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# IMPACT OF COVID ON INSTRUCTOR WELL-BEING WITHIN 'STUDIO' BASED DESIGN AND CONSTRUCTION TEACHING

Dermott McMeel[1], Emina K. Petrovic[2], Regan Potangaroa[3], and Renata Jadresin-Milic[4]
[1]Auckland University of Technology, Auckland, New Zealand
[2]Victoria University of Wellington, Wellington, New Zealand
[3]Massey University, Auckland, New Zealand
[4]Unitec, Auckland, New Zealand

## Abstract

Studio-based pedagogy, integral to design and construction education, emphasizes hands-on exploration, collaboration, and face-to-face interactions. The COVID-19 pandemic disrupted this model, shifting learning online and exacerbating workloads, pedagogical challenges, and community-building issues. This study investigates these effects through a survey of New Zealand educators, analyzed using inductive thematic methods. Findings highlight significant stress from tensions between traditional and online models, underscoring the urgent need for improved digital literacy, redesigned learning environments, and enhanced online community-building strategies. This research contributes insights into adapting studio-based pedagogy for resilient and effective online education.

## Introduction

To fully contextualise the complexity of studio-based pedagogy we delineate three key interconnected themes. First, the historical trajectory of studio pedagogy, and why it remains central to education in specific disciplines. Second, the evolution of—and distinction between—distance and online learning. We argue these were conflated during the rapid COVID transition to online, subsequently causing confusion and tension. Third, the implication of modern tertiary educational economics and how it exacerbated this confusion. We explain why studio-based pedagogy is the dominant form of pedagogy in some curricula. Furthermore, the paper unpacks the key themes, contextualising COVID lockdowns and their impact within this context. It steps through historical research and theoretical framings by Hannah Arendt and Doreen Massey to demonstrate how online environments can shift fundamental principles of pedagogy. Finally, this paper reports on original research analysing quantitative and qualitative data from instructors engaged in studio-based teaching in New Zealand. It provides a deeper understanding of the drawbacks and benefits—if any—of online teaching within studio-based teaching contexts.

Studio pedagogy is a specific teaching approach grounded in experiential learning. It emphasises hand-on exploration and making, as well as collaborative working and reflection on process. Central to this is a mentorship and dialectic relationship between the student and instructor. This means a fundamentally inter-personal relationship involving discussions that traverse social, technical as well as ethical questions. Thus, it typically results in relatively small groups of students mentored by teaching staff to facilitate these dialectic discussions. This highly inter-personal model existed prior to the establishment of modern educational apparatus and pre-professionalisation of the professions. Master-builders and stonemasons' practices were based on mentorship (Elliot, 1972, pp. 125–126). An apprentice learned skills by watching and interacting with an expert, acquiring understanding and technique. Later entry into artisanal 'guilds' in the Middle Ages became predicated on being able to prove competence in understanding those techniques. As aspects of these trades were professionalised and folded into what we now know as higher education, so to was the mentorship model. Its identity as a formalised legitimate pedagogical approach was perhaps elevated further—at least in architecture and design—by its adoption at the Bauhaus. The Bauhaus was a German school of architecture in the early 1900's which is largely credited with impacting trends in architecture and design in Europe and America for much of the 20th Century (Droste et al., 1990). Thus, the studio pedagogical approach because somewhat mythologised and cemented within the education of those professions.

However, the studio approach has proven difficult to reconcile with modern developments in online learning. Many online platforms like AcademyX and Coursera—for example—have settled on a format which includes:

- Short pre-recorded instructive material
- Short tasks directly related to pre-recorded material
- Cohort peer review of each other
- Automatic assessment of individual quiz material which is 'right' or 'wrong.'

Superficially, it could be argued this modern approach of online learning is not compatible with the studio approach. The economics of modern universities are reliant on a high student to staff ratio, which is at odds with the studio approach that necessitates a low ratio.

Nevertheless, many institutes encourage the implementation of online techniques within curricula. Thus, these modern trends in online education result in an unresolved tension with the principles of dialectic studio pedagogy and the economics of modern education. It should be noted not all construction, architecture and design courses are taught exclusively in a studio-based format. Most have components taught as traditional lectures, labs or workshops. However, in many case the core and compulsory design portion of teaching does remain studio-based.

COVID forced a dramatic shift to an exclusively online format in an incredibly compressed timeframe. This shift brought many ideological and economic issues to centre stage. The research team took this opportunity to survey and understand the effects of this transition. Specifically in terms of staff well-being and the effects of the transition online. This includes gathering quantitative data on depression, anxiety and stress, as well as qualitative data on causes, effects and—if any—benefits. Before discussing results, the next section will expand further on studio pedagogy to providing a deeper understanding of the ideological difference between remote and online learning. We then outline our methodology and survey design, before discussing results. Finally, the paper concludes with the key findings and why we need to improve the integration of online into the studio pedagogical model.

## Innovations in learning and working remotely

This section turns to pragmatic and philosophical aspects of 'remote' engagement. First, it discusses the evolution, benefits and criticisms of remote working from the 1950's to present day. Second, it unpacks philosophical stances on the influence of digital environments to communication and interaction. It also summarises the historical arc of remote learning, from its inception in the 1700's through to present day e-learning. Finally, we draw together these themes to explain the complexity of the intersecting difficulties which COVID lockdowns caused within studio-based teaching and learning.

### The rise of remote working

'Tele-working' was first conceived in the 1950's, influenced by the emergence of television and telephone technology. However, the first serious implementations did not occur until the 1970's (Baruch, 2001). Early experiments with working from home were almost exclusively initiated by technology companies (Haddon et al., 1994). In these environments work was already taking place on computing workstations or via telephone. Relocating an employee to work from their home instead of the office made little material difference to the nature of the work in these contexts. From a research perspective this has proven valuable, as the effects of 'remoteness' could be isolated and analysed.

The commercialisation and widespread adoption of the internet in the late 1990's and early 2000's fuelled significant change in technological integration into everyday work and living. Email, video conferencing and their associated functionalities significantly advanced remote working. Morgan estimated that by 2004 one in every sixteen employees in the United Kingdom could be categorised as tele-workers. In the UK alone between 1997 and 2001 there was a 65% increase in the numbers of workers in this category (Morgan, 2004). Morgan's analysis reveals this work was predominantly comprised of professional and managerial. Which typically involve mostly unidirectional communication and highly structured and formal interactions. This is fundamentally different to didactic or dialectic debate and reasoning, which we posit are key to studio-based pedagogy. Thus, we would suggest the foundations on which remote learning rest, does not favour the interaction on which studio-based pedagogy is founded.

Proponents of remote working typically cite cost reduction as one of the main benefits. Benefits also extend to improved flexibility, autonomy for students and higher job satisfaction for staff. Conversely, critics cite problems with isolation and loneliness. Additionally, they claim lower—not higher—productivity (Ozcelik et al., 2018). This incongruity suggests the practicalities of team building, productivity and reducing in person contact are nuanced and complex. Factors include—but are not limited to—social factors and the entropy inherent in interpersonal contact. Particularly relevant to education is adverse effects on our complex ability to process rich and ambiguous information to problem-solve (Daft et al., 1986). Remote interaction may also hinder tacit knowledge exchange, for example in 'The Social Life of Information' Duguid and Brown case-study several examples which illustrate this points. One study clearly evidencing how remote working can negatively impact productivity (Brown et al., 2000; Grossbart, 2001).

While research may be inconclusive around the issue of productivity it is much clearer regarding complex problem solving. Processing rich and ambiguous information and recognising tacit information are demonstrably problematic in on-line work settings. Which—we suggest—should be a cause for concern regarding on-line education.It is particularly relevant in the case of studio-based learning, where the pedagogy is predicated on didactic and dialectic debate and reasoning.

### A philosophical framing

There are additional philosophical considerations which relate to these findings. De Certeau distinguishes between the provision of a physical environment and the lived experience within that environment (Certeau et al., 1984). His point being environments are not always experienced as they are intended. This point has been picked up by design theorist Richard Coyne who argues that digital devices and spaces serve as apparatus to 'tune' our physical environment (Coyne, 2010). This supposition

from 2010 perhaps needs revisiting post-covid, where the roles of physical and digital space were reverse. Arguably we now find ourselves developing tactics within our physical spaces to 'tune' our digital working environments.

Doreen Massey uses the term 'power geometry' to embody how digital environments are not democratic, they are designed with intended and unintended power structures embedded within them (Massey, 1994). Lefebvre's 'production of space' describes representational space as that space 'the imagination seeks to change.' This is our conceptual model of a space, and the possibilities inherit within (Lefebvre, 1991, p. 39). Sheils discussed this in terms of the conflation of commercial shopping and amusement park spaces in Edmonton Mall's Fantasyland design. His assertion is that the overlap of each conceptual space unavoidably influences perception of the other (Shields, 1991, p. 55).

Returning to the subject of studio-based education, this philosophical framing suggests an unexpected but important perceptive shift. Which is a direct result of moving an activity from one context to another. From a dedicated physical workspace to a multi-use home environment using online digital apparatus. During COVID these complex factors were navigated by staff and students as they tried to recreate the complex problem-solving and dialectic discussion of studio-based pedagogy online.

### Remote learning

The concept of remote education is much older than remote working. Reference to learning shorthand by lessons 'sent to them' can be found as far back as the 1700's (Holmberg, 2008, p. 13). Holmberg traces the early European roots and evolution of distance learning up to the 1900's. By which time correspondence courses were normalised, albeit mainly to support adult education. An important and innovative shift occurred in the 1970's with the establishment of the Open University (OU). First, it made higher level education significantly more affordance and accessible. Second, it utilised broadcast television to disseminate content (Jonassen et al., 2008). This is possibly the first instance of a broadcast media being used to disseminate educational content. Thus, overcoming the obstacles of accessibility and affordability to democratise access to education.

As distance learning matured it retained—as a core principle—accessibility of resources to those for whom relocation to campus was not feasible. Contemporary e-learning—by contrast—has widely been adopted as an add-on to traditional campus-based universities. The term e-learning first emerged in the 1990's is now used to encapsulate a broad spectrum of educational systems and activities that occur online. The emergence of the internet in the 1990's which accelerated remote working also caused a proliferation of online learning tool. Digital platforms like Moodle, Drupal and Joomla emerged enabling the pre-recording of material, curation of reading and reference material, automated examinations and marking etc. While supporting remote access to learning material was a fundamental pillar to distance learning and Open Universities, this was not exclusively the case for traditional campus-based universities. The economics of campus-based education relies on students being on campus, using and justifying campus buildings and campus support services. We would argue—when understood within the context of its history—remote learning is ideologically different to e-learning. The former was intended to support education without a physical campus, the latter intended to supplement the physical campus.

COVID shifted e-learning from an ancillary role to the dominant form of education in the 21st Century. The implication being online learning was not materially different to campus-based learning. Whether this is born out in evidence requires further research. Nevertheless, the speed at which this shift occurred and the efforts to make it seamless imply verisimilitude. Paradoxically, post-COVID financial recovery for the educational sector appears to involve reinstating the campus-based model, and the associated higher fees. Arguably, there is little consensus on what has been learned from the COVID experience and how best to move forward; both in terms of the economics and philosophy of what is best for students, staff and the business of tertiary education.

These polarised and unresolved discourses surrounding the merits and problems of online, or on-campus education unavoidably bring us back to the implications for studio-based pedagogies. Thus, this research aims to uncover the effects of transitioning online, what lessons can be learning from the online experience, and what—if any—merits were found during online engagement during COVID.

## Methodology and Survey Design

The survey was conducted in November and December of 2021 in New Zealand. The New Zealand government developed particularly clear lockdown levels and protocols during COVID. The clarity of this approach during the pandemic makes it a useful location to survey. Additionally, the timing of this survey corresponds to the transition out of lockdown protocols. Making it possible—to some extent—to obtain comparative data on experiences during and after lockdown. It was circulated to all departments in tertiary education teaching architecture and building construction courses. The only criteria for participation were to be actively involved in teaching, research or administration within those departments.

### Survey design

To thoroughly understand well-being in this context a series of open-ended questions were asked in combination with a standard Depression, Anxiety Stress Survey

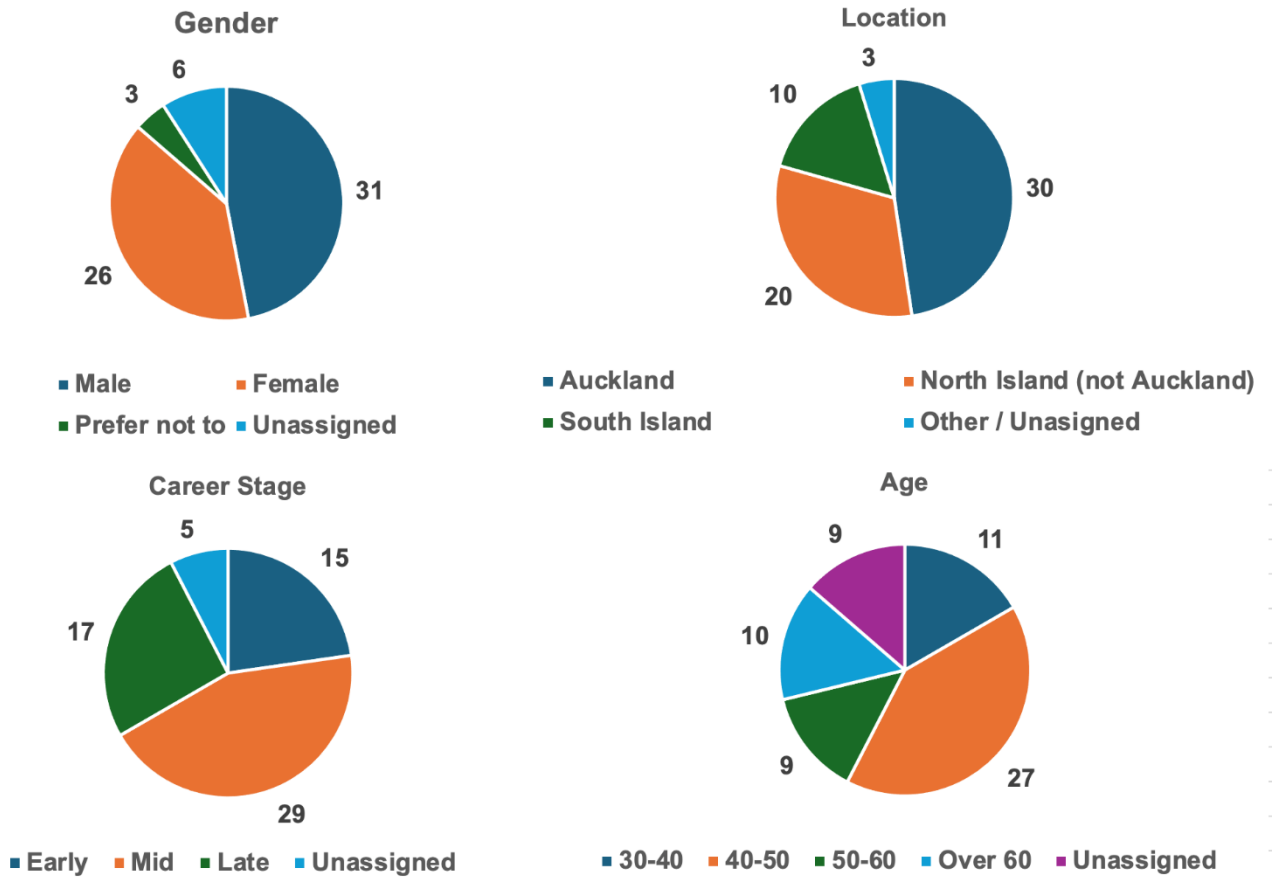


*Figure 1: Questionnaire data*

(DASS42). This consists of 42 questions and was preferred for several reasons:

- It allows for quality of life (QoL) characterisation from a single survey without the need for before-and-after comparisons, offering a significant advantage. This uses the Severity Table outlined below.
- Designed for use by non-psycho-social professionals, it is accessible to building professionals and readily available online.
- The DASS42 addresses ubiquitous situations rather than clinical ones, making it suitable for academic contexts.
- Its phenomenological basis and cross-cultural applicability facilitate easy comprehension and direct responses.
- Importantly, it avoids generating undue expectations among respondents, crucial when collecting "post-disaster" data.

Developed at the University of New South Wales, Sydney, Australia the DASS42 consists of three self-reporting scales measuring negative emotional states of depression, anxiety, and stress (Lovibond et al., 1995). The open ended question section of the survey was aimed at eliciting insights into the causality of these emotions during COVID, this included but was not limited to:

- What was hard.
- What were the benefits (if any).
- What were key impacts.
- Any implication of online and offline engagement.

**Data analysis**

The data analysis comprised two parts. The DASS42 survey was analysed used standard statistical techniques. A thematic analysis was adopted to analyse the open-ended questions (Bryman, 2004). Given the exploratory nature of determining causes of stress in this context we specifically adopted an inductive thematic analysis (Guest et al., 2012). Two of the researchers conducted independent analysis of the data. One using traditional manual techniques, the other using computer assisted methods in the form of Nvivo analysis software. They met to discuss their views on emergent themes and agreed that the categories presented in this paper are representative.

**Response**

A total of 67 individuals responded to the survey, a cross section of male and female 36 and 21 respectively. A range of age and career distribution, with mid-career responding in greatest numbers. Geographically most responses were from Auckland, as there are four participatory schools in Auckland and only three in the

rest of New Zealand. Demographic data is summarised in figure 1.

Gender diversity slightly favours male, almost 50% were from the city of Auckland and most respondents were mid-career. All of which was expected.

## Discussion, results and limitations of the survey

A detailed statistical analysis of our DASS42 survey has been reported elsewhere (Potangaroa et al., 2023). In summary, analysis revealed a polarisation within the respondents results. One group representing 30-40% of respondents recorded no significant increase in depressions, anxiety and stress. That being designated as 'normal' and 'mild' on the DASS severity scale. The other group representing 60-70% recorded 'severe' on the DASS scale. At the time of writing the researcher had not identified any patterns that correlate to this polarisation, such as age job type or seniority. Analysis did not reveal any inequity between genders, meaning both male and female appear to have experienced levels of stress equally. Additionally the adverse effects of lockdown seem to corollate with age and seniority. With each older category experiencing more stress than the preceding category. This trend continues until the age of sixty when respondents appear to have a precipitous drop in stress experienced during lockdown.

### Thematic analysis

The open ended questionnaire was divided into two distinct categories of question. The first focused on general well-being and impacts from lockdown. The second group of questions were specific to studio-based pedagogy, personal experiences and key insights from individual experiences. What follows is a summary of the analysis and the themes which emerged from the responses. The following five theme were identified and agreed upon by the researchers as representative of data from both the manual and computer assisted analysis.

### Theme 1: Continued lockdown stress

The initial questions in the survey focused on whether the preceding week was representative of lockdown and what aspects of online teaching were difficult or beneficial. Although lockdowns were no longer required at the time of this survey, many respondents were in agreement that the preceding week remained representative of lockdown. This points to no immediate change or relief from pressures within the working situation. However, there were several apparent causes, for example stress was caused by the increased workload caused by 'dual delivery.' This was the practice of maintaining support for students choosing to remain online as well as supporting students who chose to return to campus. Workload increased further when a respondent had care duties:

*"Working during COVID-19 has been incredibly stressful, juggling being a mum and full time work… I am now behind on various publications and am stressed about finding the right head space and enough time to get them done before the end of the year." (Respondent 9)*

This respondent mention publications, which is a key metric in career advancement. There is a suggestion here of anxiety caused by unknown consequences in the future, resulting from difficult decisions in the present. A recurring general theme was the struggle to stay motivated amidst constant pressures and the inability to find time for essential tasks due to meetings and additional responsibilities. Effects included emotional well-being generally declining, with increased feelings of isolation, anxiety, and a lack of motivation.

Conversely there were benefits cited, with some respondents mentioning that they had adjusted to the 'new normal,' finding ways to cope better than at the pandemic's onset. Benefits included flexible working from home, more control of meetings and being able to spend time during the day with family, for a lunch or a walk.

*"Playing sport as a family in the middle of the day - we have a large property and played soccer/softball/volleyball when we all ate lunch together. Going for walks as a family. Online meetings if they can be arranged work well for me. I like working from home occasionally." (Respondent 59)*

Family was a recuring theme in 14 distinct responses. With responses indicating being around family was positive, especially being able to 'break' from work and spend quality time. Negative effects from family appeared to be cause from being feeling confined, restricted and where someone had been cut off from physically visiting family.

### Theme 2: The juggle

The main problem of working from home seems to be best summarised with the phrase 'the juggle'. A predominant theme identified is the challenge of balancing professional responsibilities with personal life within the home during lockdown. Respondents frequently mentioned the difficulty of maintaining productivity while simultaneously managing household tasks, particularly childcare. One respondent commented on setting a new normal of expecting only 80% from tasks they would previously complete to 100%. They also signalled the 'catch-22' which resulted in less job satisfaction:

*"It's a catch-22. It's not possible to do my job 100% in the current situation without serious overwork and unsatisfying family time at home. So I've set the bar at 80%. Which allows for some work/life family time but is ultimately not satisfying as its incomplete... that is hard as there is no equilibrium that is sustainable and satisfying." (Respondent 1)*

This imbalance often resulted in feelings of overwork and a lack of sustainable equilibrium between work and home life. The increased workload associated with online teaching was a compounding factor. One of the questions asks 'how many bedrooms and living areas are there?'

The most common answers were two or three bedrooms and one living room. These responses usually corresponded to dwellings with several people. As a result each is necessarily working in one of the spaces, with no remaining spaces for communal or social activities.

**Theme 3: Physical and environmental constraints**

Working from home often involved suboptimal physical environments and poor ergonomic conditions. Respondents noted the lack of suitable workspace and the challenges of maintaining a healthy, active lifestyle. The sedentary nature of remote work exacerbated these physical constraints:

*"Lack of physical space to do my work. I don't have a home office, so I had a corner of our dining room… I had to convince various people in our school that I should be able to take home a desktop computer in order to be able to teach and do my work." (Respondent 13)*

Generally there was a sense of inadequacy of the physical environment from respondents. The modern home or apartment does not seem to be able to accommodate all occupants working or studying from home. Respondent 13 also raises some concerns about employers ability to adequately support working from home. Although respondent 59 is previously quoted as saying a large property helped with maintaining physical activity and supporting family time.

In the following section we analyse responses specific to studio teaching. Specifically key insights into teaching physical and virtually. As well as teaching dual mode, a consequence of lockdown relaxation where some universities requested staff provide support for both online and campus modes of teaching. Staff had to support students attending campus physically as well as those choosing to remain online.

**Theme 4: Digital to physical translation**

Those with predominantly negative experiences appeared to be trying to do traditional 'studio' style teaching on line. With the online tools failing to mean expectations:

*"I believe in-studio is far more beneficial for student and staff - for studio specifically. The environment, support and being able to readily engage with students and work. You cannot make a student share their work or have a quick quiet chat on Zoom. Nor can you make them speak! More formal instructive days would be okay online. But actual design and creative work - studio is better on campus." (Respondent 20)*

A considerable increase in workload, particularly in the context of online teaching, was another recurring theme. The transition to virtual platforms was accompanied by inefficiencies and heightened stress. Additionally technical difficulties and logistical challenges were also prevalent within this theme. Specifically a dramatic increase in workload as lockdowns were easing and instructors had to support both on campus and online engagement:

*"It is an enormous amount of work to run dual delivery and it isn't factored into our workload at all. For example, I helped in a studio course because we couldn't afford tutors. It took three senior academics to successfully run the classroom and online studio. Two of us were basically working for free. It's not sustainable." (Respondent 36)*

Respondent 36 explicitly mentions senior academics facing this challenge. However, the survey did not obtain adequate data to claim a correlation between age and challenges with technology. The abrupt shift to remote work and online education necessitated dealing with inadequate home office setups and the complexities of managing dual-mode learning environments. These technical issues added another layer of difficulty to the respondents' experiences during the lockdown. Conversely, those with generally positive experiences appeared to be adapting to a different approach—and expectations—to teaching online.

**Theme 5: Loss of community and isolation**

Isolation manifest in a number of different ways. The transition to lockdown conditions precipitated significant social isolation and loneliness. Respondents reported missing casual interactions and the spontaneous support typically received from colleagues, friends and extended family. The lack of face-to-face contact contributed to a sense of detachment and emotional fatigue, exacerbating the overall sense of isolation. Additionally many respondents expressed difficulties in engaging students effectively and providing the necessary support through online mediums, further compounding their workload.

*"Felt concerned for students when I was unable to observe them during class. Pastoral care is even more important and more challenging. The more vocal/outgoing students were even more able to dominate discussions. Small Zoom meetings worked very well when we all had good internet connections." (Respondent 2)*

*"Especially the extra time put into checking in on students and offering them extra support." (Respondent 9)*

*"The amount of pastoral care I have to do for my students, teaching online for several hours at a time, speaking into the void when they refuse to turn on their cameras and sometime don't show up and I have to carefully and with great kindness chase them down and yet that level of care and kindness is never reciprocated." (Respondent 13)*

The pastoral care could be described as a tacit activity. A byproduct of studio pedagogy whereby the low student to staff ratio naturally supports the identification of student issues and well-being. Similarly the social element, is also a byproduct of the work environment. However, both these 'byproducts' were singled out as of significant importance. Either the pastoral care was being impeded or it was perceived as not being appreciated.

**Limitations**

A number of limitations should be acknowledged within this research. Firstly, only sixty seven responses were received in a country of only five million people. Also

approximately fifty percent of the respondents from a single city, Auckland. Due to the regional approach to lockdown, Auckland was in lockdown for significantly longer than the rest of the country. Additionally, while care was take to focus on studio pedagogy, it is common practice for teachers to engage in both lecture and studio based teaching. Further steps could be taken during data gathering to isolate pedagogy specific effects. This undoubtedly influences aspects of the responses.

While the research and findings are limited to New Zealand, the findings are not wholly context specific. New Zealand's approach to teaching within the design and construction context are largely aligned with European and North American approaches.

Despite these factors, the responses shed light on some of the key factors affecting educators involved in studio-based education. Which has proved useful in considering how to move forward with remote learning in this context.

### Future research

Limitations of the research point to a need for further research. Firstly, an increased sample size is necessary for any further research. As is the need for international comparisons. As discussed in the previous section New Zealand's approach to studio teaching is not markedly different to European and North American approaches, however these supposition needs to be validated and verified as other contextual factors may be significant. Second, the research exposed two clear groups of respondents in relation to stress, experiencing high or low stress respectively. The research as designed did not identify correlating factors, which points to a need in future for more detailed multivariate analysis. It would be insightful to explore correlations between age, seniority, digital literacy, workload and stress. At the time of writing the authors are discussing a follow-up survey to track progress and changes post-COVID.

## Conclusions

This paper has reported on a study investigating the impact of COVID lockdowns and working from home on studio-based pedagogy. Working from home appears to be persisting post-COVID. Consequently these finding are not only historically interesting, they are relevant to the future. The research makes the following contributions to the existing body of knowledge.

First, findings point to the need for new design approaches for homes and communities. Specifically the need to incorporate features that support working and relaxing from—or close to—home. This includes home design that supports the 'juggle' of several people or groups working, caring or studying from home in relative privacy. However, it also extend to factors outside the home and designing community infrastructure. Specifically supporting social contact and physical activities, the benefit of which are lost when working from home.

Second, it points to a need for further support for digital literacy. While organisations invested heavily in technology for online transition. There appears to have been widespread neglect of supporting individuals transition to this exclusively digital environment. When individuals were technologically literate they appear to have found efficiencies and even identified long term opportunities from operating online. Where people had limited digital literacy, attempts to continue 'business-as-usual' was time consuming and stressful.

Third, a lack of community support contributed to feelings of isolation and increased stress. This includes the staff community as well as relations between staff and students. Explicit productivity related educational activities were positioned centre stage. Digital platform ensured resources and materials were available online. Investment in technologies ensured meeting and lecturing online was not impeded. However, community is a byproduct of the physical workplace and educational environment and needed a more deliberate cultivation online.

Additionally the researchers identified issues that warrant further research. The DASS42 survey revealed a polarisation of stress. One group reporting no increase in stress and another reporting a significant increase. Further research is needed to identify the cause of this polarisation. Furthermore the survey revealed a number of benefits from the online transition. There needs to be further research into if and how these are being permanently implemented.

The financial shock of COVID has resulted in recovery programs prioritising a return to profitability, which appears to mean a return to on campus activities and its fee structure. Campus return has not necessarily resulted in standing down the additional online technology implemented during lockdowns. Respondents highlight the difficulty of teaching both online and on campus. However, further research is needed to affirm or refute this.

The impact of prolonged interaction through exclusively digital apparatus is unknown. Especially regarding complex problem solving and other implicit skills embedded in this didactic and dialectic approach discussed in this paper. More research is needed to assess if and how higher level education is transitioning out of COVID. Are they returning to business as usual or implementing lessons learned from COVID.

In summary the research revealed that the implementation of technology, although widespread was not a panacea to transition studio pedagogy online. Technologically literate respondents innovated and found alternate ways to teach, those not so technologically literate struggled. Whether these innovations and lessons have been adopted is unclear. Other implicit aspects of the pedagogical environment such as community and pastoral care duties were revealed as being fragile in the online environment. However, they had a significant bearing on well-being. With working from home remaining persistent post-COVID it is likely these issues remain. There is an urgent

need to follow up with additional research to assess if systemic changes are being embedded in studio pedagogy to ensure there is an improved experience for both staff and students.

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