039

NON-PEER REVIEWED:

Rising to the Challenge: Education, Pandemic and (Virtual) Skills Transfer

Scott Chin

70—79

With the widening scope of design, the importance of the design studio has concomitantly responded by transforming its own character to become inclusive of the educational domains of history, professional practices, theories, technical, and material studies. The absorption of such domains, part-and-parcel of the studio setting, has irrevocably highlighted the importance of education within the container of the studio or rather 'in-situ' education. However, with the volatility of external factors, the challenges posed to design education are multiple. Especially in light of the rise of a global pandemic, educators globally have had to implement crisis strategies in response. This short visual essay outlines the obstacles of online teaching; moving from resistance to embracing the tools and features that online education provides. Sharing the gained experiences, starting at the rise of the pandemic, the text engages seven key points of interest, while practically demonstrating responses in the product design setting.

#online teaching

#design education

#studio subject

#in-situ training

#pandemic design

The Site of Education in the Context of the Pandemic

It is safe to assume that all designers know, more or less, the meaning and importance of a design studio or studio setting. From early on, design students are made aware of the role of the studio and what it means to creatively produce amongst fellow peers in such a dedicated space. Later on, the same values are transferred to a new generation of students, echoed by tutors, professors, instructors and professionals. The value of a design studio has in the span of 30 years extended its meaning of place, beyond its conventional positions as a space 'only meant for design activities'. With the widening scope of design, the importance of the design studio has concomitantly responded by transforming its own character, to become inclusive of the educational domains of history, professional practices, theories, technical, and material studies. Moreover, the absorption of such domains into the studio irrevocably highlights the importance of in studio or 'in-situ' education. The importance of peer-to-peer learning becomes a natural consequence of a collective and group experience.

However, with the volatility of external factors the challenges posed to design education are multiple. Especially in light of the rise of a global pandemic, educators globally have had to implement crisis strategies in response. What was a fully embodied experience between individuals has had to migrate to a virtual medium. In addition to the digital context, design educators have had to ask complex questions related to their own ways of praxis.

What follows is the reflection in response to the challenges caused by COVID-19. Drawing from experiences in The Hong Kong Polytechnic University's School of Design, the responses cover the first and immediate knee-jerk reaction to a studioless design format, the suitability of virtual platforms, and new reflections after more than ten months of experience with online education.

"Online Does Not Fit Design!"

At the beginning of the pandemic, every faculty member was in a state of literal panic. Given the call in January 2020 by The Hong Kong Polytechnic University, all education and classes had to migrate to online platforms. Many individuals strongly believed that delivering design education through a virtual and online medium was an impossible task. In some instances, the question of semester postponement was raised. The biggest challenge remained: 'how to create and deliver a face-to face-like learning experience?' In addition, what would an online experience mean for those courses that require hands-on training?

Added to this, software knowledge was limited in the beginning. We had no idea what type of platform would be most beneficial to maximise an embodied online learning experience in terms of design and education. The testing and re-testing of different software was the only route to seek a version that best suited our requirements.

Option One or Option Two?

At first, two platforms were suggested: Blackboard Collaborate Ultra and Microsoft Teams. Both ranked high as platforms for organizing and maintaining class structure and content management. However, they also showed limitations. Their varying capacity to upload files and size capabilities caused connectivity issues, especially for students in Mainland China, the use of both Collaborate Ultra and Teams caused more connectivity issues. The various tests realised that MS Teams did not allow for the recording of the tutor's main screen at full size. Over a period of time, students became frustrated, unable to playback the instructors' recorded video when they wanted to review the learning outcomes and other content.

A third platform became the medium of choice. After some consideration and consultations with IT, the Zoom platform was deemed more interactive. With the addition of some hardware, including webcam, lighting, and digital tablet, the design environment was recreated, where visibility on the education actions (hand animation, illustrating, drawing, and rendering) could be simultaneously recorded with the view on the instructor and students.

How Should Design Education Be Adjusted for the Online Format?

Design is a problem-solving profession. For that reason, creating new teaching and learning experiences is equally as important as a design challenge. Moreover, how can we even begin to talk to students about the importance of user experience (UX) or how show empathy for their development, if design education itself cannot fulfil user experience in an educational capacity? Whether this is online or face-to-face, the same question remains valid in terms of user experience and the medium through which these experiences are transferred.

From a design perspective, online education should represent a face-to-face medium in some way or another. Although platforms through which information is disseminated may differ, the 'face value' of education remains. By fusing together virtual with regular education practices, a "virtual-face-to-face" platform may be possible that still fulfills all the educational criteria as well as creating a meaningful experience in the context of what we can define as the 'new normal'. In this fusion, the aim of creating a class experience where students can engage and interact with teachers by utilising given technologies, while still benefiting from in-situ experiences can add new advantages of digital and pedagogical skill sets.

From our gathered experience over nine months of online education, the deciding factor remains the engagement of students' attention and interaction throughout each online session. Conducting in-class exercises, providing direct feedback, and the ongoing real-time critique, define the new practices of online education.

Better than Expected, and Some Benefits!

Still, if given a choice, students remain committed to face-to-face learning. However, their general experience of online education has exceeded their expectations. What is of great benefit is the ability to access recorded material, time after time. Second to that, real-time critiques benefit more than one student per class, highlighting peer-to-peer experiences in the online setting: watching together, practicing together, and listening together. The submission of digital projects has meant saving time on printing and the pin-up process, not to mention the on-time submission of projects, meeting set deadlines, while avoiding rush-hour traffic.

Taking a Step Back, the Evaluation of Teaching Online; How to Evaluate?

Due to the circumstance of online learning, some deliverables, including 3D physical models, quick mock-ups, or prototyping, had to be reduced or omitted from the final assessment. This was further hampered by city-wide travel bans, limited access to buildings and facilities, leaving little contact between students and model suppliers. Although far reaching for some courses, others were less impacted by physical prototyping. In those subjects greatly impacted, these three dimensional or prototype components were simply removed from the assessment criteria. Other courses shifted the weighting of the assessment away from the

three-dimensional criteria, focussing on digital or virtual model components. On the flip-side, with less emphasis on physical model outcomes, certain students were given greater flexibility in how they digitally modelled their outcomes. This allowed for students to become proactive and further explore digital mediums beyond the conventional tools or software options, streamlining the final submission process of all studio and design components.

Online and Virtual Exhibits

Similar to educational formats, many schools or design institutions have had to develop contingency plans to replace the end of year or graduation show. Herein the range of formats, mediums, and access points had to be considered. Should the show be part online and part installation, or should the entire contents of the show migrate to the online format? In both instances, the set-up as well as curatorial work will shift, scrutinising what to show and how to show the contents of each project. And, more importantly, what can be done to differentiate the online format from other shows which lack interaction, engagement, and user experience? From our view, it is not only the linking of students and exhibition curators, but the merging of interaction and information possibilities that make it possible to showcase the work for a global audience. What may at first be perceived as yet another response to the restrictions to the pandemic, could also become a challenge wherein design dissemination should explore new directions and virtual avenues. In our view, this may set new practices, showing design outcomes through dedicated workflow processes, transferring all design work into virtual formats.

Post-COVID-19, it's a Matter of Trust

There are many ways for design to facilitate the process to overcome COVID-19. With the impact on the way of life, we predict the need to focus on product development and serviceability. User experience, has and will, for the foreseeable future, become a daunting challenge for all conditions of design. Implicitly, this lays an additional burden at the feet of design education. First, from a design education perspective, to provide an experience that involves a new generation of designers with new tools and societal requirements. And secondly, to re-establish levels of trust between educators and students, and for students to accept new unconventional mediums that will form part of their educational platforms and information exchange protocols.

The accompanying images were collected at the height of the School of Design's response to the pandemic and its need for online education. Using the course of "2D Communication" we would like to explicate good practices for the use of others, help improve and further extend good practices for design education in the post-pandemic context.

PREPARATIONS FOR THE DESIGN-TUTOR WORK STATION

A. Hardware

1. Webcam. (Facing down to broadcast real-time demonstration).
2. LED down lighting. (Web cast purpose).
3. Headset with microphone. (Because the webcam faces down, it does not detect sounds well. Need a separate microphone).
4. Wacom tablet. (Able to use digital white board and software to enable digital interactive instructions).

B. Software

1. Zoom – real-time online demonstration. (Able to record the full-screen shot video of demo, when MS teams has no function to pin the main screen to record).

2. MS Teams – to manage the class activities. (Create the channel weekly to manage the announcements, attendance and file-sharing).
3. MS OneDrive – for student's submissions. (For both in-class and out of class assignments).

C. Conducted a test-run session one week prior to the start of semester

1. Check the connectivity.
2. Some international students had connectivity issues for Teams and Collaborate Ultra.
3. Decided to use Zoom for better connection.

PRE-CLASS SESSION

1. Create a schedule for class in Zoom and post-invitation links in MS teams under the 'weekly channel', so students can join the class in Zoom.
2. Log in to Zoom five minutes prior to class to check the equipment and wait for students.

DURING ONLINE CLASS

A. Real-time Demonstration

1. This is the most important element of online class in order to create a virtual face-to-face teaching environment.
2. Streaming recorded video lessons is not recommended, as this lowers the expectation and engagement. (Students would not feel it is worth what they have paid for).
3. Using the webcam to stream the lesson in real-time for manual skills and using SketchBook Pro and Photoshop for digital 2D communication skills.
4. In order to maximise students' engagement, in-class assignment is the best way to do so.
5. Stop and re-do the demo on student's request.
6. Benefit of sharing the same viewing angles, compared to face-to-face environment.
7. Each demonstration can be recorded and uploaded to the share folder in cloud storage (MS OneDrive), so students can access upon demand.

B. In-Class Assignment Exercise

1. After the demonstration, students are asked to finish the exercises and upload their work to the share folder in OneDrive. (This helps the tutor to monitor the students performance and their engagements)
2. Use in-class exercises to check attendance and evaluate class performance.
3. If students do not submit the exercise by the end of class, it will be counted as absent.

C. Real-time Critiques

1. Conducting real-time critiques on their work as they are uploaded, one-by-one.
2. Sharing critiques are one of students' favourite aspects of online class, because they can also learn from the comments of each other.
3. Conducting critiques on their submitted assignment at the beginning of each class and going over questions with students. (This is part of the online demonstration I conduct at beginning).

D. Archiving

1. Upload recorded video of whole class to share folder.
2. Student's submission can be easily managed and reviewed using the cloud storage.
3. This can be a good benefit from online teaching.


OCTOBER

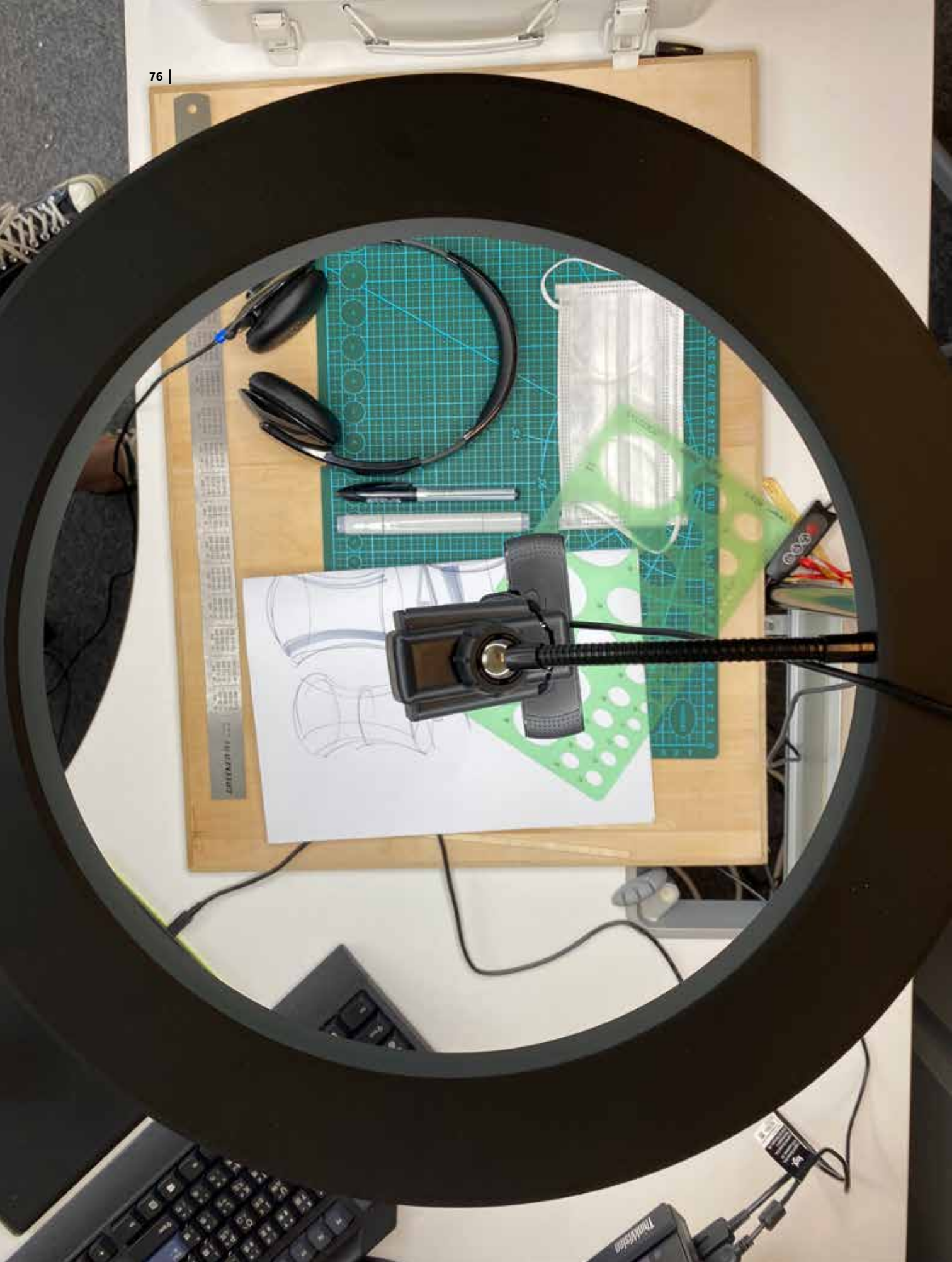


Figure 1 (page 75): Hardware settings on existing workstations. *Source: author.*

Figure 2 (previous page): Material preparation. *Source: author.*

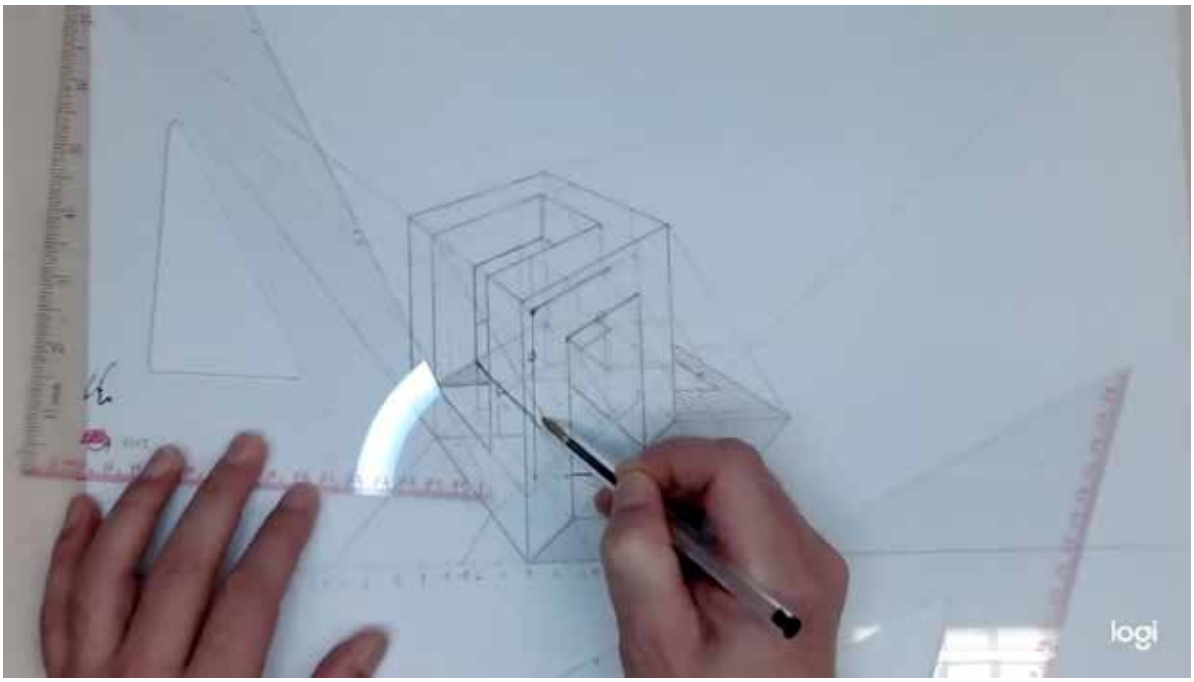
Figure 3 (this page, top): Material preparation for real-time drawing demonstration. *Source: author.*

Figure 4 (this page, middle): Online class in action. *Source: author.*

Figure 5 (this page, bottom) : Digital drawing demonstration using SketchBook Pro. *Source: author.*

Figure 6 (page 78, top): Screenshot of manual drawing demonstration. *Source: author.*

Figure 7 (page 78, bottom): Impact of online education. Demonstration of tutoring set-up. *Source: author.*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Bio

Scott Chin is an industrial designer and educator. He is a teaching fellow in product design of the School of Design, at The Hong Kong Polytechnic University, a position he has held since 2017. He holds an AOCA diploma from Ontario College of Art and Design, majoring in industrial design, with a master degree in design practices from the School of Design, The Hong Kong Polytechnic University. His design education experience, spanning more than 25 years, includes teaching at the Ontario College of Art and Design and Georgian College (Canada), Kyoungil University (Korea) and The Hong Kong Polytechnic University. In practice, he has led and implemented numerous projects, ranging between the design and development of sports equipment to consumer electronics. His mentoring of student projects has led to numerous awards, with the most recent student project receiving the James Dyson National Award 2020.

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