engagement and social energy.

Thus, when we were forced online and began to use digital tools like Miro (a collaborative digital whiteboard) to digitally post in-progress artifacts, I breathed a deep sigh of relief. What had been challenging to manage, logistically and socially in the studio, became almost second nature in digital form. In the weeks that followed, we tried several different permutations to replicate—or even reinvent—different aspects of desk critique, group critique, and final presentation critique (see fuller elaboration of these altered critique modes—what we call *critique assemblages* in Wolford et al., 2021). Students immediately noticed—and praised—these new forms of critique as less confrontational, more meaningful, and resulting in actionable feedback.

One permutation included a direct translation of the gallery walk into a Miro or Mural online interactive whiteboard (Figure 2), where students could add their work in advance of the class period (removing the shuffle of tape and magnets at the beginning of class in the physical studio), followed by a defined period of time where I played music through Zoom to allow students to review each others' work, and then capped off with brief report-outs and verbal questions to each team by students and the instructor. As I myself became ill during the Spring 2020 semester, I needed to find new ways to manage these critique events, while still ensuring that students received enough feedback to move their project work forward, leading to other inventions of critique assemblages.

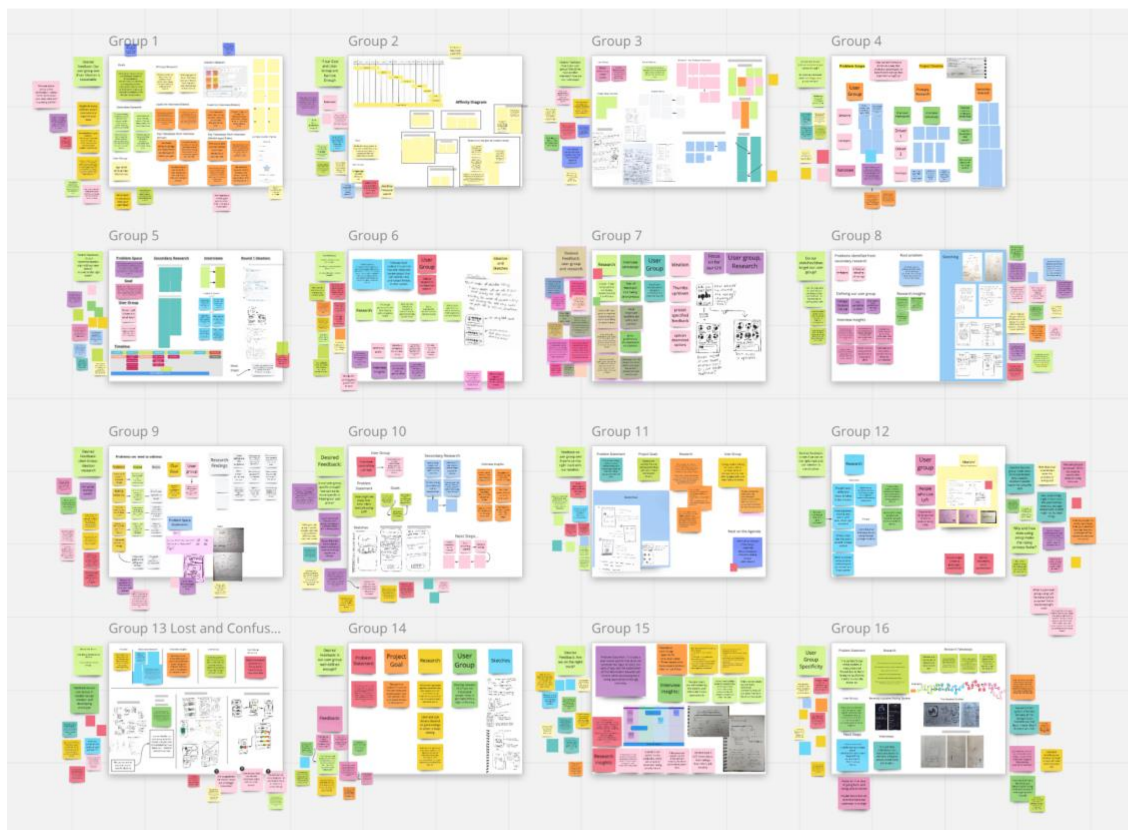

Figure 2. Artifacts of a group critique on Miro with notes surrounding each frame resulting from peer and upperclassperson engagement with each group's work.

In another permutation, I tried out an asynchronous framing of the group critique. Each team had a Slack channel where all students in the class were added, and in this channel, team members posted in progress artifacts (often as a short video) alongside aspects of their project that they wanted feedback on. Over a 48 hour period, all students in the course were asked to provide written feedback in the Slack channels of at least half of the project team, and then I added 8-10 minutes of audio feedback in each channel as well. This resulted in substantially more feedback that would have been possible in a single class period, while also giving less outgoing students an opportunity to frame and present critical feedback.

We also experimented with a live version of the gallery walk (prior to Zoom's capability for participants to self-select and move among breakout rooms), where each team launched a video call in their team's Slack channel, while half of their group members joined other team video calls to discuss project work and provide feedback. This framing of critique, too, added new levels of engagement and socialization in a time when many students were struggling with Zoom fatigue or a feeling of disconnection from classwork and fellow students.

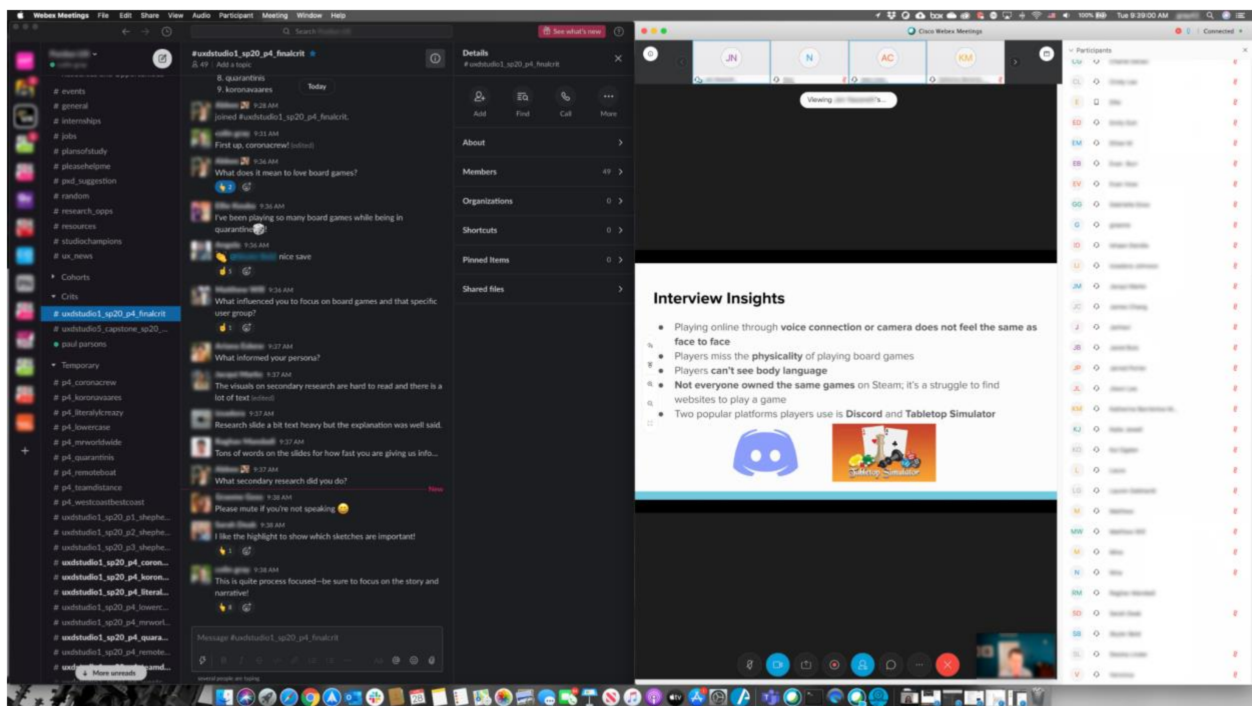

Figure 3. A final presentation crit with student participation via Slack and WebEx.

The most dominant critique events—both before and during the pandemic—were final presentations. Even when we met in person prior to the pandemic, we had used Slack to extend means of student participation, encouraging students and visiting upperclasspersons (students one or two years ahead in their program who had previously taken this studio) to add comments during and after each presentation (Figure 3). When we moved to fully virtual participation, the Slack critique became even more integral in reproducing some of the "buzz" of the physical studio, while also allowing more upperclasspersons to "fit" in ways that would not have been possible due to the physical capacity of the residential studio.

Supporting Identity Formation

The second issue that we sought to address was the allowance for deep identity formation and specialization—by considering how we used our studio time to engage in readings, discussion, and design work. In relation to these practices, our engagement with studio properties such as "active learning" and dialogical and constructivist learning were challenged. While in the immediate wake of the pandemic shutdown, we were merely seeking to *survive*—recognizing that participation could not, and perhaps should not, be the same as it was in typical years. However, as weeks turned to months, we had to consider how to encourage appropriate and meaningful levels of participation as we experimented with combinations of hybrid and synchronous studio sessions.

We continued to leverage a social reading tool called Perusall for asynchronous yet social engagement with readings. However, replicating reading discussions in a hybrid classroom with many students joining via Zoom, and other masked and socially distanced students joining in a large studio classroom presented unique challenges. Students online could talk amongst themselves easily in the group session or in Zoom breakouts, and they could be easily heard over the speakers in the studio. However, students in the physical studio often struggled to speak loud enough to be heard online, even with a high-quality omnidirectional microphone in the center of the room.

As an instructor, I resorted to wearing a wireless microphone to be audible online, with varying levels of success in the classroom. This created a situation where meaningful questions and conversation were often coming only from the students joining via Zoom, and students in class had to resort to awkward conversations in person separated by distance and audibility concerns. And from an instructor perspective, this cyborgian arrangement of technologies—an iPad to stream my face and the whiteboard; a wireless mic strapped to my face in front of a double mask; a computer with a webcam connected that faced the students; a mounted TV streaming from the iPad Zoom display to allow students on Zoom to have a physical presence in the studio; and an omnidirectional mic that had to be manually switched to allow students in the physical studio to be audible—caused substantial strain from an instructional perspective, making these studio sessions exhausting to run with limited perception of value in terms of student engagement.

Shifting to New Modes of Enculturation

Due to these challenging—if not fully failed—efforts at hybrid engagement in Fall 2020, we moved to fully online synchronous instruction in Spring 2021 to enculturate our new cohort of 50 undergraduate UX students. This move allowed us to focus on socialization and participation without managing a hybrid experience that tended to disadvantage students joining in the physical studio. The timings for the course—including two three-hour sessions per week—were left unchanged from our physical studio approach, even though we may have considered other ways of utilizing time and synchronicity in a non-emergency setting that would have been less onerous for instructors and students alike. The all-virtual approach for the first eight weeks of the semester allowed us to further leverage the digital tools, such as Miro, that we had come to rely on in the pivot to pandemic learning, adding other mechanisms such as a "reading panel" to incentivize student engagement and provide social structure as well. To form the reading panel, we had students sign up for one day in which they would be one of 3-4 students that

would be our lead participants, with the responsibility of coming to class with questions, leading conversation, and ultimately helping me avoid the awkwardness of “dead air” on a three-hour Zoom call. While in theory, this panel would enable me as an instructor to be more present and conversational, facilitating social support that would likely be useful in a post-pandemic physical studio as well, student exhaustion and Zoom fatigue still often took its toll. Students on the reading panel for that day participated actively at the beginning of class, but quickly regressed into less visible forms of participation.

While the studio in hybrid or fully virtual form often lacked the “buzz” of a traditional residential studio, students did stay engaged in other ways that had previously been relegated to the background. In particular, students’ engagement in weekly written reflections on our course Slack workspace became increasingly important. Because I did not impose a structure on these reflections, students used the space to consider the impacts of the pandemic on their personal and social lives, their increasing knowledge about design, and their collaborative experiences—building a space where they could let their guard down and recognize that they were not alone in experiencing the unique challenges of learning during a pandemic. Due to the lack of more explicit audible communication, this written record—alongside occasional structured reflections in class—foregrounded the students’ care for their community and provided a space for them to be *human* in the context of studio learning, not just a design student.

Conceiving and Changing Our Notion of Studio as a Praxis

As I reflect upon this year of change and the unique characteristics of our studio program, I have increasingly considered the role of our values and means of engagement as part of a studio *praxis*. The notion of praxis allows us to consider not only our instructional practices in isolation, but also the intersection of these practices in relation to power, privilege, engagement, and care.

The level of engagement, care, and participation we have experienced in online modalities has allowed our program to successfully scale, while still attending to some of the key elements of studio that we were struggling to scale in a physical space. Student engagement in various forms of critique in virtual settings has kept pace with the amount of feedback provided in physical studio, but now with a digital “trace” that keeps the feedback alive for future reflection. The recording of studio sessions using Zoom has allowed students to have the option to reflect upon the discussions, with more support for accessibility through automated transcription. While I did not track viewing history for these recordings, anecdotally, some students did take advantage of revisiting class sessions during the 30 days each recording was available. Beyond recordings, the use of digital augmentations to support reading discussions has allowed for entirely new ways of engaging beyond the spoken word—likely allowing a whole new set of students to thrive in a virtual studio that may not have done so in a physical studio environment.

What is unclear is how to create a synthesis of these approaches. We will return to physical studio instruction, and we will engage again in some of the physical studio practices that are in some cases centuries old. But what are we willing to replace, and with what justification? What aspects of the “studio organism” are we seeking to feed or better support as we make these

choices? What might a critical view of studio pedagogy (e.g., Dutton, 1991; Gray & Smith, 2016) impart when acknowledging at a deep level the impacts of pandemic and crisis on our learning experiences? If emancipation is central to our practice, as we had previously claimed in our guiding principles as we originally constructed our program footprint, how might we use this pandemic experience to cull away practices which are past their sell-by date and leave ourselves open to discovering new types of practices or new physical-digital assemblages of practices?

I will conclude with some examples of these productive yet challenging tensions that illustrate the levels of complexity of our praxis that we will need to continuously grapple with in the coming months and years:

- **Formative critique in group settings is clearly easier to manage at scale in an online environment.** Asynchronous versions of critique practices using Slack channels with the entire class invited to each project team channel facilitated deep and extensive feedback when opened for a 48-hour period, while Miro-focused group critiques added additional flair and depth to the content being presented, but perhaps increasing the amount of strain to read and respond to materials in depth at scale. The online iterations of formative critique generally felt more accessible for students, and more voices could be "heard" through Post-Its than would have been possible in the physical studio with verbal questions. Thus, while the performative quality of gallery walks and other forms of formative group critique are useful as enculturating tools, it's possible that we may never do a full-scale gallery walk with 40+ students in the same way again in the physical classroom. This element of our praxis points towards issues of equity and accessibility that we had perhaps neglected in previously instantiations of our physical studio.

- **Desk critiques in both environments have different strengths which could be exploited.** While the classic desk crit in a physical studio benefits from the power of "overhearing" in physical space, these benefits are reduced to virtually zero in studio environments containing dozens of students due to the din of dozens of simultaneous conversations. In online settings, there is the opportunity for a better "push/pull" balance to students' engagement in desk crits, where students can more actively identify the need for a crit and represent that choice in a democratic and visible form on our class Miro board. However, when these crits are in process in individual Zoom breakout rooms, there is little to no ability to share out those learnings to the broader group without new patterns of documentation and sharing. This element of our praxis presents tensions in relation to student autonomy and agency, while also providing new ways of considering power relations and feedback when engaging with student teams.

- **The online learning environment lends itself to easier documentation of learning artifacts and outcomes.** While we had recorded critiques for years using GoPro cameras, the use of Zoom recordings provides much better audio quality, enhancing these online-focused records for future reflection. I had previously recorded all of my class sessions on my smartphone for my own use for recall, but the ability for all students to productively use class recordings for further study or use has raised

recording as potentially another area where studio equity can be enhanced. This element of our praxis raises important questions regarding accessibility of learning experiences, pointing towards ways in which improving accessibility may also positively impact other forms of reflection and engagement with course content.

- **The metadata layered on top of the studio learning experience, and its value to enhance and facilitate reflection-on-action, is an open space for new work.** The challenges of aligning the physical and digital studio worlds is something I first faced in my dissertation research (Gray, 2014), and this opportunity space—in part—informed our use of Slack to create a social and engaging space for students to build their own sense of studio. However, these worlds have not quite met—yet. How might metadata from Slack and other forms of online engagements creep into the physical space? Where are there opportunities to leave open threads of engagement that begin in the physical space and end in the virtual space, and vice versa? How could students more effectively leverage their past "metadata" (including all reflections, project feedback, mentored feedback, reading annotations) as a tool both in developing their expertise as a designer and as a future boundary object for further learning and education of coworkers? This element of our praxis reveals new forms of engagement that may enable a wider range of students to be able to fully participate, and also extend learning opportunities for students already well served by our residential studio.

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