Virtual Design Studio Use in Distance Design Education – Part 2

The following section presents thematic issues that arise in contemporary research into VDS and distance design education. These are drawn from the small volume of literature in this area, including my own work and how that contributes to the field.

Social learning

As noted in the history above, the evolution of the VDS took a strongly social turn as soon as the technology could support this. This reflects the recognition of the value of social aspects of studio but also their complexity and the conditions under which effective social learning can take place. A mature understanding of this involves an intersection of both proximate and virtual studio research and possibly even demonstrates a more complete intersection or overlap than has existed in work to date. Whilst the studio as a site of social interaction has been recognised as a necessary condition for collaboration (Broadfoot and Bennett, 2003), other work has previously hinted at the possibility of deeper (or more nuanced) affordances. For example, studies have shown how collaboration supports peer student learning as both a source and mode of forming knowledge, whether this is confirmatory and informal in the proximate setting (Ashton and Durling, 2016) or semi-formal and subject-oriented in a VDS (Chiu, 2010).

Contemporary research into social aspects of studio go even further beyond the functional learning opportunities, recognising that practice has incorporated social and mobile media for decades (Budge, 2013; Castro, 2019). Richburg (2013), for example, identifies a multiplicity of social benefits in the studio setting that go far beyond, ranging from idea formation to
character development. Richburg also points out that, as the subject of design expands and it becomes more socially complex, that this will have an inevitable impact on studio settings, if not pedagogy, a point made by Budge (2013), whose work demonstrates how the augmentation of physical studio using social media is a far richer part of the development of the practice of creative design itself. By this view, the social is not simply an augmentation of practice, it is central to its formation and becoming ubiquitous in contemporary practice.

This interrelationship of both the practice and social aspects in studio developed in Gray and Howard’s work (Gray and Howard, 2014; Gray, 2013), who argue the studio is a social habitus of practice (after Bourdieu (1977)). For Gray and Howard, informal social student relations are central to the construction of the habitus and, moreover, that these are constructed by students in negotiation with the formal aspects of the curriculum. Hence it is not a simple case of the social learning informing practice or practice informing learning: rather it is the co-creation of both that may be a necessary condition for good studio learning to take place. This informal/formal negotiation may even be critical to enculturation and tacit transfer in a studio setting.

Research into such informal peer critique has been extended into online studios by others (Fotaris et al., 2015) and in work at the OU. (Lotz et al., 2015; Jones et al., 2017; Lotz et al., 2018) all explore the importance of social mechanisms in VDS use, developing the work by making use of existing social learning theories from general education research. Jones et al (In press) takes this a step further and abductively develops an adapted theory of social learning to explain its use and expression in distance design education and VDS use in particular.

This arc of publication presents a significant contribution to VDS research and the wider domain of design education. Firstly, it establishes a clear correlation between informal, peer-peer interactions in the VDS to student success. The
correlation between students viewing other students’ work and their course results was the single strongest, positive one – and one that we were not expecting when the project started.

Secondly, it sets out a comprehensive connection between particular social learning theories to explain the behaviour of students in a VDS. Students use social comparison when viewing other students’ work and then go on to engage in further ‘listening-in’. As these become habitual actions, students are more likely to engage in further engagements, helping them develop and express social presence, which, in turn, can lead to communities of practice emerging.

Finally, it identifies a further form of presence that emerges in distance and virtual settings: that of ‘design presence’. This is an extension of social, cognitive and possible transactional presence (Armellini and De Stefani, 2016; Shin, 2003; Munro, 1991) but as it is expressed in a design context and as a design identity. The notion of a design identity is one that will be familiar to design educators (Cheng, 1998), but enacting this identity at a distance (perhaps the performance of identity) I argue is what makes up design presence.

From the above, it is clear that social aspects of studio are critical in either proximate or virtual settings. Indeed, they suggest that discussion of either-or are perhaps less relevant now than considerations of the underlying values and affordances. For example, instead of considering the either-or condition, (Jones and Dewberry, 2012) considers the professional and cultural values in both virtual and proximate settings. (Jones and Dewberry, 2012) explores the early mainstream adoption of BIM in the Architecture, Construction ACCO sector in the UK. BIM offers the potential for team collaboration in shared digital environments, what could be considered to be a type of VDS, similar to Maher and Simoff’s early TeamWave collaborative design environment (Maher and Simoff, 1999), albeit using far better and more advanced software. What Publication C identified, however, was the need for a cultural
and social dimension to the creation of a VDS in a BIM environment, mirroring findings by others (Chevin and Crotty, 2012; Linderoth, 2010). This work, and the social learning research, will form the basis of future research into BIMs as studio education spaces, building on the work of other research in this area (Mcgarr and Studies, 2011; Menges and Ahlquist, 2011).

As a final example of new boundaries emerging in studying the social aspects of studio, I give the example of my work with a colleague in (Lloyd and Jones, 2013), which contributes a social definition of creativity in design education. By analysing the very large student cohorts studying U101: Design Thinking, we were able to identify certain paradigms and patterns of creative response. By analysing and evaluating these we were able to identify that pure creativity, as classically defined through novelty, or difference, was not necessarily a predictor of a successful t-shirt. Rather, it was a blend of competence, familiarity and connection that led to t-shirts to be considered creative. Such factors only arise within a social setting and as part of a process of design, leading to a ‘grammar’ of creativity (Figure 2).

![Figure 1 An example of t-shirts rated creative](publicationD)

This extension of the social to explore notions of creativity was uniquely possible within the VDS at the OU. Hence, I would argue that there are unique potentials offered in VDS when compared to their proximate counterparts.

There is a final, additional outcome of the above work that is less to do with the specific findings and more to do with how these are situated in education research generally. Jones et al (2020, in press) demonstrated it was
necessary to adapt general theory to the studio context and in doing so developed the domain of design education research more generally. There do exist critical differences in design education practice that are not reflected in general education theory (e.g. listening in adapted from legitimate peripheral learning) and work is now emerging that reflects a maturing approach to design education research. It ends by calling for a design-centred approach to such research:

“The literature on general social learning was applicable but not completely or perfectly. Hence, further work to develop ideas of social learning within a design education setting would be of benefit, as exemplified by the development of listening-in as the design relevant form of legitimate peripheral learning.” Jones et al (2020, in press)

The VDS is not enough

A further consequence of maintain a loose definition of studio teaching is that it allows flexibility in considering the studio as more than simply its physical components: that it relies also on the affective, social, behavioural, performative, etc. Unfortunately, in VDS research, the tendency is often to assume the opposite: that the VDS is defined as purely what it appears to be (the software, interface, functions, service, etc.). I would argue that such flexibility of definition and approach should also be applied to online studio and VDS research. Just as the proximate studio is far more than the room, so too is the VDS more than the technology.

Almost all contemporary VDS sit within some broader learning context and increasingly these are also digital or online platforms, or VLEs. The importance of integrating any VDS into a VLE as part of the overall learning design is now being recognised as critical to successful online design education (Fleischmann, 2019; Afacan, 2016), perhaps best summarised by Power and Kannara (2016):
“In considering a blended learning best-practice model, three factors should be considered: the conscious and active human intervention, good learning design and pedagogical input, and the sensitive handling of the process by trained professionals.”

(Power and Kannara, 2016)

This finding was repeated in (Lotz et al., 2018) and Jones et al (2020, in press), arguing that the data demonstrated a far greater frequency and intensity of student interaction than expected. The persistence and type of student behaviour in ODS as part of the course U101: Design Thinking requires a more comprehensive explanation of student motivations and social behaviours than can be provided by existing education theories.

Perhaps this result is unsurprising when we consider the object of study. If a studio is a socio-complex then it is perhaps unsurprising that the pedagogical theory behind it is similarly complex. Perhaps a more appropriate metaphor is that of a learning ecology (Crick et al., 2007), whereby the complexity of deep engagement is central to the pedagogy (Crick, 2012).

To give a practical example of this consider a further condition Broadfoot and Bennett propose is necessary in creating an effective design education studio: that One-to-one dialogue between teacher and student is an essential component (Broadfoot and Bennett, 2003). In a distance setting this can be challenging and the VDS has to be able to support multiple functions and modes of communication to facilitate this, as clearly outlined by Maher et al. (Maher et al., 2000). The VDS used in U101: Design Thinking does not support synchronous contact between students and tutors since other software solutions serve this purpose. Similarly, assessment and a large proportion of student-tutor interaction takes place using yet other software and systems (CompendiumDS and the online systems associated with OU assessment).
Hence, the studio, ODS, on its own cannot be said be ‘where’ all interaction and communication occurs and cannot be considered to be the whole studio. Its role in this broader conception of studio is a particular one (see above). It may be a necessary condition but it is not a sufficient one: dialogue as a learning process (Laurilard, 2013) takes across a range of different modes at a distance.

(Jones, 2014, 2015) and Jones and Hilton (2020, in press) all contribute to work on distance education dialogue with students in design. (Jones, 2014) examines how assessment in U101: Design Thinking is able to focus on students’ design processes and thinking as opposed to the final design outputs. The conceptual mapping software CompendiumDS supports this process by allowing students to spatially arrange their work and communicate a story of their process to tutors. In return, tutors can very easily interpret this story and respond to students through feedback, focusing on the process, structures and relations, not just the content itself. As such it could be considered more of a dialogue between tutors and students than the traditional process of focusing only on the final design output.

Part of this process of communicating is the act of reflection, a core theory in design education theory (see Section 3.2, Chapter 3). My work in (Jones, 2015) challenges some of the assumptions around reflection but identifies that, regardless of the ‘truth’ of reflection, the process itself is an affective component in engaging tutors with students at a distance. Again, it supports the creation of presence, ‘reducing the distance’ and fostering of a dialogue between tutors and students.

Similarly, Jones and Hilton (2020, in press) takes this further through a study of using audio feedback. In this work we made a comparative study of students receiving written-only and blended (audio and summary text) feedback. Research shows that audio feedback in a distance education setting can reduce ‘distance’ by increasing/improving presence (Dixon, 2015; Ice et al., 2007) and our work in extended this to a design education setting.
The results demonstrated how dialogue and relationships between student and tutor can be fostered through the use of certain types of feedback. This aligned with findings in other VDS case studies, such as that reported in Bender and Vredevoogd (2006).

The fact that student and tutors are not proximate is an issue when compared to traditional design education settings. But it is an obvious one meaning effort is deliberately put into addressing these issues and alternatives. Increasing student and teacher presence as a proxy for physical proximity has been shown to be effective and common to all of the publications just referred to is the idea of connection and relationship between tutor and student, analogous to, Broadfoot and Bennett’s one-to-one dialogue.

Indeed, I would go further and argue that the explicit and declared nature of distance dialogue has the potential to be better, in some respects, than the informal dialogue of the traditional studio. In the former, the explicit nature of the dialogue forces both tutor and student to articulate clearly how they are engaging in the feedback loop and how that causes change to take place.

Hence, as a final reflection it is perhaps interesting to note that through inspection of what makes a virtual studio work, aspects of traditional studios are highlighted. VDS research should perhaps not be considered as only an adjunct of proximate studio research but a potential contributor to that domain.

**Conceptual model of ‘studio’**

Returning to the issue of comparing the virtual to physical studios, I would argue that there are more constructive ways to approach this duality, as suggested at the end of section 4.1.

My work in (Jones, 2013; Jones and Lloyd, 2013) identifies that the success (or failure) of early studios is due to whether (or not) they successfully translate conceptual metaphors of proximate studios to their online equivalents, rather than simply copying superficial or behavioural characteristics. Early VDS case studies demonstrate that superficial copying
of behaviours expected in a proximate setting rarely worked, whether due to technical or cultural reasons. Instead, conceptual metaphors represent an embodied (hence experiential) reality for users which allow the learning designer to readily connect their idea of a learning space to a student's conception of it through. By using conceptual metaphors as the translating 'language', a more experientially relevant comparison between proximate and virtual studios can be made. Even in early VDS research work the utility of metaphor was recognised, such as that used by (Maher and Simoff, 1999) to articulate assumptions and properties of a range of VDS types.

Publications A and B outline several examples of the use of conceptual metaphors in translation between physical and virtual spaces. For example, ODS makes use of spatial metaphors that help students orient themselves to behaviours and habits. The ‘Pinboard Area’ is not a real pinboard but as a conceptual metaphor it immediately declares its purpose and invites action on the part of students. Similarly, the other areas of the VDS help orient student through the use of other physical conceptual metaphors. Such direct use of metaphor has been understood in design education for some time (McGlone, 2007; Coyne et al., 1994) but its use to inform learning designs is more recent (Jornet and Jahreie, 2011).

(Jones, 2017a) builds on the idea of conception by exploring its theoretical foundations using embodied cognitive ecosophy. This is a philosophically technical paper that contributes to the body of theory in embodied cognition and how that relates to conceptual metaphors, hence how we construct conceptions. Critically, this work allows further work on materiality and artefacts in design to emerge For example, conceptual metaphors are clearly valuable as ‘boundary objects': “shared syntax or language for individuals to represent their knowledge across boundaries.” (Carlile, 2002, p. 451), which are known to be important in design collaboration (Di Marco et al., 2012) as well as in VDS settings (Abdellatif, 2012). (Jones, 2017b) takes this further and explores how narrative is informed by (and informs) the conceptions we create, building on my work in (Jones, 2015).
Taking a conceptual approach to thinking about and designing a VDS provides a suitable theoretical and practical way forward for the physical/virtual comparison issue. If we have no rigorous definition of proximate studios then perhaps, rather than trying to define and then compare, we can instead consider what is common between these at the conceptual level. Importantly, this is an approach that does not require an understanding of the theoretical aspects of proximate studios or the technical aspects of virtual studios – instead it requires only the ability to conceptualise and articulate. An expert in design should be able to make use of design concepts to communicate with students rather than technical concepts relating to the mode of communication.

This is also critical in terms of understanding potentials as well as limitations in a VDS, such as the tacit transfer of detailed embodied tacit knowledge (Treadaway, 2009), using a ‘real virtual photography studio’ (Brown and Cruickshank, 2003) or the development of personal design competencies and agency (Duell et al., 2014).

Finally, it also offers a way of developing other non-explicit aspects of design and education. A recurring theme throughout this cover paper has been the definition / non-definition of design and making use of conceptual metaphor allows both a rigorous and informal approach to understanding.

References


Munro, P. J. (1991) ‘Presence At A Distance: The Educator-Learner Relationship In Distance Education And Dropout’, THE UNIVERSITY OF BRITISH COLUMBIA.


