**Lockdown Learning in Art & Design: Managing a School Transition to Online Learning for Creative and Studio-Based Courses**

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**Abstract**

At the start of the global covid-19 pandemic, it became immediately apparent that no one individual or institution had mastered all the required skills for a smooth, seamless transition from on-campus teaching to online learning. This article takes an action research approach, drawing upon the lived experience of autoethnography as a methodology to interrogate the approach of the School of Art & Design at Nottingham Trent University (NTU) to managing the challenges in the transition to lockdown learning. This article outlines the important role the School played in supporting this re-visioning for the future of blended learning at an institutional level, outlining the change management approach undertaken at NTU, and highlighting the resulting innovation that emerged as we re-visioned studio-based pedagogies for an online and blended learning landscape.

**Keywords:** Creativity, blended learning, online, arts, design, covid-19, pandemic, change management, educational leadership.

**Introduction**

On Monday 23 March 2020, the UK government announced the first national lockdown ordering people to stay at home (Institute for Government 2021). This represented a significant challenge for UK Higher Education (HE) which has predominantly been built around on-campus learning experiences that pride themselves on bricks, mortar and facilities. Seemingly overnight, the sector was plunged into online global education as it sought to radically reinvent itself for a digital era. This raised concerns about how to support staff and students for new learning landscapes, particularly within art and design, where creative courses are traditionally built around studio and practice-based delivery models. The primary consideration was how to effectively translate studio culture for the online environment.

At the start of the covid-19 pandemic, it became apparent that no one individual or institution had mastered all the skills required to ease a smooth, seamless transition from on-campus teaching to online learning (GLAD-HE 2019). Pockets of fully-online delivery expertise exist across the sector, with 450 online and distance learning degrees listed with *Whatuni?* (2021), including established programmes with the Open University, University of London Worldwide and the University of Essex. Others offer more specialist, if limited, provision for creative subject disciplines, such as Arden University and University for the Creative Arts. For most UK HE institutions, blended learning degree experiences (where students engage in mixed learning methods including on-campus and digital experiences) existed as explorative innovation rather than the norm. Expertise in fully-online curriculum delivery (which prioritises digital tools and technology to create connected digital experiences, usually at a distance) was by no means comprehensive in its coverage, and rarer still within the creative arts (QAA 2020).  
  
The technology has been available for some time, and the evidence-base for the transformative potential of online and blended learning models is extensive (Garrison & Anderson 2003; Garrison & Vaughan 2013; Madden 2019; Martín-García 2020, Marjanovic 1999; Mizza 2020; Rimmershaw 1999; Williams 2002), including deeper student learning, more flexible learning opportunities and greater efficiencies within the physical campus. While Garrison & Kanuka (2004, p. 95-96) predicted communication technologies to be ‘the defining transformative innovation for higher education in the 21st century’, they also highlight the significant challenge for widespread adoption, with universities acting as ‘notorious resisters to change’ (Garrison & Vaughan 2013, p. 24). Interestingly, despite the role that higher education institutions played in developing them, entrenched institutional positions have resulted in the ‘limited, marginal use of learning technology’ (Garrison & Vaughan, 2007, p. 157). As a collective of art schools with thriving studio cultures, the creative sector has likely been complicit in perpetuating that marginalisation of digital technology. It has taken a global pandemic to forcibly encourage HE institutions to reconsider their blended and online offer. At the start of the pandemic, few institutions had fully tested this pedagogic approach, with fewer still, having worked this through for studio and practice-based delivery. This necessitated a period of accelerated learning, and very quickly, the unusual business of online and blended learning, became business as usual.

This article, using the School of Art & Design at Nottingham Trent University (NTU) as a case study to explore the development of studio culture online, offers insight into the change management exercise, curriculum innovation and support necessitated to successfully navigate the complexities of Covid-19 on campus. Reflecting through a management lens upon the emergency revisioning of studio-based pedagogies for blended learning, this article explores the management approach undertaken at NTU to support that transition through an examination of the application of arts-based practice methodologies that emphasise collaboration and community design. This approach offers natural kinship with the Bauhaus foundations upon which the art school ethos was built, with new formations and emergent knowledge ‘arising out of a collective understanding’ (Pick, 1965, p. 10). Arguably it is this coming together, with shared collective ownership as a ‘licence for different ways of thinking, living and making’ (Sturgis, 2020, p. 9), that served as a natural allegiance with art and design practice. This reinforces the innovative contribution of the creative arts within the academy during the pandemic, with creative design education pedagogy primed for the challenge as a ‘revolutionary collective’ (Sturgis, 2020, p. 14). The practicalities of achieving this, however, were more challenging when combined with digital experimentation.

Hence, the founding principles, that served the creative arts in promoting collective experimentation, proved restrictive barriers in the initial response necessitated by the pandemic. Deep-rooted mistrust existed around externally-imposed restrictions upon the creative freedoms that the subject discipline demands. In the face of disrupting studio-based pedagogies, through this enforced recrafting for a digital future, discipline anxiety was felt most strongly. The words of Gropius (1965, p. 33) speak this best:

Were mechanization an end in itself it would be an unmitigated calamity, robbing life of half its fulness and variety by stunting men and women into sub-human, robot-like automatons.

The immediate challenge lay in recrafting studio-community learning for an online environment. This article examines i. the management methodologies employed to lead change through crisis, ii. the mechanisms of support required for both staff and students in implementing that change, and iii. the impact of art and design innovation within the academy.

**Methodology**

Taking an immersive first-person action research approach, and drawing upon autoethnography as a methodology, this article interrogates the School of Art & Design at NTU’s approach to managing the digital challenges of the transition to lockdown learning. Offering an authentic and subjective, personal account, framed as an experiential reflection upon the institutional response to the Covid-19 crisis, autoethnography offers a lens through which to reflect upon how the School drew upon its collective expertise and community strength to reconfigure an online art school. Drawing upon detailed journal notes captured throughout the pandemic, I account for observations from the unique position as a third-space practitioner, straddling professional and academic domains as a teaching academic, educational developer, School Executive member, and representative on the institutional Redesigning Learning and Teaching Group (Whitchurch, 2008, p. 384). This article reflects upon engagements across emergency, scheduled and impromptu meetings, working groups and committees, support workshops, drop-ins, and informal catch-ups, with a range of staff, students, executive members and senior institutional management teams. In reflecting upon my experiences, Godber & Atkins (2021, p. 1) reinforce how an:

autoethnographic approach during exceptional circumstances, such as natural disasters, pandemics, and other disruptive situations, provides an opportunity for personal self-observation and self-reflective practice.

Another important dimension of this approach is the impact upon higher education learning and teaching because an autoethnographic lived-experience account offers insight into the management of institutional change in a time of crisis. This account documents the collaborative School-level rethinking of studio-based learning online through the immediate accounts that were captured from staff and students who lived this experience. By the very nature of lockdown learning, the development process was iterative, reflective and, by necessity, fast paced. In this respect, action research represented an appropriate methodological approach for reflecting upon School practices, from within, as they develop. Kemmis et al. (2004, p. 86) foreground how:

changing educational practice is often a messy business that can unsettle previously settled arrangements, including people’s established self-interests, and that critical participatory action researchers therefore need to be able to justify the transformations they propose, and make, and monitor.

The self-imposed reflection upon my own role of seeking and providing effective support within the School is aligned with Marshall’s (2004) notion of first-person action research, which offers an opportunity for sense-making and ‘inquiry in action’ (p. 307). This cyclical, experimental methodology best serves the iterative approach to staff development and change management that was undertaken. Reflection was my constant across the intensive curriculum design period re-visioning and reviewing each iterative stage to ensure collective coherence.

**UK Coronavirus Context: Redesigning for Blended Learning**

In response to Rt. Hon. Boris Johnson MP’s (2020) statement declaring the first UK national lockdown, NTU provided academic and teaching staff a week-long buffer to rethink the learning landscape and prepare for new pedagogic practice online. As teaching paused for five working days, the whole institution kicked its preparation up a gear; one institution, eight Schools, and a shared mission to transition the entire learning and teaching operation online.

Fear was perhaps the largest impeding factor for our staff, paralysed in the face of a forced emergent era that required engagement with new technology, and new ways of working and teaching. Early emergency meetings revealed that many had found themselves suspended in uncertainty, immobilised while contemplating the enormity of the task ahead i.e. transitioning the entire learning and teaching operation of an art school online (Gober & Atkins, 2021, p. 9).

The global pandemic shocked the establishment into the largest-scale change management initiative since WWII (Godber & Atkins, 2021, p. 2). However, the biggest challenge was how to successfully transition our studio culture into this online space. Arguably, the success of the operation in our School lay in the clarity of communications across all levels of the institution. The pause initiated by our University Executive Team allowed others who, like me, occupied boundary-spanning roles time to rationalise the most effective means of supporting our entire community into new ways of working. This included School-based staff and third-space professional services teams that work to support our staff from within the Centre for Academic Development and Quality (CADQ).

**An Institutional Approach to Lockdown Learning**

At an institutional level, the Redesigning Learning and Teaching Group was established as a collective of senior leaders, heads of service, and Learning and Teaching Managers representing the diverse Schools. Together, we pooled our learning to create a set of cross-institutional guiding principles to inform the re-imagining of learning and teaching in response to the pandemic (NTU 2021a; NTU 2021b; Quality Matters 2021). A distributed leadership approach was taken to ensure all participants were full contributors to the development of institutional guidance (Jones et. al., 2017, p. 199), with the primary goal:

To develop high quality learning and teaching… that is feasible, inclusive and promotes staff and student wellbeing (NTU 2021a).

The framework provided staff with clear guidance on NTU expectations for implementing a ‘blended, flexible approach to delivery’, whilst recognising the need for agility in response to forthcoming UK government guidance (NTU 2021, p. 5). Operating around 16 planning principles, this framed our institutional approach, guiding how:

All courses will be delivered as flexible, blended learning with all students receiving both face-to-face and online teaching (except on those courses that are normally delivered fully online) (NTU 2021a, p. 5).

The delivery pattern was to be ‘regular, structured and scheduled’ (NTU 2021a, p. 6), and organised around five different learning engagement types, including:

* Online, synchronous content;
* Online, asynchronous content;
* On-campus, face-to-face teaching;
* Simultaneous face-to-face teaching and online live teaching;
* Off-campus, face-to-face teaching.

Social-distancing requirements were developed in collaboration with our estate team for specialist spaces, while general purpose teaching rooms were configured to ‘enable peer to peer interaction for collaborative, small group learning and teaching’ to be prioritised, with an institutional decision taken to adopt collaborative layouts as the most social approach to student learning (NTU 2021a, p. 8). For this reason, didactic learning was moved online, while on-campus time was reserved for quality student-centred collaborative learning (NTU 2021e). For our heavily making-based courses, the restrictions necessitated restructuring learning to front-load those areas of curricula that were less heavily-reliant upon specialist spaces.

To ensure the online learning was as easily navigable, NOW, the Nottingham Trent University Online Workspace, became the ‘primary portal’ for all online learning experiences (NTU 2021a, p. 7). While Microsoft Teams was the space within which online sessions were delivered, these sessions were signposted from within NOW. This enabled us to maintain consistency of access to resources and to provide clear guidance to staff about where to curate them. Consistency across module learning rooms was ensured through the roll-out of a standard template across the institution, with all module teams participating in mandatory module learning room development, and, by working with a learning designer, staff were supported to re-imagine their validated contact hours as ‘learning engagement time’ (NTU 2021b, p. 2).

As a university that recognises the limitations of digital poverty (La Velle, 2020; NTU, 2021h), and, in acknowledgement of the expectations for participation online, an institutional laptop loan scheme was established. All School students were also offered a free Adobe Creative Cloud package, and a limited number of WiFi dongles were provided for students without internet access. These measures went some way towards providing these students with an equitable experience. With institutional support in place, my primary focus lay in supporting School staff as they prepared for the return of their students into the online space.

**Building Staff Confidence Online, Getting Started with Microsoft Teams**

Anticipating the imminent arrival of a forthcoming development resource from CADQ, my immediate priority was to induct our staff in the use of Microsoft Teams. I had three key ambitions: i. to enable staff to get started online quickly and build confidence in scheduling and managing the delivery of taught sessions online; ii. to support the transition of creative courses to the online learning environment with an emphasis upon studio practice and making; and iii. to support the effective creation of course community online.

With the School of Art & Design ethos of studio-based learning, established since the opening of the Nottingham Government School of Design in 1843 (Whyte, 2018), many staff were reeling from the perceived overnight decimation of our studio culture foundations. I rationalised that a confidence-building how-to guide would be valuable in this immediate tricky period of transition. With five days to prepare a seamless student transition to online learning, our response to the global pandemic demanded an equally swift solution. Rising tensions over the new learning landscape were readily apparent and evident in emergency team meetings, informal conversation and email traffic from concerned staff and their managers. I have since been informed that when news of our campus suspension broke many creative practitioners worried for the future of their jobs, or contemplated early retirement in the face of the drastically different learning landscape. Some had cried. The emotional impact upon staff was significant.

My role was to support staff teams in developing the confidence and skill to do their jobs effectively online. That first Friday evening at home, aware that our staff teams would be expecting solutions and guidance to support the mammoth task of preparing revised online learning experiences, I set about devising a staff support resource that would be available immediately after the weekend. Sketching the steps for setting up live online learning experiences from the perspective of a novice Microsoft Teams user, I quickly upskilled myself using MS Teams learning packages and our institutional LinkedIn Learning subscriptions to create a quick-reference guide for delivering teaching sessions within MS Teams. If I could provide enough knowledge to get started, I rationalised this would build confidence in creating learning packages for their own students. My intention, using a bottom-up approach, was to turn anxiety into action by empowering staff with something they could control (Carbonell el. al., 2013).

With broad-ranging staff ability, from practice-based experts with little digital knowledge to academics who were adept in online delivery, I planned with the assumption of no knowledge to create a beginner’s initiation to online delivery. Developing skills in scheduling and preparing taught content for an online live learning experience, I created beginner-level MS Teams workshops, whilst incorporating some advanced features for those with existing familiarity of the platform. Including breakout room activity, I accommodated the contribution of knowledgeable staff within the discussion, whilst also allowing staff teams to experience online learning from a user perspective as they bonded together in adversity (Sewerin & Holmberg, 2017).

As we were a School of creative practitioners, I created step-by-step visuals and written navigation instructions. These were collated within a PowerPoint presentation for session delivery and as a takeaway resource for post-session reference. Staff teams were offered workshop sessions throughout the early weeks together with quick-reference guidance, recorded video content, slides, daily drop-in, and *breakfast-at-the-desk* troubleshooting opportunities. This allowed multiple routes to access support. It was important to acknowledge that this was as much a learning experience for our staff as it was for their students. As Godber & Atkins (2021, p. 2 quotation marks in original) remind us, ‘“emergency remote teaching” in response to a crisis bears little resemblance to deliberately designed online teaching and learning’. It was important to acknowledge this. Course teams, and their managers, were looking to me and our professional service teams for guidance, and I ensured I was readily accessible to support staff in remodelling potential scenarios for a blended and fully online learning environment.

A workshop series across the week provided live demonstrations coupled with scheduled opportunities for staff to rehearse and practice. Participant feedback highly valued this collaborative aspect where they could experiment with the technology together in advance of introducing this to their students. In these first sessions we were all active partners in solution-finding through discussing suitable options for managing different types of learning from chunked-up recorded materials to live interactive session delivery, workshops, seminars and tutorials. The provision of flexible accessible support was greatly appreciated by our staff and these rapidly-modelled staff development resources were shared with staff teams in other Schools and our institutional professional services departments across NTU, with a view to providing a prototype of ways of working to support the radical re-visioning of the learning experience. One model would not work for everyone and I was careful to accommodate for this diversity.

**Student Co-Design for a Quality Student Experience**

With staff support opportunities developed, I set about testing this thinking with the students themselves. I invited my own students on the cross-discipline Masters level Advanced Art and Design Research module to attend our scheduled sessions during the pause period. As a small, elective cross-School module, with restricted student numbers to a maximum of 25, this offered a small-group opportunity to learn the technology together and test different pedagogic scenarios online. When all students agreed to participate, I realised that they, much like our staff, were anxious about what a change in delivery might mean. This offered a testing opportunity, where the counsel of my students as design partners and resident experts in their own learning, was particularly valuable. Indeed, as Cook-Sather et al. (2014, p.1) maintain, partnerships such as these, which are built upon ‘respect, reciprocity, and shared responsibility between students and faculty’, offer meaningful opportunities to develop effective and engaging learning experiences.

Recognising the value of my students’ input, I promised an open dialogue for questions, sharing ideas and discussion surrounding the types of activity that worked best from their perspective. Clear preferences for active learning emerged, with minimal didactic content, and applied, group activities being prioritised. Digital polling software and breakout discussion groups were desirable, while more social opportunities and collective working experiences were regarded as essential. The students, as co-collaborators, played a key part in supporting the design. Much as with the staff teams, my own students’ preference was to begin with what they already knew (in this case the NOW) and to build upon this familiarity to develop their learning using NOW as the structuring repository for their learning experience.

As our students were already familiar with NOW, I valued their opinion on how best to ensure a smooth learning experience transition across the platforms. The students were new to MS Teams, so we explored the different meeting functions together; this included the use of camera and microphone, screen sharing, gallery views, background effects, live captions, recording sessions, turning off video to preserve bandwidth, breakout rooms and the chat function. I later learnt that this co-design approach paid off, with 2019/20 and 2020/21 students reporting 100% student satisfaction for the module with one student commenting that:

I appreciate all of the content provided in this module. There are so many learning resources on NOW that have been super-beneficial. All has been laid out well and it is clear and easy to find everything needed. (Gough, 2021b)

This partnership-design approach affirms the view that ‘student-faculty partnership rooted in the principles of respect, reciprocity, and responsibility are most powerful and efficacious’ (Cook-Sather et al., 2014, p. 2). This reciprocity paid off and the students, who were heavily invested in supporting the development of their future learning, indicated an early preference for sessions that used breakout rooms, with the learning content retained within NOW. While student preference for the curation of taught materials was within NOW, the delivery of live online activity was seen as the domain of MS Teams. These responses fed back into the institutional Redesigning Learning and Teaching Group, and positively affirmed the institutional guidance that was created (NTU, 2021a; NTU, 2021b; NTU, 2021c).

One surprising aspect was an unexpectedly high valuation of the MS Teams breakout function. My students shared the value of being able to talk to one another about issues other than work while also checking their understanding of key learning without the presence of the module tutor. Most of all, they valued getting to know one another and chatting with their course mates while the physical campus was unavailable to them. To support this social aspect, much like with the staff, I established both regular online group Office Hours where students could access academic support, and regular Friday afternoon socials where we could come together for a break. This social aspect was significant, as one student shared in our end of module farewell discussion:

This module has been a life-saver. It’s been really hard studying in isolation, but in this module, even though it’s online, there have been loads of opportunities for us to talk and get to know each other and the projects that we are working on. I wish more of our classes were like this.

Learning from working with my own students, I created a resource for staff to use with their students. Encouraging staff to take an experimental approach, treating their first sessions as a trial to see which methods worked best for the delivery of their courses, while also encouraging the development of social opportunities to build student relationships and community online. With clear institutional guidance to support us, and detailed plans outlining how to structure learning experiences for our students, this represented the first stage of our School development. Next we had to navigate how to enable our predominantly making-based courses to support their students in the creation of their portfolio of work.

**The School of Art & Design, Reimagined**

Arguably, it was our coming together as a collective of problem solvers that saw us through the crisis (Gough and Brown, 2021b). Having recently undergone a whole-School redesign process for our collaborative curriculum, we had only recently sharpened our own collaborative edge, working together to negotiate space, timetables, discipline boundaries and resourcing for shared endeavours (Gough 2021a). In redesigning our learning, we revisited these approaches with leadership ‘as the property of the collective’ (Bolden et al., 2009, p. 259), to fathom out appropriate learning experiences to approximate those ordinarily delivered within studio-based contexts. Through close cross-course negotiation, to which we had become accustomed during collaborative curriculum planning, those in non-leadership roles were encouraged to contribute to the future direction of the School (Jones et al., 2014, p. 610; Gough, 2019). Negotiation over spaces, and reworking timetables to reflect imposed social-distancing limitations, resulted in a large-scale exercise in estate-management in partnership with our estates team, course teams and timetablers.

This resulted in striking cross-course agreements to ensure all courses could access required specialist facilities. In this crisis planning phase, collegiate working was essential to ensure that art and design creative practice survived the unsettled pandemic period. With on-campus studio time agreed and adequate social-distancing measures in place, course teams negotiated which teaching aspects could be moved online (NTU, 2021a, p. 8). This purposeful collaboration resulted in numerous positive shared outcomes including the creation of an online booking tool for our studio spaces. This approach to distributing strict capacity limits also meant course teams had clarity over the number of rotations required. This facilitated effective planning for the additional requirement to open over evenings and weekends, ensuring that all students gained access to practical workshops and studio spaces to complete their work.

A trial opening of School spaces across summer 2020 allowed our final year undergraduate and masters level students to return to complete portfolio work in readiness for their emergence onto the job market (Institute for Government 2021). Our own studio spaces had been working at capacity to provide a civic contribution throughout lockdown; equipment was put to work to develop a scrub factory, 3D PPE printing production, and institutional lateral flow asymptomatic testing was developed for staff and students (Where Women Work, 2021). Elsewhere the Universities for Nottingham (University of Nottingham and NTU) contributed equipment for Covid-testing to the national effort, while our staff and facilities supported Covid-19 vaccination training with St John Ambulance (NTU, 2021d). This reassured staff and students of the safety measures in place on campus, but also permitted initial testing of the logistics required for reopening the socially-distanced campus.

To support the social aspect, we created regular calendar space for students and staff to come together as a network. As a School, the JOIN Collective platform was created as a place to ‘connect and empower young creatives’ through regular, scheduled, open discussions (NTU, 2021g). Furthermore, as many of our industries were on hold, this facilitated the integration of international learning experiences through a global guest speaker programme which capitalised upon the global pause in creative cultural events. As one student put it:

One thing that we’ve been really lucky to have that wouldn’t have been possible before, is the amount of guest lecturers we’ve had. Because they’ve been online on Teams, we’ve been able to have much more high-profile people from all over the world (NTU, 2021).

Within the subject disciplines, specific measures were developed to facilitate social connections to avoid student and staff isolation. This took different forms, including online huddles, Knit and Natter, Sketchbook Socials, Curiosity Café and Donuts and Discussion groups. Our students appreciated our efforts, and regular contact with Student Representatives ensured that we worked collectively to address any emergent concerns. As one of our School Student Representatives affirms:

The university has really tried, given all that we are up against, to facilitate that community aspect. I just really feel like they are open to hearing student experiences, and that has been really positive throughout the lockdown (NTU, 2021f).

**Lockdown Learning for Studio-Based Courses**

However, of all of the pandemic’s pedagogic developments, our most challenging has been in re-visioning our studio-based courses for online delivery. From a practical and making perspective, this impacted some areas more heavily than others.

**Active Collaborative Learning Online**

For our Fashion Management, Marketing and Communication (FMMC) courses, where there was less reliance upon campus facilities, a relatively smooth transition to online learning occurred. These courses, however, led the development of comprehensive pastoral packages to ensure their students were supported and able to collaborate collectively online. Remodelling for student-centred active learning (NTU, 2021e), course teams rethought the teaching environment to develop a strong studio-community online. This was created through staged activities that grounded learning through collective research and online group collaboration. The increased emphasis upon course community through the creation of social huddles, increased 1:1 personal tutor meetings online, and regular drop-in surgery support emphasised the potential to be together while physically apart. The creation of online studio spaces, within MS Teams channels and breakout rooms, offered a structured approach to creating collaborative workspaces. When the full UK lockdown was implemented, the learning approaches developed within this subject area offered a valuable template.

**Creating the Physical Studio Off-Campus**

In other departments, where more technical requirements emerged, the ability to meet their peers on campus made the course community bonds easier to form. The challenge here lay in ensuring that students could access specialist equipment to complete the work required for their degree. To achieve this, all courses extended their workshop and studio opening hours to facilitate additional rotations. This was initially funded from an institutional Covid-19 budget to support additional expense arising in response to the pandemic. For many courses, and in particular our Fashion, Textiles and Knitwear (FTK) subjects, specialist materials packs were delivered to students in advance of teaching to enable their participation in creative work. For specialist courses, technical equipment was also delivered, including sewing machines, mannequins, fabric, yarn and specialist software dongles.

Our FTK area made good use of visualisation for making work, while the use of digital screen-sharing enabled our course teams, and their students, to be partially on and off campus. This became especially important as large numbers of staff and students began self-isolating. Large studio-screens were used to project demonstrations from the academic’s home while the technical team supported students in the studios. This enabled staff and students to remain distanced within studio spaces while allowing shielding staff to continue to teach off campus and international students, who were unable to return from their home countries, to join remotely via MS Teams.

The level of rethinking was incredibly inventive with one course opting to demonstrate practical pattern-cutting techniques with paper. While this did not replace the tactility of studio-working, it did mean that staff could regularly review student work, and students could continue to make and develop their skills in a supervised capacity. This complex arrangement required additional staff to manage the studio space, while shielding colleagues managed the online learning environment and delivered specialist student tutorials online. While expensive, this hybrid delivery model proved beneficial within the emergency remote period as the online studio took on an enhanced digital aspect. As self-isolation became frequent, this learning offered other course teams tested methodologies for managing this scenario. This aspect of School learning fed directly back into the institutional solution-finding activity of the Redesigning Learning and Teaching Group.

**Digital Visualisation and the Mixed Classroom**

Areas that required a high level of technical specialist resource, including Visual Communications courses and the Visual Arts, provided, where possible, student access to resources to use from home. In Visual Communications, including our Filmmaking, Animation, Graphic Design, Photography and Illustration courses, students were given access to a pre-filmed technical series of how-to video guides. Equipment hire was available for students to work remotely and our technical team developed a rendering farm process allowing student access to specialist technical learning packages and enhanced computer-power to enable them to continue to work on high-specification digital outputs remotely. The render farm approach developed by our School technicians offers another example of how inventive learning within the School was subsequently adopted across NTU.

To effectively recreate studio spaces in off-campus remote locations each subject discipline made structured decisions about their students’ needs. This became an exercise in School specialist-resource distribution to support the delivery of quality remote student learning experiences. The enhanced use of visualisation in creating the digital campus, with large screens in studio spaces, was not a cheap exercise. This hybrid approach, while allowing for simultaneous on-campus and remote access, is not necessarily something we would do again by choice, however, there are aspects that we will retain. The use of large visualisation screens to invite international guests and collaborators into our studios is something that is set to continue with many courses already embarking upon global classroom collaborations due to the possibilities afforded by digital technology. This includes collaborations with Lasalle College of the Arts (Singapore), Dubai Institute of Design and Innovation and Panjab University (NTU, 2021i; Gough & Davidson, 2020).

**Lockdown Learning in Art & Design**

Despite the changes made in response to the global pandemic, key areas of innovation were maintained through re-mastering our learning and teaching. This includes the digital management of space to develop studio culture online through MS Teams channels and breakout rooms, the reconfiguring of timetables and spaces, along with the distribution of equipment and enhanced online access. While every individual cog in the machine of higher education needed swift recalibration to ensure our continued creative endeavour, the unusual business of the pandemic has very quickly become business as usual. With each issue arising, a collective effort to rethink and recalibrate, ensured a continued quality lockdown learning experience. An incredible amount of planning, and repeated reconfiguration went into preparations for each new UK government announcement (UK Government 2020), but not even a global pandemic could prevent our delivery of creative higher education. We have learnt from the process, and will retain some of those enhancements, as the arts face uncertainties anew. Gavin Williamson’s recent announcement of a 50% cut to arts funding in higher education (Bakare & Adams, 2021, para. 1.) means we will need to put that same ingenuity to use to ensure our continued future as a creative catalyst for innovation.

Closer to home, the collaborative approach to crisis management has supported a collective contribution to curriculum innovation as we navigated the complexities arising with Covid-19. Through our contribution to whole-institution thinking and participation in the Redesigning Learning and Teaching Group, this has resulted in the integration of art and design innovation within the wider institutional consciousness. While studio culture is important to learning and teaching within our discipline, and generates the immersive spaces that we co-create with our students, the global pandemic has shown us that art and design has a pivotal role to play in the digital future, as global connectors, rethinkers and innovators within our own institutions and across the sector as a whole. Long live the studio, the studio as we know it is dead.

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