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In Search of Virtual Connectedness: A Comparative Essay in the Development of New Pedagogies for Remote Learning Environments

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Introduction

The ongoing disruption caused by COVID-19 has provided an opportunity to pause and reflect on how educators are shifting pedagogies, inventing approaches, and developing skills shifting, inventing, and developing various skills and approaches to foster an experiential learning curricula despite moving to physically-distanced forms of teaching. Design education, in particular, is faced with the challenge of rethinking a model that at its core is highly reliant on frequent face-to-face interactions. The studio classroom experience for centuries has utilized what are commonly referred to as "desk critiques." These interactions are the central focus of most studio classes and serve as the primary pedagogical device for those who teach these courses. Instructors develop a strong rapport with students when they can meet two or three times a week in lecture. The abrupt transition to remote learning, as a result of COVID-19, challenged this model of engagement and, in turn, enabled the use of new approaches to support student learning.

This paper reflects on the shared experiences and documented outcomes of two design studio courses taught by instructors at different universities, who simultaneously deployed similar tools and techniques to conduct their classes in a virtual, online format. It is hoped that this articulation of challenges faced, lessons learned, and directions for the future will be useful to broader audiences of educators who typically rely on face-to-face interactions with students to successfully deliver their courses.

Program Description Prior to COVID-19

The two courses examined were both introductory design studios for landscape architecture students. The first was an undergraduate course at the University of Kentucky (UK), and the second a graduate course at North Carolina State University (NCSU). While meeting times and frequency were slightly different, the expectation at both institutions was for students to meet with instructors and/or peers multiple times per week to discuss their individually-led design pro-

posals and get feedback via in-person desk critiques. One important distinction between the two courses is that students in the undergraduate studio began the semester on a digital platform with every student using an Apple iPad and iPencil. Instructors and students began interacting and creating content digitally from the first day of the semester. The graduate students at NCSU did not use this Apple platform and, instead, created work using various computer-based programs. Instructors at NCSU adopted the Apple iPad and iPencil as a teaching aid during the transition to remote classes caused by COVID-19.

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In both courses, the students were still very much discovering themselves as designers. Their interactions with instructors not only yielded critiques of their work but also began to mold and instill a way of seeing, thinking, and navigating complex problems. Both studios required that students balance the development of highly exploratory ways of thinking with evidence of technical competencies. Desk critiques and intermittent assignment reviews were collectively geared toward fostering each student's creative confidence and ability to work both autonomously and in group settings.

Changes Made Due to COVID-19

The sudden switch to remote delivery of courses, while requiring the rapid assimilation of various online mediums, also presented a tremendous opportunity to reconsider and adapt the traditional pedagogical underpinnings of design studios. Categorically, the various methods deployed by the instructors can be synthesized to fit three distinct approaches: 1) modeling a sense of order; 2) tightening feedback loops; and 3) developing a digital footprint.

Modeling a Sense of Order

Once decisions were made to transition the remainder of the semester into an online format, continuity plans were developed by the instructors for each class. These plans described, in detail, how classes were to be conducted, how assignments were to be altered, and what online platforms were to be used. Despite all changes, however, the goal remained to model in-class behavior and expectations as much as possible. To achieve this, the professors: 1) modified lecture content to fit pre-recorded formats as demonstrations or step-by-step guides; and 2) created a repeatable process for conducting in-class meetings (e.g., "virtual desk critiques").

Sharing continuity plans, modifying the accessibility of lecture content, and operationalizing new methods for one-on-one meetings created a very structured environment that allowed for greater efficiencies during class hours. In the end-of-semester evaluations for both courses, 75% of all student respondents positively noted these added efficiencies as part of their answers to an open-ended question about strengths of the course (n=32). However, it was also noted that the spontaneity of peer-to-peer interactions within this highly structured format was greatly diminished. Personal connectedness and simulating a culture of togetherness amongst students was difficult to establish given the steriliz-

ing effect of timed, remote interactions.

Tightening Feedback Loops

Despite the inherent rigidness in the new class structure, the line between in-class versus out-of-class hours was significantly blurred. Communicating with students in a wide variety of formats, the lack of readily available classmates with whom to ask questions, and the physical vagueness of what defines an office, likely reduced perceived barriers for student-to-teacher interactions. Though these circumstances added extra commitments of time from both instructors, the additional meetings and digital markups in between classes placed a stronger impetus on students to more quickly iterate before the next in-class session—enhancing the overall quality of work produced from one session to the next.

Developing a Digital Footprint

Perhaps the most impactful learning tool generated was the co-development of a digital footprint between each student and instructor. There was an expectation that each student would digitally share their progress work prior to their scheduled virtual meeting. The instructors then utilized a combination of iPad Pros with iPencils and the Morpholio Trace app in order to "digitally draw" on each student's work while simultaneously engaging in a live discussion via Zoom. Digital recordings of the audio and visual drawings from the conversation were then emailed to each student at the conclusion of their time slot to serve as a multisensory artifact of the meeting. These added layers of documentation created a library of references for each student and instructor to track progress and recall for future use.

Challenges Faced or Problem-solving Techniques Employed

The combination of tools used to conduct virtual desk critiques allowed for the rapid conveyance of meaningful feedback at a time when student-to-instructor communication could have become slow and cumbersome. In the end-of-semester student evaluations for both courses, 78% of respondents positively mentioned the use of the described "virtual desk critique" approach as part of their answers to an open-ended question about strengths of the courses (n=32). When combined with transparent lines of class-wide communication and an organized system for compiling each student's "digital footprint" (i.e., Google Drive or Microsoft OneDrive), the use of the described Apple products with the Morpholio Trace app and Zoom video conferencing platform proved to be effective for replacing, and even strengthening, many aspects of in-person meetings between students and instructors.

Student-to-student virtual communications, however, were not able to capture the same energy that is typically present in studio environments. Instructors attempted to recreate this type of interaction through small-group video conferences, peer-to-peer reviews of work, and by utilizing chat features during student presentations. While helpful, none of these were able to replicate the instantaneous 'snow-balling' of ideas that are present when groups of students are collectively working through a problem in a shared space.

Looking Ahead

Many of the methods described in this paper were positively received by students in both classes; however, feelings of isolation persisted as the most vexing challenge with the switch to physically-distanced learning. Studio classrooms are designed to be collaborative environments where students feed off their cohort's unique blend of competitiveness, admiration, and inspiration to support each other's learning. Operating from solitary workstations discouraged the communal development of peer-to-peer synergies that would have otherwise been present.

General dissatisfaction related to this circumstance was consistently articulated in the end-of-semester student evaluations for both courses. Eighty-one percent of survey respondents mentioned a desire for more class-wide or group interactions as part of their answers to an open-ended question about suggestions for course improvement (n=32). Further development of tools and techniques to address the insular nature of virtual classrooms represents the most critical next step for both instructors.

Looking ahead, the utilization of hybrid classrooms—with a mixture of safely assembled in- person class sessions, and remote virtual sessions—seems like a plausible solution. Even if physical distancing mandates are lifted, aspects of remote learning that were successfully implemented during this past semester could be blended with new, thoughtfully crafted approaches for in-person meetings in order to provide more flexible and emotionally connected modes of learning compared to the previously accepted norm.

Conclusion

The reliance on seemingly underutilized technologies during the COVID-19 period provided new and exciting pathways for teaching and learning. In particular, the adoption of digitally passing students' work back and forth was well received and may have even enhanced the depth of student-teacher interactions. These digital conversations broke the mold of strict classroom hours and offered a means of more continuous engagement with students. On the other hand, there was a marked and important difference in the perception of authority based on a student's access to certain tools and devices.

As previously mentioned, each student in the undergraduate cohort had access to an iPad and iPencil at the start of semester. When the switch to remote learning occurred, they each had the same ability to digitally draw with the instructor during virtual desk critiques. Whereas the students in the graduate-level cohort, not having the same access to technology as their instructors, were immediately subject to an inferior position of having instructors digitally draw for them during virtual desk critiques. While many students in the NCSU group eventually found alternative methods for more equitable ownership of each virtual desk critique, this inevitably took longer to develop and was not possible for everyone based on varying degrees of technological access.

Similarly, peer-to-peer interactions were noticeably diminished during this enforced period of remote learning. The significant time commitment during in-class hours devoted to one-on-one meetings via Zoom likely reinforced what had

already become an isolating socio-emotional experience for many. While certain pedagogical adjustments to combat these types of experiences may help in the future, it is difficult to imagine a circumstance that would adequately replace the foundational nature of communal empathy and drive that occurs in studio settings. This position highlights the importance of having started the courses in a face-to-face format, thus allowing for a level of emotional connection with instructors and peers to develop prior to the transition to physically-distanced classes. Had this not occurred, the rapid assimilation of virtual desk critiques would have been much more challenging.

Moving forward, how might educators think of new approaches for establishing student-to-teacher and student-to-student connectedness in a hybrid class setting? Could semesters, or even certain classes, be split into in-person and remote sessions? Ultimately, students need to perceive some sense of community in order to effectively develop a way of thinking that accounts for and relies upon collaboration, consensus and multiple perspectives.

If peer-to-peer togetherness can be accommodated, perhaps future courses could be framed as models of adaptation, not only relative to student learning outcomes but also in curriculum and instruction. Should educators build disruptions into courses for the very purpose of developing adaptable and flexible ways of thinking? As this recent experience revealed, these shifts can sharpen focus for both students and instructors to prompt important reflections relative to what, why and how learning is being supported. The challenge for students this past semester became "can you adapt and do great work?" And, in fact, despite many unfavorable conditions, the work of most students during this COVID-19 disruption still progressed, and in some cases may have even been better. It is now the role of instructors to reflect on the positives learned from this experience, be critical of what needs to be improved, and adapt to what may become the new normal. ■