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Playful Absence / Absence of Play: Rethinking the Design Studio in Online Environments

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Abstract
While the pandemic has had a tremendous negative impact on societies, it has nonetheless provided us with a sort of living lab for investigating and exposing consolidated models of design education. The design studio, often conceptualized as a spatio-temporally inhabited milieu with translocal norms and conventions, became a blended environment where students and instructors alike had to establish new conventions and ways of knowing and inquiring. Employing Sicart's notions of play and playfulness as our theoretical lens, this paper argues how online learning has opened up a space for students and instructors to blur the boundaries of the design studio through the intersection of play and absence. Absence of things gives rise to being playful, and absence of play is required to sustain collaborative play. Through student interviews and our personal reflections, our findings reveal how play spatio-temporally fragments the design studio. In the absence of pre-existing conventions, play negotiates the boundaries of the design studio. Moreover, creating the virtual design studio can be understood as an emergent act of play; by being playful, we partly leave behind the norms and assumptions of the physical design studio to create something new. In addition, and paradoxically, creating a personalized and community-based way of being helped in seeing the immediate surroundings as the studio. Here, creating new methods for working in the studio playfully created boundaries for play. Theoretical and pedagogical implications shed light on the future of design studio and education as spaces that can be collaboratively enacted.

Keywords
Design education, Design studio, Virtual design studio, Play, Playfulness, Online learning

Introduction
The Covid-19 pandemic forced many higher education institutions (HEIs) to switch to online learning to prevent the virus from spreading. While the pandemic had a tremendous negative impact on societies and students' well-being (e.g. myOCADU, 2021), it has nonetheless provided us with a sort of living lab for investigating and exposing consolidated models of design education. The design studio, often conceptualized as a spatio-temporally inhabited milieu (Corazzoa, 2019; Schön, 1987), with translocal norms and conventions, became a blended environment where students and instructors alike had to establish new conventions and ways of knowing and inquiring.

While previously the design studio was conceptualised as a dedicated physical space, the pandemic further challenged this notion by fragmenting the design studio into multiple spaces (e.g. Green et al., 2020; Jandrić, 2017). While prior studies have expanded our understanding of

the studio as a manifestation of design's signature pedagogy (Shulman, 2005), the pandemic forced many design educators into a situation where such signature pedagogies were no longer at their disposal. However, the design discipline does have a relatively long-standing track record of virtual design studios (VDS) (e.g. Iranmanesh & Onur, 2021; Jones, 2013; Kvan, 2001), yet what makes the current situation different is the speed with which online learning was expected to be implemented. In the absence of extensive planning and preparation (Marshalsey & Sclater, 2020), how has the VDS experience been created? To this end, we ask the following research question:

> *How do students and educators co-create the virtual design studio and how can this act of creation be theorised through the lens of play?*

In this paper we employ Sicart's (2014) notions of play and playfulness as our theoretical lens to argue how online learning has enabled a space for students and instructors to collaboratively reconceptualise the design studio through alternative modes of embodied learning and engaging with their surroundings and each other (Marshalsey & Sclater, 2020). Here, mobilizing Sicart's (2014) work is useful as it builds on Huizinga's (1992) by going beyond seeing play as an encapsulated activity (see also Consalvo, 2009; Malaby, 2007): to play is a "an appropriation process by which human agents engage in an autotelic activity in a world mediated by…technology" (Sicart, 2019, p. 523). With this, we contribute to extant discussions on the creation and nurturing of VDS.

The manuscript is structured as follows. We cover relevant literature on design studios, after which the theoretical framework is presented. The following section describes our research context and methodology. Then, findings will be presented, and in the discussion section we connect our findings to the current body of knowledge by offering both theoretical and pedagogical contributions. Finally, the conclusion marks the end of this paper.

Literature Review: Design Studio and Teaching Design Online

Although the design studio has predominantly been understood as a physical space (e.g. Boling et al., 2016; Kuhn, 2001; Schön, 1984, 1985), during the last two decades or so we have seen promising conversations seeking to argue that the design studio can also be virtual (e.g. Maher et al., 2000). While the design studio as a physical space is conducive to the emergence of tacit knowing, Dutton and Willenbrock's (1989) review of Schön's (1985) book reminds us that the physical space does not reign supreme: instead, emphasis should be on how and why students and instructors interact with each other within the space. Having said that, prior research has found positive evidence regarding learning efficiency in the design studio (e.g. Demirbas & Demirkan, 2003; Kvan & Jia, 2005), thus highlighting the central position it holds in design education. Nonetheless, there are two main streams of research pushing the envelope on the design studio: the first one aims at legitimising studio-based pedagogies in the higher education context (e.g. Wang, 2010), while the other stream looks at the conditions under which design education could be delivered online (Fleischmann, 2020; Kvan, 2001).

Perhaps an outcome of the emergence of collaborative digital platforms around the turn of the 21st century, Maher et al. (2000, p. 3) conceptualise the virtual design studio as "an environment for collaboration that has no walls, an environment that facilitates sharing design

information and supporting interaction regardless of place and time". In addition, bringing attention to technical and social issues, they (ibid.) emphasise technological integration (i.e. collaboration not hindered by people using different hardware) and, perhaps more importantly, the need to create social practices for collaborating online. In other words, if technical problems seem solvable (e.g. software compatibility and internet access), the actual challenge might be about how to create practices that move beyond the physical – virtual dichotomy.

Providing a promising argument for going beyond virtual – physical dichotomies, Jones (2013) calls for more focus on conceptual and collaborative aspects that do not aim at creating a simulacrum, but instead enable multidirectional contributions. Approaching the dichotomy from a different perspective, Kvan (2001) argues that VDS allows low-income students to participate in design education, thus highlighting the political agenda of VDS: by approaching the design studio from inclusivity's point of view, Kvan (2001) sheds light on how and why we ought to reimagine the design studio as a virtual space. While approaching the VDS from different viewpoints, both Jones (2013) and Kvan (2001) highlight two issues: first, technology and its limitations, and second, sociocultural norms and assumptions. Whereas the former is an infrastructural issue, albeit with consequences for the teacher (e.g. how to ensure the flow of the session if the connection breaks down), the latter seems to be something we can influence.

While technological limitations do present design educators and students with potential challenges (e.g. Cervini, 2016), how we go about creating studio-based learning experiences online predominantly seems to be an issue concerning individual creativity and the ability to go beyond replicating face-to-face instruction (Fleischmann, 2020; McGee & Reiss, 2012). For instance, in their study on design students' perceptions about blended learning, Fleischmann (2020) found that students are keen to opt for blended learning due to its flexibility as long as there is immediate feedback, interaction and collaboration. Similar findings were reported by Iranmanesh and Onur (2021) who studied VDS during the Covid-19 pandemic. According to their findings, students preferred a blending of the physical and the virtual and achieving this seemed to require both students and teachers to adopt new roles (i.e. students becoming more active and teachers letting go of control) (see also Stuart-Murray, 2010).

Technological issues aside, an undertone going across most studies on VDS seem to highlight two aspects: rethinking roles and interaction. Prior research has yielded positive results on VDS (Fleischmann, 2020; Iranmanesh & Onur, 2021; Pektaş, 2015) in terms of student satisfaction and meeting learning outcomes. However, despite a growing body of encouraging results regarding VDS, we still know little about the transition from face-to-face to online learning in the context of design education. We now know that design education can be delivered online, but how do students and educators alike embark on the transitionary process to create the design studio online? More attention ought to be given to the interaction dynamics between individuals, materials, and technologies as constituting the design studio, which is why in this paper we utilise Sicart's (2014) theory of play as an empirical way of discussing who participates in creating the VDS, by what means, and why.

Theoretical Framework: Sicart's Theory of Play

Whilst not an exhaustive definition of play, Sicart provides us with an enticing starting point for conceptually understanding it:

> *"To play is to be in the world. Playing is a form of understanding what surrounds us and who we are, and a way of engaging with others. Play is a mode of being human." (Sicart, 2014, p. 1)*

Perhaps most importantly, these words seem to make a distinction between play and games (Malaby, 2007), thus departing from Huizinga's (1992) encapsulating take on play because technologies have blurred the boundary (e.g. Consalvo, 2009): as Sicart (2014, p. 4-5) continues, games are a manifestation of play – to play is a way to engage and express our being in the world (ibid., p. 5).

More specifically, Sicart (2014) theorizes play as consisting of seven aspects. In essence, play is contextual, carnivalesque, appropriative, disruptive, autotelic, personal, and creative. Here, play often emerges through "artificially created objects or situations" that are "designed as mediated by things created to facilitate the emergence of play" (Sicart, 2014, p. 7). For instance, Sicart (2014) often refers to Lego blocks as inviting play, while Bateson and Martin (2013) describe how Wolfgang Amadeus Mozart was playful in his music. Both of these examples speak for the ubiquitous nature of play that is not confined only to the realm of games (Consalvo, 2009; Sicart, 2019). What is of essence here is that play is a creative act involving breaking the rules, and playful play indicates having fun while doing so (Bateson and Martin, 2013).

While context loosely defines the boundaries of play, the very nature of play can be carnivalesque (a fine balance between creation and destruction), appropriative (hijacking a context that was not intended for play – here, Sicart (2014, p. 26-27) notes that being playful is an attitude that allows the appropriation of contexts not intended for play), and disruptive (through appropriating a context, play disrupts the status quo). Consequently, play is also autotelic (loosely demarcated activity with its own purposes), creative (play affords a certain level of self-expression), and personal (implicitly understood as a phenomenological experience) (Sicart, 2014).

In terms of how Sicart's (2014, 2019) theorisation on play has been applied in various contexts, París and Hay (2020) illustrate how learning through the arts can be playful in that it relies on exploration, failures, and collaboration. Similarly, Kinder et al. (2019) discuss public service innovations from the perspective of play: they argue play to give rise to learning and innovation since to be playful is to imagine the status quo from a novel perspective or to make fun of each other to reveal everyone's blind spots. Thus, play is not an activity reserved only for games (Malaby, 2007; Sicart, 2014), but something that permeates the social fabric from learning and working to sexuality and politics (Alexandersson & Kalonaityte, 2018; Tiidenberg & Paasonen, 2019). In Sicart's (2014, p. 27) own words:

> *"…playfulness reambiguates the world. Through the characteristics of play, it makes it less formalized, less explained, open to interpretation and wonder and manipulation. To be playful is to add ambiguity to the world and play with that ambiguity". (Sicart, 2014, p. 27)*

Methodology: Student Interviews and Personal Observations During the Pandemic

Data for this study was collected from two sources: interviews with students right after the autumn 2020 semester and our personal reflections on teaching design online during 2020. By also interrogating our own experiences we bring together students and instructors as collaboratively constituting notions of play when trying to take the design studio online (as per Adams et al., 2015; Lehtonen & Gatto, 2020).

Research Context

Dubai Institute of Design and Innovation (DIDI) is a relatively new design school (first cohort started in 2018) in the Middle East region offering a 4-year undergraduate program (BDes.) during which the students get to choose two concentrations out of four (fashion design, multimedia design, product design, and strategic design management). As of writing this paper, the first cohort of students at DIDI is finalising their third year and there are a little over one hundred students and fifteen teachers in the faculty.

During 2020, we taught both second- and third-year students in fashion design, product design, and strategic design management. Apart from a few face-to-face sessions during the autumn term, all of our courses were delivered online as per the Ministry of Education's requirements. In our university, we mostly utilised Microsoft Teams to deliver our courses, and in addition we also used Instagram and YouTube to share videos with our students (e.g. tutorials, abstracts of readings) and each concentration emphasised various software to help the students visualise their design projects. In strategic design management, courses focussed on reinterpreting the case organization's ethos through a design project, transforming design thinking methods into games (either digital or analogue), and covering theoretical aspects of the concentration. Fashion design courses focussed on developing a conceptual design process through to digital and physical outcomes underpinned by design for sustainability principals. Product design courses explored how objects can be designed and programmed to behave as social agents, through a critical analysis of their socio-technical applications and implications. Thus, despite learning happening online, learning through hands-on making was still an integral part of the courses we delivered.

Data Collection

For the purposes of this study, we employed semi-structured interviews with the students as our main source of data to explore themes and topics related to learning about design in online environments. We interviewed nine students out of seventy-two from all four concentrations who were in their second or third year since we had been teaching both cohorts. Table 1 sheds further light on the participants.

Interviews lasted between 45 and 60 minutes and they were conducted in English via Zoom by the first author. The interviews were recorded with the participants' permission and transcribed verbatim immediately afterwards. During the interviews, we focused on the following themes: learning before and during online learning, four dimensions of the design studio (as per Schön, 1987), body in the design process, and professional and academic future.

Prior to starting the data collection phase with the students, the first author had separate conversations with the second and third author, during these conversations we reflected on our private and shared experiences teaching online during 2020. At this point we did not impose play as a theoretical lens to our experiences, instead the focus was on making sense of how and why we designed our courses during spring and autumn terms, as well as thinking reflexively about our role as educators in creating a shared space with the students within predetermined and institutionalised frameworks of power and control (as per Calafell, 2013).

Table 1. List of participants with relevant background information.

Participant	Concentrations	Gender	Year of studies
Participant A	Product and multimedia design	Male	2nd year
Participant B	Strategic design management and multimedia design	Female	3rd year
Participant C	Fashion and product design	Male	2nd year
Participant D	Product design and strategic design management	Female	2nd year
Participant E	Fashion design and strategic design management	Female	2nd year
Participant F	Multimedia design and strategic design management	Male	3rd year
Participant G	Product and multimedia design	Female	3rd year
Participant H	Product design and strategic design management	Female	2nd year
Participant I	Fashion and multimedia design	Female	3rd year

Data Analysis

The interviews were analysed following the Gioia methodology (Gioia & Chittipeddi, 1991; Gioia et al. 2012; Gioia & Pitre, 1990) that is well suited for exploring emergent phenomena through interviews. In essence, Gioia methodology organises the data into three categories: first order concepts, second order themes, and aggregate dimensions (e.g. Gioia et al., 2012). While not linear or rigidly sequential a process, the aim here is to move from participants' own words towards more theoretical explanations. Thus, the first author went through the interview transcripts searching for relevant codes, and this resulted in 184 1st order concepts. Somewhat alongside this stage, we collectively discussed the data and went through the 1st order concepts to consolidate them so they could be more manageable to analyse. At this point, and in line with the Gioia methodology, we engaged with literature to move towards second order

themes. Here, we utilised Sicart's (2014) seven aspects of play as a theoretical referent because the themes seemed to suggest play as helping us "describe and explain the phenomena we are observing" (Gioia et al., 2012, p. 20). In addition, two additional themes were included – spring term and summer break – to theorise on the emergence of play. Finally, the second order themes were utilised to arrive at aggregate dimensions; taken together, they form a network of theoretical insights shedding light on the topic we initially started researching (Table 2).

Table 2. Data structure for this study.

1st order concepts	2nd order themes	Aggregate dimensions
Lack of structure	Spring semester – absence of play	Preconditions for play
Lack of boundaries		
Lack of materiality		
Preparing	Summer semester – routinize	
Distancing		
Dealing with ambiguity		
Absence of body language	Contextual	Intentionality
Blending spaces		
Being in control		
Sense of achievement	Autotelic	
Sense of discipline		
Presence of others		
Redesigning surroundings	Appropriative	Transmute
Rethinking materials and body		
Boundaryless studio		
Exploring materials	Carnivalesque	
Peephole		
Absence of slack		
Hijacking flow	Disruptive	
Distracting self		
Revealing self		
Humanizing others	Personal	Eroticise
Pacing		
Sense of growth		
Challenging assumptions	Creative	
Crafting positivity		
Self-work		

Above, the findings are presented sequentially only for the sake of clarity. In the next section, we elaborate on the findings by shedding light on how transitioning to a VDS can be understood as a form of play by both students and educators.

Findings

By exploring the emergence of the VDS, our findings indicate the importance of play and being playful when it comes to going beyond replicating the physical design studio. The theoretical framework we crafted based on the findings provides us with insights on what gives rise to the VDS as well as how it is sustained over time. At the same time, intersections between absence and play point towards the bricolage of play, indicating that play is not necessarily an activity in which everyone always simultaneously participates, but instead the VDS's affordances point towards play being dynamic. Below, we will separately go through the 2nd order themes according to the aggregate dimensions, to illustrate the dynamics between the dimensions.

Preconditions for Play

The difference between spring and autumn semesters was rather tremendous, mostly because we only had two weeks during the spring semester to prepare for online learning whereas for the autumn semester, we had the whole summer to prepare (although the decision to go fully online was announced a couple of weeks prior to the beginning of the autumn semester). While in the beginning we felt the immediacy of the switch to be quite stressful with the pandemic causing additional anxiety, by the same token we also decided to try to continue teaching like we did prior to the pandemic, albeit in online format. Reflecting on this decision, we now realize the immediacy and the ambiguity of the situation enabled new ideas and, eventually, play to emerge. For example, and as the students, on the other hand, described the spring semester as 'a struggle' (Participant B), 'anxiety-provoking' (Participant C), 'being everywhere' (Participant D), and 'a mess' (Participant G), thus revealing an absence of play due to the aforementioned immediacy and ambiguity in the situation. During the summer, however, both students and educators had time to reflect on the spring semester as well as prepare for a semester that might or might not have been online again. In many ways, we all spent the summer break preparing for the 'worst':

> *"The house became a design studio, I destroyed everything around me. But second semester came and I was, I guess more prepared, and I didn't want to live the same thing. I cared about my wellbeing, and that's why I took this step to try to make a distinction." (Participant D)*

> *"…that summer was very crucial to us because it was the summer we chose our majors. So, I was scared. I didn't know because product [design] is a really, really hard major. So, I didn't know if I wanted to continue in it. Especially with it being online. To me online was scary. There wouldn't be a professor there to... I personally learned from face-to-face more. So, basically there was a lot of change in aspects of prepping myself for this might not be face-to-face anymore. " (Participant H)*

Whereas the spring semester was characterised by being in a survival mode, the autumn semester gave rise to more creative appropriations and disruptions of the technological solutions we had at our disposal to create the design studio online. One explanation here could

be that both students and instructors intuitively engaged in preparatory work for play to emerge during the autumn semester. That is to say, developing new teaching content and means of engagement and mentally preparing for more active participation in the learning process seem to suggest work was put into ensuring the autumn semester could be more pleasurable and simultaneously less stressful.

Playing the Virtual Design Studio: Intentionality

While Sicart (2014) does not give primacy to any of the seven aspects of play, our data reveals how play being contextual and autotelic seemed to serve as the foundations for play to emerge. Having said that, not being autotelic did not prevent play from emerging, but it did seem to make it more challenging for the students to transition from being disappointed to being playful.

> *"But I feel like that was a low point because I know if I was on campus, I would have been able to do better. But it's just me being at home and coding all day was just too much to handle. I don't know, it took a lot of mental capacity, because I really don't want to do coding. It's not what I want to do, but it's part of multimedia so I have to go through it." (Participant F)*

> *"Even my friends from architecture school, they're all like, "Oh, it would be easier if we're studying business, but we need to do this in person and whatever," which, maybe there is truth to that, for example, using the Fab Lab, but it's not true. It doesn't really have to be fully in person to get the full experience. Maybe it's going to be a different experience, but that doesn't mean that you're not getting the full, I don't know, education that you're supposed to get. At the end, you're still going to learn, you're still going to be pushed to do things that you're probably not comfortable with. And that is what education is." (Participant C)*

Above, both participants were touching upon motivational aspects of learning about design online. Such reflections illustrate the critical aspect of intentionality and agency as they, to a large extent, enable the emergence of play. Thus, by exploring how technologies could be appropriated for creative purposes, the participants were actively experimenting on how to interact with each other and the instructor in this new context. Such a stance could be seen as a playful attitude towards online learning and conversely focusing on the limitations of online interaction as absence of playfulness.

Transmuting: The Virtual Design Studio Comes to Life

Although the initial assumption was that learning would take place online, our findings illustrate how students, often in carnivalesque fashion, appropriated and disrupted their immediate and not-so-immediate surroundings to better support their learning:

> *"We weren't supposed to use fabrics and stuff like that. We had to get something that we wanted to get rid of, like an article of clothing that we're not wearing anymore, whatever. And then we would unpick it and use the parts of that to drape on the mannequin. That part I started from home. I unpicked the shirt. And I remember I didn't have a mannequin, one of the things that I did is that I draped it on myself. But then for*

> *example, the backside, I wouldn't be able to do anything with it, because I'm using my body as a mannequin. There were limits to that also. But then I guess, because I was doing that, I took into consideration the bodily movements." (Participant C)*

> *"So, for example, if the professor says, "Okay, there's 10 minute break." I would mute my mic, and then go outside. And I know that the university stays within my computer. So when I go outside, I feel like, okay, I'm in the garden, or I'm outside. And if I want, I can bike for a bit, I can listen to the birds, I feel revived. And I know that university is on the computer, it's not everywhere. I think most of it is purely psychological. I could go out from the design studio and listen to the birds." (Participant D)*

The excerpts above reveal how students appropriated their surroundings, tailoring them to online education and to explore personal modes of learning. Due to the absence of mannequins, one student even used their own body as a mannequin, thus appropriating their own body to serve as an object in the design process.

Carnivalesque behaviour, understood as subverting conventions (Bakhtin, 1984), revolved around somewhat surprising interactions between the students, materials, and other people.

> *"It was interesting because I started helping them [parents] out and they would start helping me out. But I would help them with the tech stuff and they would help me with, say getting my routine in order. Because they would help, 'Okay, you need to eat before this time. And you need to make sure that you are exercising. You need to eat at the right times.' Because with studio, I would just skip hours and hours of food. Then at the end I would just be starving and I'm like, 'I need to eat.' And I would just eat anything that was in front of me. And they were like, 'This is wrong.'" (Participant A)*

> *"There were really a lot of failures. I tried to use wood and fire and I don't want to even explain how that went. I almost caused the house to go on fire. So, there were lots of failures, but I had to go through them to learn. So, it was fine. It was nice trial and error…I never saw my house as an experimentation lab until now." (Participant H)*

In the absence of the physical design studio, the students would explore new ways of relating to materials and other people, often resulting in laughter-provoking sensations. While almost causing a fire back home is not a laughing matter in the moment, in retrospect it was perceived as an invaluable learning experience. Similarly, because the design studio went online, students' parents would often bring food to them – something that would be quite unheard-of in a physical design studio.

Finally, there were also disruptive actions that brought the VDS to life. Here, emphasis was on breaking the usual flow of things to make the situation one's own, so to speak:

> *"I don't know if I'm supposed to say this, but for example, a lot of people when they want to present, they would turn off the camera and just take tweets from somewhere. I don't think it's necessarily a bad thing, because it would explain, especially for people that are anxious or whatever. Even us, as viewers, we would get a closer, or a better picture of what they're trying to say. I think it's fine, and I actually think that it made the*

> *presentations more interesting, less awkward, maybe, and a better experience, I guess, for the viewers and the presenter." (Participant C)*
>
> *"I like seeing different areas, different places, people walking around, maybe even animals, plants. Also, let's say the weather outside, if it's sunny and I'm able to sit outside, have my coffee and I'm able to think, I think that's very important to me than sitting in just one place not moving around." (Participant E)*

In essence, while in the physical design studio it is often the instructor that is in charge, in the VDS, students could also participate in setting the pace, thus disrupting and re-regulating the flow of sensorial elements at play. Disruption here does not mean something detrimental, but it is more about influencing how things could progress. Thus, disruption is often understood as arising from people appropriating the context.

Eroticise: Making the Design Studio Intimate

Drawing on Bell and Sinclair's (2014) understanding of eros (from which eroticism is derived) as relating to love, not sex or sexual pleasure, to eroticise the VDS means a personal investment towards oneself and others in order to make the learning experience an emotional, personal commitment (e.g. hooks, 1994). Thus, for the students to realise they have ownership of the learning process was something that emerged during online learning.

> *"I think, it was tougher for them because everyone views professors as just professors and not humans. You don't think that they would have any personal issues that you would have. Or they don't have anything to do they're just teaching us. But then when you see them online and these kind of disruptions come, you're just like, "Oh wait, it's just like me. Or just like my dad. Or just like my mom." I think it helped people understand that professors are also just normal people." (Participant A)*
>
> *"I was caught up on the fact that I'm missing out on the experience of touching the fabric and draping it and relate it to the body and stuff that. So I was kind of sceptical of it. But then at the same time, I think there is kind of relevance to the fact that I'm doing it digitally, where I'm doing online learning, and everything is digital. In fact, there was relevance for that specific scenario. I believe that gender is a social construct. And so we can try so hard to think of a shape that is not masculine, or not feminine, but then you don't have the innocent eye for it…A computer doesn't know about social construct, so it just would generate a shape based on the data that you give. And it was interesting to see the outcome of what is the shape that is 100% androgynous because it has both equal parts that are masculine and feminine, you know?" (Participant C)*

The excerpts above illustrate how the VDS enabled creativity and a more personal approach to learning to emerge. Realising that the instructors have more to them than their professional identities or utilising technology to explore gender as a social construct are examples of play becoming personal and creative. It could be argued that such insights surfaced from the students and the instructors collaboratively creating the VDS.

Synthesising the Aspects Through the Theoretical Framework

Findings here reveal how creating the VDS can be understood as an emergent act of play; by being playful, we partly leave behind the norms and assumptions of the physical design studio to create something new that blends boundaries (e.g. university – home, analogue – digital). Echoing Sicart (2014, p. 17), "to play is to make a world, through objects, with others, for others, and for us". Below (Figure 1), the VDS is seen as an outcome of collective play that is driven by individuals' playful attitude. As the differences between the spring and the autumn semester revealed, play was absent during the former while during the latter it was seen as a driving force, thus suggesting play has an important role when creating something new. In essence, play becomes a relevant theoretical lens in the absence of pre-existing structures and conventions that support the VDS.

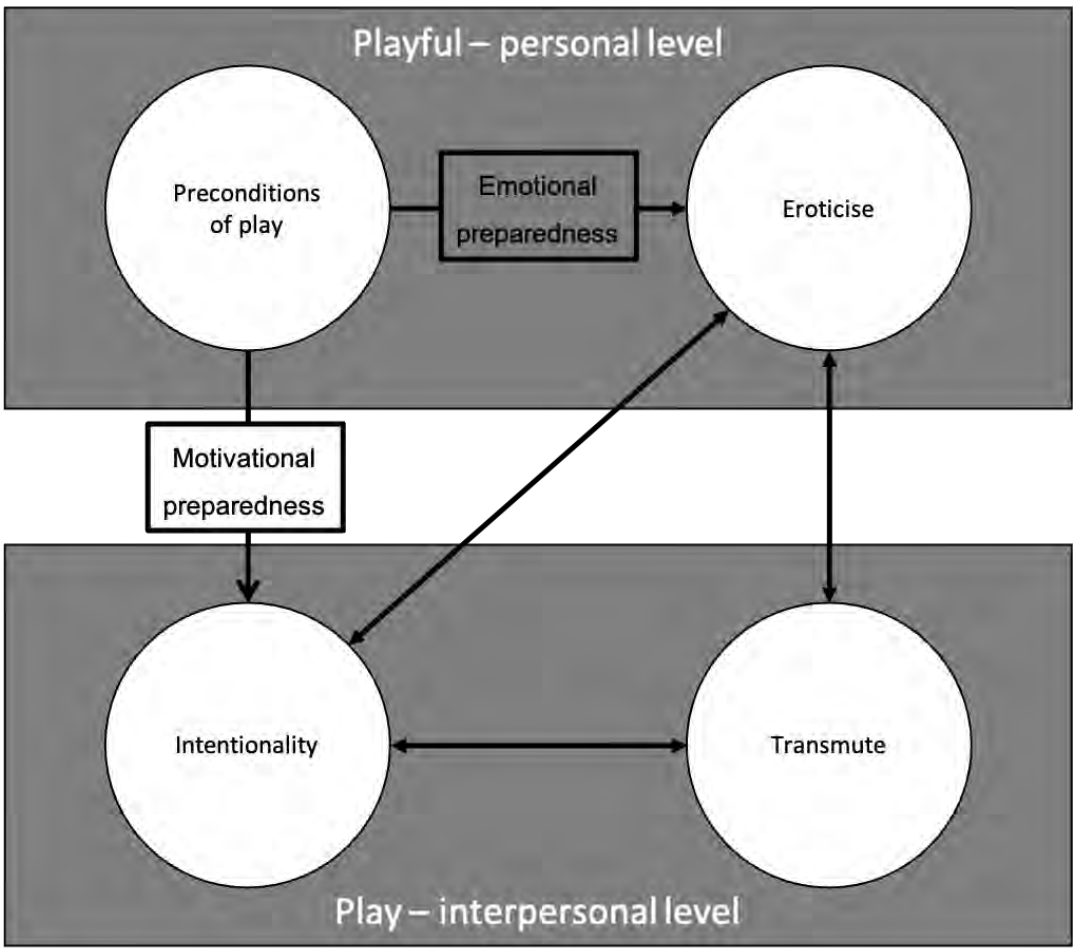

Figure 1. Theoretical framework explaining the emergence of the VDS.

The framework above does not assume play to be something fixed; once a state of play is achieved, it does not necessarily imply it will be sustained. Moreover, and here design education can provide theoretical inroads to our understanding of play since theories of play (e.g. Consalvo, 2009; Sicart, 2014, 2019) seem to suggest resistance and power to be external outcomes of play. In other words,

> *"playfulness is an expressive, appropriative, and personal engagement with the world that is nevertheless bound to goals and purposes that are not necessarily determined by the activity of play itself" (Sicart, 2019, p. 523)*

But what if these goals and purposes differ *within* the acts of play? While students and instructors can collaboratively engage in play, is engagement between individuals and over time static? As we observed during the courses we taught, at times we facilitated play and other times the students were more active. Thus, such absences give rise to bricolage of play: while individuals participate in the same VDS, play is temporally collaborative to a varying extent.

Building on the above, the framework shows the emergence of the VDS as a collaborative act in the absence of pre-existing norms and conventions. As such, being playful – having a personal commitment to teaching and learning – can be understood as a precondition for play. Whilst the intensity of playfulness can vary over time, it is the underlying personal commitment that sustains play and reveals how the VDS can serve as a site for learning about design. Above, we suggested that goals and purposes of play might differ within the acts of play in the design studio, and here the absences at the individual level play a role. While playfulness can emerge from the absence of something (in this case, for instance, the designated design studio), absence of play can also be understood, paradoxically, as a precondition for collaborative play so as to ensure everyone can participate in experiencing the VDS (in line with Sicart, 2019).

Discussion and Conclusion

Although many higher education institutions rapidly had to switch to teaching courses online during spring 2020, and while momentarily ignoring the impact it had on students' and educators' well-being, what we have experienced can be understood as a condensed opportunity in online education similar to that of Open University's journey in the UK (e.g. Cross & Holden, 2020; Garner, 2005). To this end, the research question we explored ("How do students and educators co-create the virtual design studio and how can this act of creation be theorised through the lens of play?") sheds light on the creation of the VDS as a manifestation of play. In the absence of pre-existing conventions, both students and educators engaged in play to create the VDS, thus extending Sicart's (2019, p. 531) notion of "playful resistance" to design education; upending technologies (both analogue and digital) to repurpose them for learning purposes. As such, we contribute to prior research on the VDS and teaching design online by illustrating how the VDS emerges when people appropriate technologies.

More specifically, prior research has argued for the benefits of teaching design online (e.g. Garner, 2005; Green et al., 2020; Jones et al., 2020; Lotz et al., 2019), and our findings support Lotz et al.'s (2019) claim that the VDS needs to be designed and simultaneously students need to be introduced to new ways of working. Here, we believe, mobilizing play as a theoretical lens allows us to see the VDS not as an encapsulated entity, but as a collaboratively created space through which "the relational strategies of play are shaping how the infosphere is experienced, and how cultures emerge from it" (Sicart, 2019, p. 532). With such a stance towards the design studio, we have the potential of both dissolving the virtual – physical dichotomy by not confining learning to predefined spaces and revisiting design education's signature pedagogy (Shulman, 2005). While such blending of boundaries might come with negative implications

(e.g. private becoming public and vice versa), findings covered in this paper provide fruitful avenues forward. For instance, by approaching one's home as a design studio through the lens of play, we could explore local and decentralized studios-at-home that broaden the collaboration networks amongst students, educators, and practitioners. Herein lies yet another peculiar paradox that might shed light on the future of the design studio: the absence of the design studio and its materials can give rise to networks of studios, thus highlighting how play can emerge in hitherto unknown ways.

Although the findings reported here increase our understanding of online design education, our study also has its limitations that can be utilised as avenues for further inquiries. While interviews enable in-depth exploration of phenomena, in this study we utilised interviews to explore past events. In terms of future research, there are potential avenues at the student, course, and institutional level. First, more studies are needed to explore the extent of play and playfulness in VDS (both in terms of methods and approaches). Here, studies informed by materiality and anthropology could be able to shed more light on how learning shapes and is shaped by play. Similarly, returning to the notions of absence and play, more research is required in terms of how the absence of taken-for-granted elements gives rise to play in design education, and similarly how play transforms signature pedagogies by resisting or questioning the taken-for-granted elements. Second, given that this has been an exploratory study, future inquiries could focus on how the spatio-temporal emergence of play shapes the VDS and how this reflects on collaboration over time. Finally, we also need more studies focussed on the institutional level: what kind of institutional practices prevent and enable educators to develop playful pedagogies for design education.

When it comes to pedagogical implications, our findings give rise to at least three promising avenues. First, the VDS should not be approached as an emulation or a stripped-down version of the physical studio. Instead, fostering a playful approach appropriates the surrounding environment, thus inviting experimentation from students and instructors alike. Second, the VDS is not only a digital experience; as such, educators can encourage students to see their surroundings as the design studio without investing in new equipment or materials. Here, educators can help students to create their own boundaries and practices to avoid home and studies to intertwine in a harmful way. As such, for play to emerge, some preparatory work is required. Finally, and in line with previous studies, it is becoming more and more crucial that we ought to emphasise community-driven learning. Group assignments, creating structures that help students get to know each other, and striking a balance between synchronous and asynchronous sessions all highlight the importance of dethroning the educator as the foci of the design studio. Students do not come to the design studio to bask in the educator's brilliance, we should focus on how we can learn from each other in a playful manner.

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