

Synchronicity in the Online Design Studio: A Study of Two Cases

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Abstract

Traditional design education models foreground place-based learning and teaching approaches that situate educators and students together in the studio. This experience enables an engaged and participatory teaching practice in which over-the-shoulder feedback and peer-to-peer critique become essential formal and informal learning interactions. However, the COVID-19 pandemic significantly interrupted the educational offerings of higher education institutions. Face to face learning ceased and rapidly pivoted to online and new remote models of delivery. For students studying design at the University of Sydney, this disruption significantly impacted the design studio – a space traditionally understood as a physical learning environment *and* a mode of learning and teaching. This paper presents a case study of two approaches to teaching design studio online delivered in early 2020. The first approach adopted an asynchronous delivery model in which students engaged with online materials at a time of their choosing, with assessments designed as individual tasks. The second approach adopted a synchronous delivery model in which students participated online in real-time, and assessment tasks were predominantly small-group tasks. In sharing the experiences of both case studies, this paper considers the role of synchronicity in delivering design studio online across four themes: interaction, assessment, feedback and design learning. Finally, the paper presents practice-based lessons that could inform pedagogical practices in design and support future models of design education.

Keywords

design studio, design education, remote learning, online, synchronicity

Introduction

The term studio can refer to both a physical space of teaching and learning in design and a conceptual or pedagogical design education model. As a place-based learning practice, the design studio offers an experience-oriented space for interactive exploration and experimentation, critical reflection and critique and creative collaboration (Marshalsey & Sclater, 2020; Shreeve, 2018; Costantino, 2018; Boling et al., 2016; Crowther, 2013).

Growth in online design education had been incremental. The adoption of internet-based applications in design education begun as early as the 1990s (Akar et al., 2012), and the University of Sydney was an early pioneer in this space. The Virtual Design Studio 95 project drew on approaches from computing to reimagine the virtual working space of designers, what Maher and Simoff (1999) call 'computer-mediated dynamic world models that create a sense of place', similar to the functionality of the physical design studio.

Beyond the discipline of design, online education in higher education experienced growth at a more significant pace, responding to drivers such as emerging technologies, access to the internet, and the digital economy workforce (Palvia et al., 2018). While many institutions have sought to offer online learning as supplementary rather than an alternative, others have been proactive in designing and delivering dedicated online learning opportunities (Sewart et al., 2020; Simonsen et al., 2019).

Recognising that 'today's designers are required to use technologies that continue to evolve' (Meyer and Norman, 2020:26), design education should continue to explore the space of online learning. Indeed, scholars had begun to explore models of remote design education (Jones et al., 2020; Lotz et al., 2019; Rodriguez et al., 2018; Lotz et al., 2015; Lloyd, 2013; Broadfoot & Bennett, 2003; Laiserin, 2002). However, this literature accounts predominantly for a period of careful planning and transition and not the overnight shift experienced due to the global pandemic.

The COVID-19 pandemic exponentially accelerated the shift to online education (Paudel, 2021). New socio-legal restrictions such as social distancing forced higher education institutions to pivot their pedagogical practices. Teaching moved from face to face to online, curricula were restructured, learning activities redesigned, and new models of interacting with students were established. The rapid pace of change required educators to quickly adapt to new teaching and learning paradigms, with little time to consider, plan, and prepare content for alternative delivery models. This shift was a learning experience in itself.

In addition to the social distancing measures, Australia also quickly implemented a travel ban restricting inward travel to citizens only. Caps on the number of returning citizens meant that a significant population of domestic and international students could not return to commence the new term. In addition, it quickly became clear that the first semester of 2020 would be delivered entirely online.

At the Sydney School of Architecture, Design and Planning, design is a core educational pillar alongside architecture and urban planning. Offering a program of undergraduate, postgraduate, and continued professional development opportunities, the discipline of design draws upon a strong history of interaction design. The discipline has expanded to teach design processes and methods, design programming, visual communication, web design, design theory and culture, and user experience design in recent years.

The academic year began in the last week of February 2020, during the early stages of the global pandemic. In week four, the international borders closed, and students based in Australia were required to isolate themselves at home. This marked the start of the emergency shift to remote teaching, and educators were asked to transition units quickly into an online mode. Decisions regarding teaching approach, methods and assessments were made and implemented quickly, and the semester was delayed by one week to provide educators with the opportunity to create alternative teaching and learning materials for students.

The traditional studio-based teaching model, a participatory and experience-based approach that combined over-the-shoulder feedback, peer-to-peer critique, and a significant proportion

of collaborative group-based learning, was significantly disrupted. In response, new models of synchronicity in online design education were adopted and applied across design units. In synchronous learning, interaction happens collectively in real-time, while in asynchronous learning, the interactions happen at different times and in other places (Singh and Thurman, 2019).

This paper considers the importance of synchronicity in delivering design education online, examined through case studies of two design units that adopted different approaches. The first case study, DESN1006 Design Process and Methods, describes an asynchronous online delivery model in which students participated at different times and completed assessment tasks individually. The second case study, DECO2014 User Experience Design Studio, describes a synchronous online delivery model in which students participate in real-time and complete assessments in small groups.

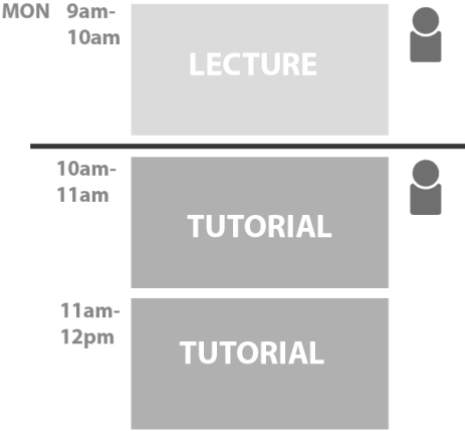
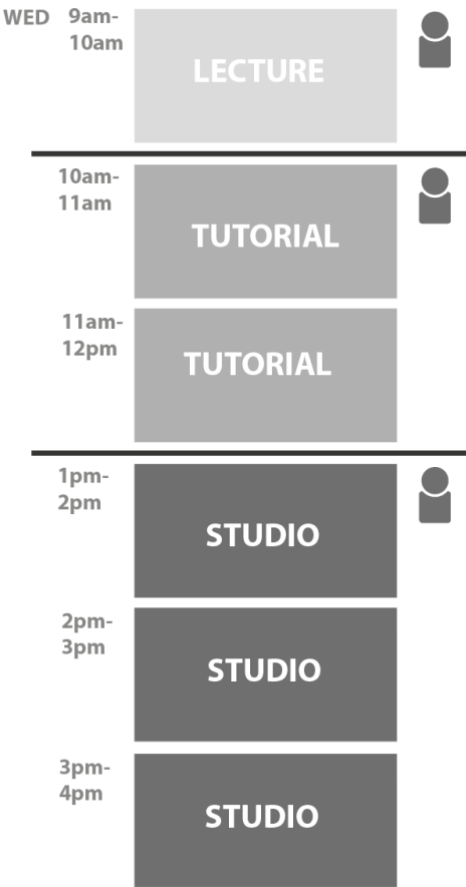
Context

The two units selected as case studies (DECO1006 and DECO2014) were chosen due to their similar structure and content: both are core undergraduate units in the Bachelor of Design Computing degree, both have the same unit coordinator, and course content addresses similar subject matters (design processes, design research, and user-centred design) Additionally, both units have a cohort size of between 180 and 230, comprising approximately 70% domestic and 30% international students. The most significant difference between the two units is that DECO1006 is for the first year, first semester students with three contact hours per week, while DECO2014 is for the second year, first semester students with six contact hours per week.

Prior to 2020, both units were taught using a studio-based approach. Students were first introduced to core theoretical concepts in a weekly face-to-face lecture. Tutors then led students through a face-to-face tutorial, engaging them in a series of design activities that explore that week’s theoretical concepts in practice. In DECO2014, the tutorial was then followed by dedicated studio time for students to work on their own design project in small peer learning groups of 3-4 students, with the assistance of their tutor. Table one sets out a detailed breakdown of the pre-Covid teaching model adopted in both units.

Table 1. Pre-pandemic teaching models of DECO1006 and DECO2014

<p>DECO1006 Design Process and Methods</p>	<p>DECO2014 User Experience Design Studio</p>
<p>Description This unit provides an overview of human-centred approaches to the design of interactive technologies and environments. Students develop an understanding of design thinking and consider how it can be</p>	<p>Description This unit introduces students to principles and methods relevant to the user experience design of digital products and services. Students will develop an understanding of the concept of ‘user experience’ and how it extends to other design practices, such as</p>

<p>productively applied to different design situations.</p> <p>The unit covers theoretical concepts, methods and tools used in human-centred design, including user research, ideation, prototyping and user evaluation.</p>	<p>user interface design and interaction design.</p> <p>The unit covers methods for designing the user experience in a range of different contexts, such as mobile devices, wearables, and interactive environments.</p>
<p>Pre-COVID Teaching Structure</p>	<p>Pre-COVID Teaching Structure</p>
 <p>MON 9am-10am LECTURE</p> <p>10am-11am TUTORIAL</p> <p>11am-12pm TUTORIAL</p>	 <p>WED 9am-10am LECTURE</p> <p>10am-11am TUTORIAL</p> <p>11am-12pm TUTORIAL</p> <p>1pm-2pm STUDIO</p> <p>2pm-3pm STUDIO</p> <p>3pm-4pm STUDIO</p>

Method

This paper adopts a case study approach to present and discuss two models of delivery. Case studies are an effective method in educational research, with the ability to describe rich contexts and provide educators with 'a range of experiences that can enable them to become prepared and knowledgeable to manage different situations' (Peimani and Kamalipour, 2021: 4). Comparing case studies can be an appropriate method for understanding if, how and why particular experiences differ and can produce early, exploratory knowledge (Goodrick, 2020). In this instance, this method enabled the authors to consider two models of teaching delivery in detail and draw out emerging insights for discussion.

Data was collected from Unit of Study Surveys (USS) for the two units. USS are institution-wide surveys that students complete for each enrolled unit, distributed online at the end of the semester. In 2020, 35% of students completed the USS for DECO2014, representing 53 completed surveys; and in DECO1006, 90 students completed the USS, representing a return rate of 49%. The USS asked students to respond to eight statements specific to their learning experience in this unit, with four related to the attainment of institutional graduate qualities (see appendix 1). Each statement was measured using a Likert scale, with students choosing from strongly agree, agree, neutral, disagree or strongly disagree. Students were also able to leave free-form comments for each survey question. Whilst the USS did provide a rich data set, it is centrally distributed. A limitation of this study was the inability of the researchers to adapt or personalise survey questions to gather insights related specifically to the delivery of the two models discussed. Data were analysed thematically, and the emerging themes are presented in the findings.

Case Study One: DECO1006 Design Process and Methods

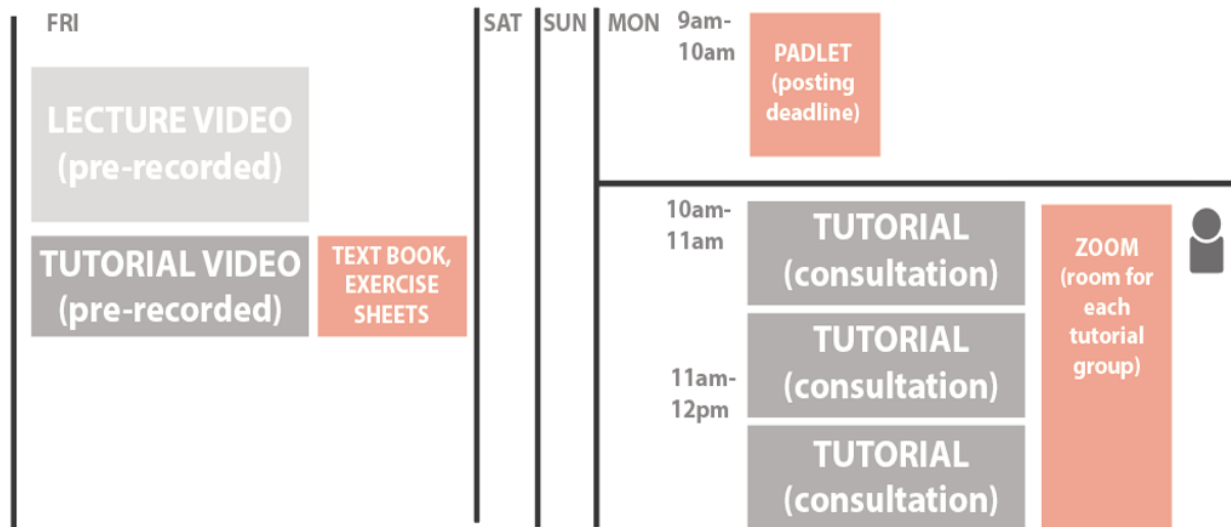
DECO1006 aims to provide students with an overview of human-centred approaches in design, exploring how these approaches might be productively applied in the design of interactive technologies and environments. The learning outcomes for this unit are: to engage in contextual inquiry to identify the need for a design; to show competence in design ideation; to communicate ideas and concepts visually; to apply knowledge of the psychology of user experience to designing interactive systems; to describe and explain activities associated with a design project, and to reflect upon and critique design activities using appropriate language.

The unit maintained the outline structure of pre-pandemic delivery: a lecture followed by a tutorial, but the elements delivered were restructured (see table 2). The lecture became a pre-recorded video, provided online via the institution's online learning management system Canvas, three days before the scheduled tutorial. The lecture was shortened to approximately 30-40 minutes, significantly reducing the traditional face-to-face length of one hour.

The tutorial was restructured from a two-hour face-to-face session to become a pre-recorded tutorial video, also uploaded to Canvas three days before the scheduled tutorial time. The tutorial video featured a talking head with the tutor providing introductions to each of the planned activities and working to scaffold the activity description provided in the textbook. Students were directed to complete tutorial activities individually in real-time, with in-built breaks in the video where students were asked to pause and complete a task. Finally, students were asked to upload the output to a shared Padlet online ahead of the scheduled tutorial time. Padlet is an online noticeboard on which students can easily upload images, view other submissions and provide comments and feedback to peers.

With students encouraged to complete tutorial tasks in advance, the timetabled tutorial was then used as an open consultation time with a live tutor. Students could use this consultation time to receive informal formative feedback on their Padlet submissions or their projects. The consultation model varied throughout the semester, comprising large-group consultations of approximately twenty students, smaller group consultations of eight to twelve students, and shorter individual consultation meetings.

Table 2. Remote teaching model of DECO1006 during the pandemic



The affordances offered by this instructional course textbook was a critical driver in proposing asynchronous delivery. The video introduced each task in detail and included a simulation of time to keep students on task and engaged. With the textbooks step-by-step instructions, students could work through the methods traditionally taught face to face independently, coming together for a synchronous consultation at a set time each week. Before the pandemic, unit assessments were significantly group-based, accounting for 70% of the overall grade and comprising a user-centred research report, a design proposal and a presentation. The remaining independent tasks were a reflective report (10%) and two (20%) quizzes. The restructured unit shifted all assessments to individual study and additionally repositioning the presentation as a video submission.

Furthermore, as a first-year first-semester unit, DECO1006 students have traditionally struggled with group work. These students have only just started at university and have yet to establish peer groups. In the restructured model, many students had not yet been on campus or met any peers face-to-face, and opportunities for engagement outside class was limited due to public health restrictions. Therefore, it was thought that an individual approach would be less stressful and perhaps more productive for students who would have insufficient existing social capital to work effectively in groups.




Case Study Two: DECO2014 User Experience Design Studio

DECO2014 aims to provide students with principles and methods relevant to the user experience design of digital products and services. Students develop an understanding of the concept of ‘user experience’ and how it extends to other design practices, such as user interface design and interaction design. The learning outcomes for this unit are: to apply research methods appropriate to the exploration of ill-defined problems; develop a clear design brief from exploration of an ambiguous problem area; apply principles of user experience design to a complex design project; develop and prototype advanced interactive digital experiences; document and communicate design concepts/processes professionally;

demonstrate an understanding of the concept of ‘user experience’; and work effectively and productively in teams.

The unit maintained the same outline structure as before the pandemic: lecture, tutorial and studio, but restructured the individual elements delivered (see table 3). The lecture was pre-recorded and provided online via Canvas to view at an allocated time in their timetable. The course tutor was also online and monitored discussion and responded to any emerging questions posted in real-time. The synchronous delivery aimed to reinforce the importance of the lecture as a learning activity and encourage broader participation. Tutorial content was pre-recorded and developed into videos aligned to the intended lesson plan. Each video began with a talking-head introduction that set out the tutorial's aim and highlighted any resources required. The video then provided instructions to guide students through the planned activities.

Table 3. Remote teaching model of DECO2014 during the pandemic

<p>TUE</p> <div style="background-color: #cccccc; padding: 10px; text-align: center;"> <p>LECTURE (pre-recorded)</p> </div>	<p>WED 9am-10am</p> <hr/> <p>10am-11am</p> <div style="background-color: #cccccc; padding: 5px; text-align: center;"> <p>TUTORIAL VIDEO (pre-recorded, broadcasted via ZOOM)</p> </div> <p>11am-12pm</p> <div style="background-color: #cccccc; padding: 5px; text-align: center;"> <p>TUTORIAL VIDEO (pre-recorded, broadcasted via ZOOM)</p> </div>	<div style="background-color: #f08080; padding: 5px; text-align: center;"> <p>MIRO BOARD (peer group)</p> </div> <div style="background-color: #f08080; padding: 5px; text-align: center;"> <p>MIRO BOARD (tutorial group)</p> </div>	<div style="background-color: #f08080; padding: 5px; text-align: center;"> <p>ZOOM (room for each tutorial group)</p> </div> <div style="background-color: #f08080; padding: 5px; text-align: center;"> <p>ZOOM (room for each tutorial group)</p> </div>	 
	<p>1pm-2pm</p> <div style="background-color: #444; color: white; padding: 5px; text-align: center;"> <p>STUDIO (consultation)</p> </div> <p>2pm-3pm</p> <div style="background-color: #444; color: white; padding: 5px; text-align: center;"> <p>STUDIO (consultation)</p> </div> <p>3pm-4pm</p> <div style="background-color: #444; color: white; padding: 5px; text-align: center;"> <p>STUDIO (consultation)</p> </div>	<div style="background-color: #f08080; padding: 5px; text-align: center;"> <p>ZOOM (room for each tutorial group)</p> </div>		

Students joined the weekly tutorial online using Zoom. The course tutor broadcast the tutorial video synchronously to the class and could pause the video at set points to allow students to complete activities (figure 1). Students self-selected small peer project groups from their tutorial group cohort, and these groups formed the basis for online tutorial activities. Additionally, Miro boards were established to augment the learning experience. Three examples of Miro include a whole class Miro upon which the tutor could share resources and

review progress on tutorial activities; a peer group Miro board, created for students as they worked in their small project groups; and a digital pin-up Miro used for a real-time critique with design industry experts (figure 2).

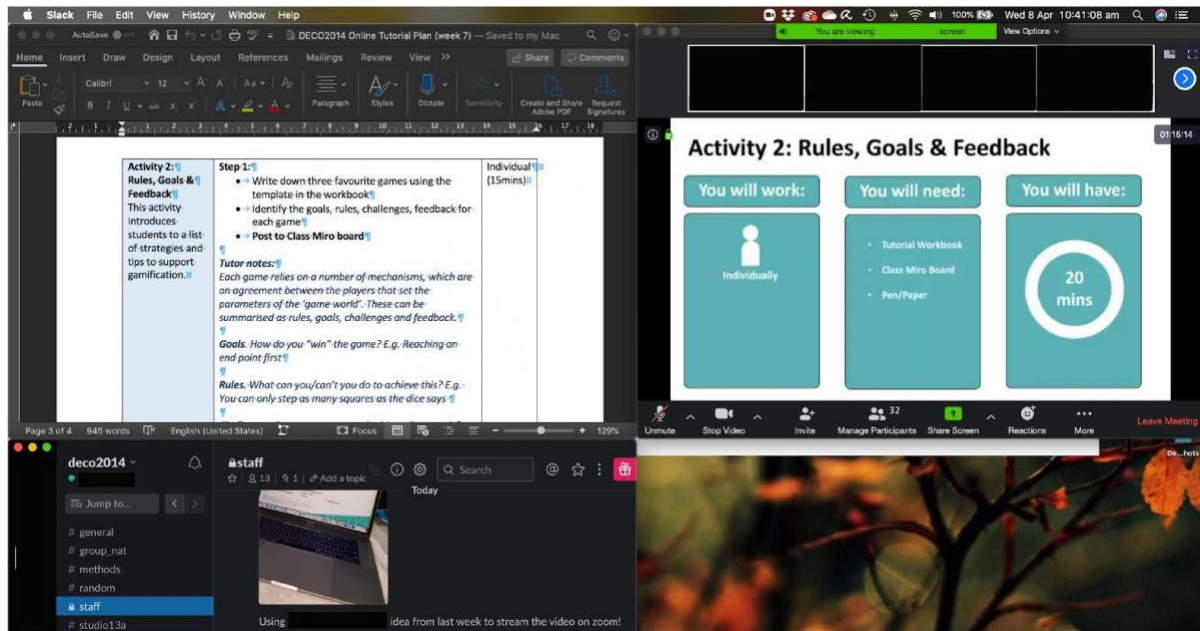


Figure 1. Online Tutor Perspective

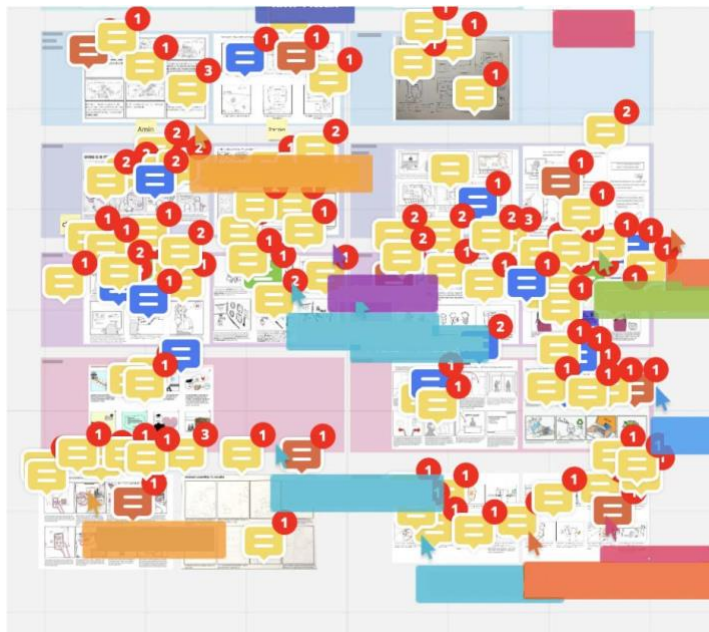


Figure 2. Digital Pin-Up on Miro

Synchronous delivery of video content with a live tutor ensured that students had access to real-time feedback throughout the tutorial video, creating opportunities to ask questions and seek clarification during activities without disrupting the overall tutorial flow. In addition, the

studio component of this unit was restructured to bookable consultation appointments. The tutor entered a breakout room with small peer groups during the consultations and provided feedback or discussed project progress.

Face-to-face critique was recognised as a critical part of this studio unit, supporting students to develop deep design knowledge and understanding. This critique traditionally relied heavily on the relationship between tutor and student and between student and peers. Maintaining a synchronous approach was seen as an essential part of maintaining this practice. As a second-year cohort, DECO2014 students had already established peer groups, and it was imagined that they could build on their existing social capital and collaborate more effectively. Additionally, the unit had effective group work strategies as a key learning outcome, reflected in the 80% weighting of assessments. It was not possible to switch to an individual approach and still achieve the same learning outcomes – for this reason, the decision to remain a group-oriented unit was made.

Results and Discussion

Four themes emerged from an analysis of the data: interactions, assessments, feedback, and design learning. Each theme is presented and discussed, drawing on the reflections and observations of the authors as educators to explore the role and importance of synchronicity in both models of online design education.

Interactions

The first theme emerging related to the student-to-tutor and student-to-student interactions emerging in the synchronous and asynchronous delivery models. In considering student to tutor interactions, students were asked how well they felt supported to learn remotely.

The USS asked students to respond to the statement 'I have felt supported to learn in the online environment'. In DECO1006 (asynchronous delivery), just over half of students (52.2%) agreed with the statement (13.6% strongly agree/38.6% agree). However, 47.8% did not agree, with 23.9% selecting a neutral response and 23.9% disagreeing (12.5% disagree/11.4% strongly disagree). However, the free-form comments suggest a more nuanced experience. While students did comment on the support of individual tutors in DECO1006 (asynchronous delivery), there was a demand for more interaction. Respondents commented that whilst the tutorials should offer an opportunity for engagement, the time was instead heavily scheduled into consultation appointments and was perceived as limiting: "the ten-minute 'one-on-one' consultation was not enough engagement". In addition, the consultations were seen as a fragmented experience, what one respondent described as "... the feeling of stop-start communication when a tutorial begins and ends", with little time to consider tutor responses and ask follow-up questions.

The majority of students in DECO1014 (synchronous delivery) responded favourably (62.3%), constituting 37.7% strongly agree and 24.5% agree. A further 20.8% selected a neutral position, and the remaining chose to disagree (7.5%) or strongly disagree (9.4%). The utilisation of tutorial time also emerged comments from DECO2014 (synchronous delivery), where one respondent commented, "... it is always frustrating waiting for attention when you need help comments". However, overall comments from respondents were more positive. They

suggested that the interactions afforded by the experience were more akin to the face-to-face environment, allowing “students to bond as well as the tutors”.

While this appears to suggest that respondents in both synchronous and asynchronous models felt supported by tutors, a significant proportion also felt otherwise. Considering student to student, or peer interactions, respondents were asked about their engagement with the wider unit cohort. When asked to respond to the statement ‘I felt part of a learning community’, less than half of students (45.5%) in DECO1006 (asynchronous delivery) responded positively (8% strongly agree/37.5% agree). The remaining respondents comprised a neutral position (33%) and a negative (21.6%) position (12.5% disagree/9.1% strongly disagree). In DECO1006 (asynchronous delivery), a significant proportion of comments related to the lack of opportunities for peer interaction and a desire for whole class and small group interaction. Respondents suggested that the unit might be improved by introducing group learning interactions, such as discussions. There was also demand “interpersonal” interactions: “it would be beneficial to have more contact with classmates in a more common, informal manner”.

In DECO2014 (synchronous delivery), the results were similar defined, with slightly more students agreeing (52.9%), fewer providing a neutral response (28.3%), and slightly less disagreeing (18.9%). This suggests that the interactions afforded in both units did not enable a significant proportion of respondents to feel engaged with the cohort. One respondent did suggest that they felt “disconnected from the group”, and another remarked on the challenges faced: “It is certainly much harder to collaborate and have a sense of ambition, community and accountability without a face-to-face aspect”. However, the remainder of the responses were positive. Respondents suggested that group work played an important role in contributing to social connection: “Working in groups makes the online experience slightly more bearable because it has been rather lonely with the current situation”; and in supporting the learning ambition: “I enjoyed how the tasks involved group work”. Overall, the interactions offered in the synchronous design studio can be seen to support the development of a positive, relational learning experience, improving interactions between student and tutor as well as between students and their peers.

Assessments

This theme related to the expectations around assessment and the ability of each model of delivery to support students through either group or individual study.

The USS asked respondents the extent to which they agreed with the statement ‘The assessment tasks challenged me to learn’. In DECO1006 (asynchronous delivery), the percentage of students who agreed with the statement was high at 78.4% (35.2% strongly agree/43.2% agree). A further 14.8% remained neutral, and 6.8% did not agree with the statement (4.5% disagree/2.3% strongly disagree). Despite this, the free-form comments relating to assessments were predominantly negative. Students suggested that the asynchronous model negatively impacted their ability to complete assessments successfully “I really don’t feel support supported for my assignment tasks”. Respondents described a need for more “clarity” and “detail” around assessment expectations (including sharing of past assessment examples); more time required to provide guidance and instruction around

assignments “sometimes I was a little bit lost”; and a suggestion that the unit could be improved by including a group assignment.

In DECO2014 (synchronous delivery), just over three-quarters of respondents (75.4%) answering favourably (39.5 strongly agree/35.8% agree). A further 17% took a neutral stance, and the remaining 7.6% did not agree. The qualitative comments suggested that coordinating group work across assignments was challenging for students: “group tasks were difficult to complete due to availability of group members,” and for some resulted in additional workload: “group tasks became more like individual tasks than I would have liked them to be”.

Feedback

Another emerging theme was the feedback affordances offered by the synchronous and asynchronous models of delivery. Students were asked the extent to which they agreed with the statement ‘I have been guided by helpful feedback on my learning’.

In DECO1006 (asynchronous delivery), 68.2% of respondents agreed with the statement (21.6% strongly agree/46.4% agree), 20% adopted a neutral stance, and the remaining disagreed (8%) or strongly disagreed (3.4%). However, in the comments, respondents suggested that there was “not enough time with the tutor for feedback”, the timing of feedback was often out of sync with assessment timelines, and that increased time with a tutor would be beneficial: “more than one consultation with tutors per week is necessary”.

In DECO 2014 (synchronous delivery), the majority of respondents (78.8%) suggested that they strongly agreed (44.2%) or agreed (34.6%). The remaining students selected a neutral response (7.7%), disagreed (3.8%), or strongly disagreed (9.6%). In the comments, respondents suggested that the studio consultations created opportunities for informal and formal feedback: “The studio sessions are really great as they allow me to ask all my questions to the tutors at rapid-fire and I get really detailed and comprehensive answers as well as more than the answer and genuine extra help”. Another respondent also highlighted the role that feedback can have on wider engagement in the unit, suggesting that limited feedback “greatly decreases motivation”.

Design Learning

The ability to recreate a valuable design education learning experience online also emerged as a theme. Students were asked to respond to the statement ‘I developed the ability to practically apply knowledge of the field(s) I am studying’.

A significant proportion of students in DECO1006 (asynchronous delivery) responded favourably, with 18.2% selecting strongly agree and 56.8% selecting agree. The remaining 25% comprised 19.3% neutral and 5.7% disagree. In the comments, respondents suggested that the unit delivered an introduction to design tools in an understandable way: “...the course has been highly instrumental in providing the foundations to good design practice”. The course textbook was similarly described as an “extremely helpful” resource to support asynchronous learning. Together with the instructional videos, respondents commented on the value of reviewing and revising the content at any time and the level of comfort and motivation this afforded.

However, more broadly, students felt that the asynchronous teaching and learning had a significantly detrimental impact on creativity, suggesting that it was “difficult to stay motivated, thus potentially leading to more rushed creative processes”, and that working individually was not as effective: “doing things like ideation individually feels like I am limiting the scope of my project from a creative standpoint”. The release time of tutorial content appeared to be a significant driver of how well students responded to content. Some suggested poor scheduling of asynchronous material had the opposite effect than intended. Rather than creating more flexibility, autonomy and choice for students, it appeared to create more pressure: “I think it would be better if the tasks were announced the previous Monday, so each student can choose how they want to manage their time - rather than having to squeeze in work in time we don’t have!”.

For DESN2014 (synchronous delivery), 81.2% of students agreed or strongly agreed with the statement, and only 5.7% disagreed. This suggests that despite the disruption of Covid-19, students felt that the model of design education delivered in DECO2014 still enabled them to practice the design skills developed. However, respondents remarked that whilst the tutorial videos were clear and easy to follow, they did not fully replicate the practice-based experience: “I feel like I get up every Wednesday just to stare at everyone and look at the guided video”. Similarly, many students commented on the extended time required to master the design skills in an online environment, suggesting that tutorials felt rushed and “hard to keep up within the two hours”.

Conclusion and Reflections

This paper has presented two case studies sharing synchronous and asynchronous models of the online design studio, designed and delivered in response to the 2020 global pandemic. The first approach adopted an asynchronous delivery model whereby students engaged with online materials at a time of their choosing, and assessments designed as individual tasks. The second approach adopted a synchronous delivery model whereby students participated online in real-time, and assessments were designed as small-group tasks.

Based on the insights uncovered and the reflective experiences of the authors as design educators, this paper concludes by suggesting that synchronicity has a significant role to play in delivering an educational experience that reflects the values of the traditional face-to-face studio. Whilst the asynchronous model appeared to deliver against the intended learning outcomes, the student experience suggests that the synchronous model offers a more authentic learning approach, particularly across areas of interaction, assessment, and feedback.

Finally, several practice-based reflections emerged. These reflections will inform future models of online design studio at The University of Sydney and may be useful for design education practitioners in other contexts:

Asynchronous Design Studio (DESN1006 Model)

- Tutor Interactions: To avoid a fragmented experience, look to schedule a variation of real-time tutor-to-student consultation approaches (formal and informal) that enable

incremental or staged engagement and create opportunities for quick questions and deeper, individualised contact.

- Peer Interactions: Create informal learning opportunities (e.g. discussion groups) in which students can develop a social connection with peers and review learning materials. This could take place during tutorial sessions, working to build confidence, community, and accountability, whilst also reinforcing the intended learning outcomes.
- Assessments: Ensure assessments are scaffolded with a strong narrative that clearly details out the intended outcomes, outputs and manages student expectations. Good practice would be to include past assignment submission with a grading rationale as an exemplar.
- Feedback: In addition to consultations for general feedback and critique, establish a set schedule of dedicated feedback consultations for students to receive feedback on upcoming assignment submissions.
- Design Learning: Seek to begin each asynchronous learning experience with a short exercise that encourages creativity and rearticulates the underpinning drivers of design studio. This could also be a pre-tutorial peer-based activity to extend creative thinking and encourage collaboration.

Synchronous Design Studio (DECO2014 model)

- Tutor interactions: Utilise tutorial time to include opportunities for tutor-student interaction at the start and end of the tutorial. This is particularly important at the start of the unit to enable students to build a rapport with the tutor.
- Peer interactions: Establish strategic peer learning groups at the beginning of semester to develop a collative awareness of unit expectations, intended outcomes, and group accountability, whilst also contributing to sense of community in the unit cohort.
- Assessments: Maintain group assignments where possible to maximise opportunities for sustained engagement and extended creative learning opportunities. Utilise the strong peer learning groups established to ensure effective collaborative effort.
- Feedback: Offer a model of regular consultation that comprises formal and informal feedback and critique, with dedicated opportunities for peer feedback in small group consultations.
- Design Learning: Carefully plan tutorial time to include activities that develop knowledge and understanding but also enable practice-based reflection. Lesson plans may account for less activities than would normally be delivered in a face-to-face tutorial but allow for increased instruction and clarification.

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