architec-
ture studio
• pedagogy
• cultural
transmis-
sion • social-
ity • publics

Studio Culture as Competency.
From Pedagogy to Publics

Lilian Chee (1), Yi-Ern Samuel Tan (2)

Abstract

The teaching of design, the act of design itself, and its competencies are always conceived as a mystery–knowable to a certain extent yet unknowable in its totality. In studies of how design knowledge is transferred in the studio, the focus typically centers around a determinate and quantifiable pedagogical exchange between student and tutor, consistent with its etymological roots in *paidagōgia*, suggestive of instruction akin to the teaching of a child. Yet, we witness other kinds of exchanges and social formations in the studio that expand beyond the student-tutor exchange, more akin to the cultural transmission of a distinct set of codes, behaviors, norms, and organizations autonomous from pedagogical structures. In this paper, we shift the conversation from one solely centered around pedagogy to an orbit of the architecture studio's culture, whose social making, we argue, produces the public body of the architecture community and is itself the competency acquired in the architecture studio.

Affiliation:
(1), (2) National University of Singapore, Department of Architecture

Contacts:
(1) l [dot] chee [at] nus [dot] edu [dot] sg
(2) tyes [at] nus [dot] edu [dot] sg

Received:
11 July 2021

Accepted:
14 October 2022

DOI:
10.17454/ARDETH10-11.05

ARDETH #10 #11

Competency's Mystery

It is not unreasonable to say that competency in the architecture school has evolved past the rote adoption of technical language or the memorization of a historical canon. Competency as comprised of "knowledge, skills, and attitudes" is quickly fading in a world where digital and computational technologies are ubiquitous (Ozkar, 2018: 111), especially one whose newest generations are composed entirely of digital natives. At a fundamental level, what it means to *re*search has been conflated with what it means to *search*–"Search Google or type a URL." Citing political theorist Wendy Brown's analysis on neoliberalism's reductive effects on knowledge production, literary historian Joan W. Scott further reiterates that academic freedom, once tied to paradigms of open-ended problem finding and dogma challenging, is now shackled to "'positive ROI'–return in investment," a consumer metrics proposed by the Obama administration for college ratings (Scott, 2019: 9). Coupled with the climate and pandemic crises, the state of the architect's competency today is, as this CFP suggests, fashioned in precarity and uncertainty.

The question of competency points to its status as some kind of *mystery* operating at the core of architectural education, with the studio being its primary and enigmatic site of transmission. Much literature has devoted itself to the pursuit of a studio pedagogical theory–asking how competency is acquired or transferred from teacher to student–to varying degrees of success. Seminally, Donald Schön's essay *The Design Studio* describes the role of the studio tutor/master as a type of "coach" in a setting which he calls the "reflective practicum" (Schön, 1985: 63-65, 88-90). Schön's theory of the architectural design studio, and indeed, professional education at large, casts this tutor-student transfer of knowledge as occurring within an in-progress design project, with competencies gained through cycles of "learning by doing" and "reflection in action" (Schön, 1985: 30-52).

Subsequent studies have revisited this tutor-student interaction in quantitative and qualitative modes, where a common emphasis lies in the communicative aspect of architectural education–the tutor's critique (Goldschmidt et al., 2010), the student's "stuckness" (Sachs, 1999), the deference to "metaphorical reasoning" (Casakin, 2011), and more. Following the pandemic prompting a shift from physical to digital environments, newer studies focus on new forms of interactions, models opened up by the convenience of virtual studio, and the digital potential to interpolate academic and practice environments of design (Nespoli et al., 2021). Regardless of medium, these communicative models repeatedly highlight a student's inevitable "confusion" brought about by a tutor's "tacit" feedback, the specificity of which is deliberately withheld so that self-inquiry and understanding may happen (Schön, 1985: 53-54). As Schön writes: "In this sense, the design studio shares in a general paradox attendant on the teaching and learning of any really new competence or understanding. For the student seeks to learn things whose meaning and importance he cannot grasp ahead of time" (Schön, 1985: 56).

Despite this conundrum, the mode of the studio is transforming alongside the demands of the university, and often takes precedence over the rest of the architectural curriculum. The variance in such studio models is far-reaching. The rise of quantifiable research indicators in the neoliberalist university agenda prompts the studio to "invoke analysis rather than design as their method and aim for publication or exhibition as end products" (Varnelis, 2007: x). Perhaps counteractively, the design-build studio stands as a symbol for the "applied knowledge" of architecture–a studio that "moves beyond traditional intellectual exploration, hovering between academic (theory) and professional realities (practice)" (Storonov, 2018: 1). And further to this, the studio typically organizes itself around the final review, where critics often "simply rely on the techniques their own professors used when they were in school, however good or bad they may have been" (Anthony, 1991: 4). In all three instances, pedagogy is different, both in content and form, but still predicated on the mystery of learning how to design and therefore ultimately, challenging systematic critique.

To malign the mystery, and how architecture students acquire competency, is furthest from this paper's intentions. Yet, one cannot help but question then precisely *what* we arrive at by attempting to devise a model for architectural pedagogy. As an "outsider" to architecture, sociologist Robert Gutman offers an invaluable contextualization of this conundrum:

One cannot help but question then precisely *what* we arrive at by attempting to devise a model for architectural pedagogy.

Mystique, [Schön and Chris Argyris] point out, is absolutely central to such professionals. Although in practice architects may not have to concern themselves with their inability to espouse a coherent theory, difficulties do arise when these professionals begin to teach and assume the role of educators. Then they find it difficult to discuss pedagogical theories because often they have none, and indeed are worried that too much self-consciousness about education can destroy the very intuitive skills on which they are convinced their approach to practice is based. It is difficult for practicing professionals to make explicit the grounds of their actions. (Gutman et al., 2010: 276)

Elsewhere, Mark Wigley's words are even more specific, if not damning. On a kind of "atmosphere" that comprises the "central objective of the architect," Wigley points to an ephemeral, indescribable, and unknowable experience that remains out of reach for even the architect who claims it as his design (Wigley, 1998: 18-20). He extends this further to claim that "atmospheric design is itself the product of a particular atmosphere," that is the atmospheric architectural school "beginning with the *mystification* of the atmosphere of design itself" (authors' emphasis) (Wigley, 1998: 26-27). The threat of demystification then is a threat to atmosphere (itself, he/her who creates it, where it is created/learnt):

At the same time, those who embrace effect cannot approach atmosphere directly–cannot point to it, cannot teach it […] To concentrate obsessively the architecture of atmosphere is ultimately to evaporate the figure of the architect. (Wigley, 1998: 27)

Given this, the absence of and difficulty devising a pedagogical theory of design education is of no surprise; its struggle to emerge is synchronous with that of constituting a creative and artistic professional practice. Thus, the question is whether pedagogy is indeed the sole and most appropriate frame to comment on the design studio and its competencies, particularly with conflicting views and competing contexts emerging in contemporary design education. Etymologically, the term pedagogy descends from the Greek *paidag'gia*, itself a compound of the terms for "boy" and "leader". And, as argued, a study of pedagogical methods in the design studio cannot seem to separate itself from the instructive, the transfer of knowledge from master to apprentice, akin to the teaching of a child. Yet, how much of "studio space" really comprises the interaction between master and apprentice? How do the hours spent in consultation compare to the hours a student spends struggling without the presence of the pedagogue? The student evidently labors with actors/actants other than the studio master–materials, software, the physical space of the studio, and those who occupy that space. Though never quite the focus of an investigation into the design studio, stray observations that anticipate this have been made. One writer puts it this way: "There is one thing that we all may agree on that studio is excellent for: As a social and organizational setting studio is the ideal context to learn the art of good judgement" (Habraken, 2008: 11). Architect N. John Habraken points not to a vertical instructional relationship, but the social and even public nature of the design studio. To approach the studio from the perspective of its sociality ultimately thrusts architecture's competency into a discourse about a culture and its site–where this culture is located and how it is acquired. Here, we ask whether a discourse of competency in the design studio is always a question of education. Rather than to assumedly invoke pedagogy, we argue that this discussion should instead turn to ontology and epistemology:

Rather than to assumedly invoke pedagogy, we argue that this discussion should instead turn to ontology and epistemology.

At least for now, architecture school remains the crucial site where the discourse of architecture is formulated and disseminated. More than the sum of its curricular components, it is the place where students become conscious of themselves as members of a pre-existing community of professionals and intellectuals (Ockman, 2012: 32)

Written a decade ago, Joan Ockman's qualifier of "at least for now" is portentous at a time where the physical space of the architecture school has eroded through social distancing, or anti-sociality–a question we wrestle with at the end of this essay. This condition however, that of the physical studio and by extension the physical school, frames one of the ontological premise of architectural education through which we investigate culture as competency. The studio as a

Fig. 1 - Two third-year students in the undergraduate studio at NUS, engaged in late-night casual conversation, 2017. Photo by Ong Chan Hao.

physical space imparts a culture on students that, as Ockman suggests, awakens students to their entering of a community–an epistemological mode of transmission that is both social and public. Winged by this, we ask how else the studio space is constructed by the structures generated not just by the pedagogue–who designs the brief, sets the remits of the problems, stipulates the deliverables–but by the relationship between other actors/actants in a studio. We ask if the ability to be and to operate in the space of the studio–both physical and discursive–is itself the competency of the design studio.

We ask if the ability to be and to operate in the space of the studio–both physical and discursive–is itself the competency of the design studio.

Culture with(out) Pedagogy

It is 8pm. Vestiges of work lay strewn across tables and plastered upon panels–all manner of models, drawings, broken boards, laptops left ajar, unfinished drinks. Though the studio seems empty, it reveals pockets of still-working students. More stream in, returning from a dinner taken in anticipation of a long night. Work is done in full view of all others. Here and there, those who are working sit alongside those who are not. Whispers take place between mobile partitions. Voices emanating between drawings, models, and bodies. It is 2am. The cycle of hunger repeats. As students mobilize to satiate their appetites, new collisions occur resulting in new combinations of people and people, people and work, and work and work. The fabled pedagogue is nowhere in sight.

Though the narration above represents a specific situation at the National University of Singapore, it is exemplary of a larger shared culture that speaks to the informal organization of social events happening beyond what is pedagogically defined as the studio. Educational theorists Katherine Cennamo and Carol Brandt describe the studio triad as simultaneously "studio as space," "the studio class," and "the studio pedagogy" (Cennamo, Brandt, 2012: 841-843). In the latter two, we find the contained and determinate exchange of the student-tutor, but it is in the former that the studio's physical and psychical qualities are illuminated. One of the studio's primary distinctions from other educational spaces is its personal ownership and permanent availability–the notion that students have for themselves dedicated spaces for work, discussion, storage, and display accessible at any time during a given period of an academic semester. Cennamo and Brandt point to instances where universities have attempted to replicate the physical layout of studios–the "flexible furniture groupings and technologies"–but without personal ownership and permanent availability, "the lack of constant access to other students in the studio space limited student-to-student collaboration and impeded student's ability to use each other as resources" (Cennamo, Brandt, 2012: 841). Access to a studio, owned by the very students occupying it, is the core of the architecture studio's sociality.

One of the studio's primary distinctions from other educational spaces is its personal ownership and permanent availability.

But, as they also point out, the studio owes its construction to other structures, and to discuss them as discrete entities would be inevitably reductive. "Structures," as we have so far repeated, is a deliberately vague term. While abstract, it is not divorced from architecture's typical, physical, employ of structure; extant writings within architecture's own discourse model this other form of construction. Another of Wigley's essays, on prosthetic theory, describes the origins of the university first as a "wandering," placeless "space of the thesis"–itself a subject of a metaphori-

That the students were active participants in the construction and demolition of the proposition of what the studio space should be–atelier or unit, integrated or discrete, artistic or technological–speaks to the very social mechanism of the studio itself.

cal architectural construction–and later placed with "buildings permanently dedicated to teaching in order to persuade highly mobile faculty and students to remain in one place"–a subject of literal architectural construction (Wigley, 1991: 10-11). That it points to the architectural construction of the thesis insists, for us, that the physical and placed university–and by extension its constituent spaces of the library, classroom, *studio*–and the theoretical and placeless university–in the university's project of the thesis or *proposition*–precipitate from processes one and the same.

The history of the architecture studio reveals such successive – to borrow Wigley's terms – constructions and demolitions (Wigley, 1991: 9). In the early modern to contemporary period, the architectural studio as an educational model that first emerged in the École des Beaux-Arts' atelier system, in mid to late-nineteenth century America, was in contradistinction to (and in some cases active contestation with) the German polytechnic's overwhelmingly classroom setting, of which the American programs more closely resembled (Lewis, 2012: 68-78). Historian Michael J. Lewis describes how students who favored the artistic disciplinary situation of architecture had no choice but to go to the École in Paris, for such a model was not yet present in the US. More significantly, in comparing the kind of instruction these students received at the École, Lewis describes the social studio whose existence we postulate:

> Every student was affiliated with one of these ateliers, where he was mentored by older students, the so-called *anciens*, in exchange for menial labor[ ]In large measure, the real education that École took place not in the classroom but in the atelier. (Lewis, 2012: 80)

Eventually, the Beaux-Arts system would come to dominate, but it would itself be supplanted by emerging modern movements in the 1930s. Of note are of course Walter Gropius' tenure at Harvard from 1937 and Mies van der Rohe's appointment at Chicago's Armour Institute in 1938. Yet, it is Frank Lloyd Wright's Taliesin Fellowship, established in 1932 as an alternative to mainstream architectural education, that reads interesting. Anthony Alofsin describes Wright's project as "[f]oreshadowing the design/build studios of today," where, beside the making of building, the apprentices "participated fully in Taliesin's social rituals" (Alofsin, 2012: 108-109).

Across the Atlantic, the studio was, similarly, not an unproblematized space. Architectural historians Mark Crinson and Jules Lubbock offer one such account on the transformation of the Architectural Association. Like the US, the 1930s was a time of "increasing modernist orientation" at the AA, whose appointment of E.A.A. Rowse as principal of the school in 1935 saw the shift to the unit system–in name, still employed in a number of schools in the UK today–and the introduction of younger teachers, controversially upending practices like the *esquisse* and the teaching of the Orders (Crinson, Lubbock: 1994: 101-102). Though the "semi-autonomous" units were claimed to have "encourage[d] teamwork, rather than the supposed individualism and competitiveness of the Beaux-Arts," reports about the atelier system contradict this, echoing Lewis' earlier comment about informal student-student exchanges (Crinson, Lubbock, 1994: 102). Rather than passive, students at the AA were active agents in support of Rowse's reforms and published a document in solidarity that came to be known as "The Yellow Book." (Crinson, Lubbock, 1994: 103-104). That the students were active participants in the construction and demolition of the proposition of what the studio space should be–atelier or unit, integrated or discrete, artistic or technological–speaks to the very social mechanism of the studio itself.

The Social Making of Studio Publics

The difficulty in imagining competency developing and thriving in the studio without the pedagogue stems perhaps from an architectural penchant for single authorship, and this resistance presents a perennial challenge for radically rethinking how architectural competency is acquired, or even what it is. Further, the studio's inimitable sociality and public nature have been notoriously difficult to penetrate, and why even a history of the studio in a citation of figures such as Gropius, Mies, Wright, and Rowse betrays the anonymous army of students who form the studio body. Citing Garry Stevens, architect Mark Olweny writes that because the "social processes" of the studio are "difficult to quantify, and thus largely undocu-

The difficulty in imagining competency developing and thriving in the studio without the pedagogue stems perhaps from an architectural penchant for single authorship, and this resistance presents a perennial challenge for radically rethinking how architectural competency is acquired, or even what it is.

mented, they are taken for granted" (Olweny, 2017: 188). The absence of empirical accounts on the social studio no doubt result in studies dwelling primarily on what is documented–the student-tutor exchange, bound by academic schedules and revolving around in-progress design projects.

The empirical, however, plays but one role in an ensemble of approaches to what we term in this paper as studio culture, and how it persists in this space. While we can only claim anecdotes like the ones given, social organization, programmed or otherwise, undeniably happens in the studio. Its occurrence is not strictly defined by "studio hours" nor even the sited studio itself. Social historians Peter Cunningham and Bruce Leslie highlight Harvey Siegel's term "cultural transmission," that is, "culture" being something that "takes account of a wider range of knowledge, values, and practices," and "transmission" akin to "sharing, as the knowledge or values transmitted are retained by the 'source group' at the same time as they are gained by the 'target group'" (Cunningham, Leslie, 1996: 45). The conception of studio culture and its publics shift, then, from the studio's structural role for pedagogy, to its *infra*structural role for worlding. Infrastructure, cultural theorist Lauren Berlant contends, is not mere structure or system but really a "social form" defined by specific movements and patterns of usage (Berlant, 2016: 393). A capacious and porous enclosure, often without partition walls, its programmatic functions are necessarily open-ended, loosely-controlled and *indeterminate*. The studio provides a safe and temporary autonomous space, free from the forces of market relations which undergird the profession. This infrastructure may also be understood as a permeable and affective contact zone where students gather to work, commiserate, and support each other–in studios, classrooms, dorms, late-night eateries, online. The studio as an infrastructure of sociality is a key transitional space that binds the architectural student body in a dynamic relationship between the present (student) self and the exterior (professional) world. Here, we are neither essentializing nor affirming positivistic or frictionless communality. Rather we argue it is where affective attachment of the self in relation to the broader discipline and its public(s) find their footing. The physical and metaphorical messiness observed in the open plan studio resounds with Hannah Arendt's "space of appearance" wherein a plurality and visibility of voices and selves are allowed to actualize (Loidolt, 2014). Arendt's model emphasizes the formation of the self-in-the-world not as "[one] body" alone but one related to its outside–the necessary making of an intersubjective and interpersonal entity shaped by worldly experience and knowledge. Referring to affective sites where individuals become relevant and perceivable to each other, the politically engaged public sphere is not constituted by just any kind of gathering. It is activated only insofar as "people are together in the manner of speech and action" (Arendt, 1958: 199). Here, individuals are not indifferent to each other but rather make their appearance manifest in front of, and for, one another. The studio as a "space of appearance" is politicized, contingent, and fragile. It is where the power to act, to speak, and to become, is given by, and situated within, the presence of others.

Berlant further argues that the dynamism of infrastructure is apposite to institutional stasis–the former's inventiveness and change balancing out the latter's conventions:

> Institutions norm reciprocity. What constitutes infrastructure in contrast are the patterns, habits, norms, and scenes of assemblage and use. Collective a'ect gets attached to it too, to the sense of its inventiveness and promise of dynamic reciprocity. (Berlant, 2016: 403)

To understand the import of this argument for the architecture studio, we turn to architectural theorist Hélène Frichot's discussion of how infrastructure is a "complex assemblage" composed of a built space, its environmental facilities, equipment, furniture, material objects and bodies'human and non-human– that jostle to occupy and to exist (Frichot, 2021: 15). Arguing that the material existence of the street is the bedrock of political engagement enabling rallies and marches, Judith Butler asserts: "The demand for infrastructure is a demand for a certain kind of inhabitable ground, and its meaning and force arise precisely when the ground gives way" (Butler, 2016: 14). The inhabitable and inhabited architecture studio, as our anecdote describes, constitutes a similar infrastruc-

"Culture" being something that "takes account of a wider range of knowledge, values, and practices," and "transmission" akin to "sharing, as the knowledge or values transmitted are retained by the 'source group' at the same time as they are gained by the 'target group'".

The studio as a "space of appearance" is politicized, contingent, and fragile. It is where the power to act, to speak, and to become, is given by, and situated within, the presence of others.

Fig. 2 - A second-year studio in the undergraduate studio at the NUS, rushing to finish a project together, 2012. Photo by the authors.

Making in the studio never occurs as an isolated and individual activity; it is always a social act.

tural environment of rambunctious enabling and co-existence. The studio as an "inhabitable ground" works when it is socially affective. It galvanizes labor by offering networks of support–a messy space for creation, communication and critique, alternate temporalities of waking, eating, and working, the co-presence of stoic peers and friends–consolidating energy and ambition.

Thus, the social and the historical coalesce; successive constructions and demolitions of what makes a studio are formed by those in power to debate them in concert with denizens of the studio who are invested in making-with these spaces and their actants. We borrow here from Donna Haraway's evocation of "sympoiesis," defined by M. Beth Dempster after "collectively producing systems that do not have self-defined spatial or temporal boundaries. Information and control are distributed among components. The systems are evolutionary and have the potential for surprising change" (Haraway, 2016: 61). Making in the studio never occurs as an isolated and individual activity; it is always a social act. Whether actively or passively, work in the studio makes-with other agents (Figure 2)–computers, digital materials, physical materials, other work, the studio environment, the extra-studio environment, other people–and as work in the studio is produced, this work produces the studio and its culture. Thus, the studio itself is a piece of architectural production continually and collectively produced through sympoiesis, by a social body of students and faculty messily debating its space, objects, and ideals. The studio is always subject to reconfiguration. What we claim here can be understood through Jacques Rancière's argument on aesthetics and politics:

> Having a particular 'occupation' thereby determines the ability or inability to take charge of what is common to the community; it defines what is visible or not in a common space, endowed with a common language, etc.[…]Politics revolves around what is seen and what can be said about it, around who has the ability to see and the talent to speak, around the *properties of spaces and the possibilities of time* [author's emphasis]. It is on the basis of this primary aesthetics that it is possible to raise the question of 'aesthetic practices' as I understand them, that is forms of visibility that disclose artistic practices, the place they occupy, what they "do" and "make" from the standpoint of what is common to the community. (Rancière, 2006: 13)

This oft-cited "politics of aesthetics" by Rancière refers to how the "aesthetic experience[ ]intervenes in the distribution of the sensible" (Rancière, 2009: 5-6). That is to say, indeterminate beauty (Wigley's atmosphere, Gutman's mystique, Schön's mystery) gives way to some form of reason and to cause for debate, through some form of argumentation, "what is harmful and thus also what is just and what is unjust" (Rancière, 2009: 4). Writing specifically to the studio, another writer puts it this way: "The design studio has long served as an ideal venue for imparting virtue[…]studio education has proven remarkably effective in instilling in students classic virtues like good judgement, self-control, honesty, and courage" (Fisher, 2012: 313). Lest one forgets, the etymology of "politic" is the Greek *politikos*, or the affairs of the city, the matters concerning its occupants. More than simply a social nature then that concerns intra-corporeal relationships, sociality transforms the studio and its occupant students into a kind of public that debates normativity not only of the objects they study, but of the *subjects* occupying the studio as a project itself. Not only does

More than simply a social nature then that concerns intra-corporeal relationships, sociality transforms the studio and its occupant students into a kind of public that debates normativity not only of the objects they study, but of the *subjects* occupying the studio as a project itself.

Fig. 3 - An in-progress thesis review at NUS, engaged in a discussion on how architecture produces knowledge. Photo by Lip Lee Jiang.

It is this ability to operate both socially and publicly, predicated on the creation and defense of objects, that we argue is the hidden, mysterious competency of the studio.

it debate and produce within that normativity, it also strives to create new norms (Figure 3). Nowhere is this more prevalent than the design review, the culmination of a studio–a once closed-door affair blasted open into the public arena (Anthony, 1991: 11). Indeed, it is not uncommon to hear an endless slew of "should-haves" at a design review: "you should have drawn this bigger," "you should have used a different set of colors," "you should have thought more about the section," "you should have looked at what your friends were doing." The speculative platform provided by the public review opens up opportunities for interrogating not just the architectural design but how the design process may be synchronous with the self-fashioning of architectural identities in the student population. As Rancière puts it, "the stage, which is simultaneously a locus of public activity and the exhibition-space for 'fantasies', disturbs the clear partition of identities, activities, and spaces" (Rancière, 2006: 13). The public display of work follows precisely from the social making of that work, and in a public arena, the social process is thoroughly interrogated. At the same time, that social process trains one to defend oneself in the public arena, having repeated and refined the process of bringing others to an understanding of that work.

It is this ability to operate both socially and publicly, predicated on the creation and defense of objects, that we argue is the hidden, mysterious competency of the studio. For beyond technical skills and languages, norms of practice, divergent and convergent thinking, the studio teaches students how to *be* in the studio. That is, how to be among not only those who have been designated as part of the same unit by an arbitrary administrative distinction, but among those who grow in "aparallel evolution" (Massumi, 2019: vii-xviii), among those working on projects other than their own, among those of greater and lesser experience. The ability to make-with others and in turn, to build-up the competency and capacities of the studio itself, is not granted to every individual prior to their architectural education; it is a skill transmitted within the studio's physical space, within its conceptual space, its project, its indeterminate social and public bounds. The studio is a culture that holds its very own competency.

The studio is a culture that holds its very own competency.

Transformed by Mutation

"Is studio culture dead? The short answer to this question is no–design studio culture in British architectural schools is alive and kicking, but it is changing," wrote The Bartlett's architectural historian and critic Murray Fraser (Fraser, 2014).

For perhaps the first time in living memory, studios were emptied out for an extended period of time–some a few months, some a year, some until now. Workshops became inaccessible–physical materials swapped for digital tools (Figure 4). Year-end shows dissipated into pixels on a screen. Our present time demands a reiteration of Fraser's (rhetorical) question, where the decimation of the architecture studio's "supportive environment and set of technologies" (Butler, 2016: 14)–leaving it without a facilitative environment where vulnerabilities can be addressed, and collective strength harnessed–is less speculation than reality. For us to ask the question "is studio culture dead?" we must ask if the culture we have just identified continues to persist despite the disappearance of physical space.

In the many reports on our schools' rapid transition, or stumble into, remote learning environments, students have lamented the loss of the social studio. In an article from *The Architect's Newspaper* dated June 2020 (or about 3-4 months after the onset of the pandemic), the author notes that "[t]he biggest common denominator wasn't a question of whether things would work technically […] but whether

students were getting the emotional, mental, and financial support they need to weather a global crisis" (Hillburg, 2020). Of note here, it is not necessarily the medium that is the challenge–from a pedagogical standpoint, answering the question of whether design studio can be *taught* online approximates something along the lines of "it seems, we can!".[1] Even shows and exhibitions can be put online, whether they leverage on contemporary leanings to live streaming in SCI-Arc's grand Twitch event (Guimapang, 2020), or delve into virtual reality in the AA Earth Gallery (Christou, n.d.). But again, the pedagogical sum of the studio is not its whole, and the final assembly and pageantry of the exhibition is not an isolated project. What is lost is the ability to make-with, to make-with-towards, to *be* among others that, beyond a system of complex co-authorship, constitutes a system of care.

Further to the medium of making, to say that digital tools cannot constitute a social activity, is perhaps a romanticization of the physical and a claim to architecture's illusory monopoly over making. A fascinating comparison can be made with hackathons–high-pressure events utilized frequently in computing and engineering communities where participants gather to rapidly ideate and generate operable solutions to a thematic problem. Typically, the events are physically sited, and participants almost always work in groups. At the end of a hackathon, winning ideas are awarded anything ranging from prize money to internship opportunities (Kohne, 2021). Beside a Beaux-Arts practice of the *esquisse* or perhaps even *le rendu*, the hackathon reads as a culture of making different only in medium–instead of pencils, pens, and brushes, are alphanumeric characters, their keystrokes, and clicks of a mouse. Yet the predicate of both remains the eminence of physical space. It is perhaps unintuitive to think that an activity involving the digital leans so heavily into a site that is physical, but the notion of a *virtual* hackathon has necessitated one author to call it a "modified artifact," lacking the "'social lubricant' of meeting rooms, food and drink, software, and task-related aids that help [participants] form their teams and develop the new, yet temporary, collaboration norms" (Wang et al., 2021). The conundrum to be and to make-with is not exclusive to architecture's tendencies for physical making.

1 - Quoting Martyn Hook at the symposium Research by Design: Promise, Anxiety and Insecurity in Academia, February 2021, hosted at the Department of Architecture, National University of Singapore.

Fig. 4 - A particularly busy night at the laser cutters at the NUS workshop, an unthinkable sight today, 2018. Photo by Lee Lip Jiang.

What is lost is the ability to make-with, to make-with-towards, to *be* among others that, beyond a system of complex co-authorship, constitutes a system of care.

But it is the final point, of care, where the studio is its most complicated and conflicting site. It is no illusion to us that architecture's practice and its beginnings for one "becom[ing] conscious of themselves as members of a preexisting community of professionals and intellectuals" in the studio is highly contentious. The upheavals at SCI-Arc and the Bartlett were mobilized by a studio public (both past and present) who, like all forms of politics, find themselves on either side of a conflict speaking out against or for their institutions. In conflict are those in the studio public attacking and defending the figures and practices in question–further evidence to the plurality of experiences in the studio and its uneven pedagogies. Certainly not endemic to the above-named institutions, these recent

In conflict are those in the studio public attacking and defending the figures and practices in question–further evidence to the plurality of experiences in the studio and its uneven pedagogies.

developments in architectural academia demonstrate an increased level of investment of studio publics in institutional politics, which is indeed antonymous to the perceivably confined politics of a studio's brief. Despite the studio's imperfections as a format of learning, students find some form of solace in collegial networks, particularly those forged in its physical space as a site of shared experience. One student muses that "talking through [his] models over a webcam doesn't feel right, and sessions feel far less engaging in comparison to standing next to a meticulously curated pin-up wall," that "as a BAME (Black, Asian and minority ethnic) student at a regional city university, one of the major difficulties I've faced is finding people

For competency to be out of the hands of the pedagogue–for it to remain that which it is, a mystery–is perhaps a radical suggestion, but embedded within the studio are undeniable systems of transmission happening beyond the remits of curricular structure.

who I can relate to" (Ing, 2020). The drive to seek out empathy and implicitly, the capacity for empathy, is perhaps constitutive of competency as well.
For competency to be out of the hands of the pedagogue–for it to remain that which it is, a mystery–is perhaps a radical suggestion, but embedded within the studio are undeniable systems of transmission happening beyond the remits of curricular structure. Simply put, competency is never static. Beside cultural transmission, Siegel advances the need for "cultural transformation," where transmission changes course both affected and unaffected by pedagogical structures (Siegel, 1996: 29):

> In other cases, education can actively seek to effect cultural transformation[…]Such a view involves the idea that the critical scrutiny and critique of existing culture is a basic task of education; that education aims at the improvement, rather than simply the continuation of existing culture. (Siegel, 1996: 30)

In the absence of physical space, students have turned to Zoom rooms, Telegram groups, and Discord channels to recuperate some form of social making and accountability, hastily organized at a guerrilla level and without the intervention of the pedagogue. In the absence of platforms for institutional change, students have rallied around digital forms of anonymity in social media and virtual holding spaces that create safety for ideas to propagate into politics, without the support of the pedagogue. For better or worse, these students are moving beyond the traditional institutional devices upheld in such practices as the mysterious studio, in the pursuit of transformation. This is a skill that, in principle, the studio has afforded them–though it is itself exceeded by the technological and social fashions that run more familiar to them, as if they are leaving pedagogy behind. But Siegel yet returns some agency to the institution of education, a reminder of its (and indeed, *our*) ability to revolutionize itself and its culture–its competency. Siegel casts education as elastic, but only if "scrutiny and critique" can be applied by those within it, as it is now already subject to by the studio public. Where we find such scrutiny and critique is perhaps not in the brutal honesty of studio commentary–the content of a studio project–but the reciprocal empathy developed by being a part of something like the studio as a space for debate and growth–its form. Even as a pedagogue.

References

Alofsin, A. (2012), *Challenges to Beaux-Arts Dominance*, in J. Ockman & R. Williamson (Eds.), *Architecture school: Three centuries of educating architects in North America*, Cambridge (MA), MIT Press ; Association of Collegiate Schools of Architecture, pp. 90–119.

Arendt, H. (1998), *The human condition* (2nd ed), Chicago, University of Chicago Press.

Berlant, L. (2016), *The commons: Infrastructures for troubling times**, "Environment and Planning D: Society and Space", n. 34(3), pp. 393–419.

Butler, J. (2016), *Rethinking Vulnerability and Resistance* in J. Butler, Z. Gambetti, & L. Sabsay (Eds.), *Vulnerability in resistance*, Durham, Duke University Press, pp. 12–27.

Casakin, H. (2012), *An empirical assessment of metaphor use in the design studio: Analysis, reflection and restructuring of architectural design*, "International Journal of Technology and Design Education", n. 22(3), pp. 329–344.

Cennamo, K., & Brandt, C. (2012), *The "right kind of telling": Knowledge building in the academic design studio,* Educational Technology Research and Development, n. 60(5), pp. 839–858.

Christou, L. (n.d.), *Has Covid-19 Sparked Virtual Reality's Architectural Coming of Age*?, "Design & Build Review" [Online]. Available at: https://designbuild.nridigital.com/design_build_review_aug20/covid-19_virtual_reality_architecture [Accessed 15 October 2021].

Crinson, M., & Lubbock, J. (1994), *Architecture--art or profession? Three hundred years of architectural education in Britain,* Manchester, Manchester University Press ; Distributed exclusively in the USA and Canada by St. Martin's Press.

Cunningham, P., & Leslie, B. (2011), *Universities and cultural transmission*, "History of Education", n. 40(2), pp. 135–141.

Fisher, T. (2012), *Ethics*, in J. Ockman & R. Williamson (Eds.), *Architecture school: Three centuries of educating architects in North America,*. Cambridge (MA), MIT Press ; Association of Collegiate Schools of Architecture, pp. 313–315.

Fraser, M. (2014, July 25), *Is studio culture dead?*, "Architects' Journal" [Online]. Available at: https://www.architectsjournal.co.uk/practice/students/is-studio-culture-dead [Accessed 15 October 2021].

Frichot, H. (2021), *Infrastructural affects: Challenging the autonomy of architecture*, in M. Jobst & H. Frichot (Eds.), *Architectural affects after Deleuze and Guattari,* New York, Routledge, pp. 10–25.

Goldschmidt, G., Hochman, H., & Dafni, I. (2010), *The design studio "crit": Teacher–student communication*, "Artificial Intelligence for Engineering Design, Analysis and Manufacturing", n. 24(3), pp. 285–302.

Guimapang, K. (2020, June 4), *SCI-Arc's 2020 Digital Spring Show: The Future of Showcasing Student Work Online?*, "Archinect" [Online].

Available at: https://archinect.com/features/article/150197084/sci-arc-s-2020-digital-spring-show-the-future-of-showcasing-student-work-online [Accessed 15 October 2021].

Gutman, R., Cuff, D., Wriedt, J., & Bell, B. (2010), *Architecture from the outside in: Selected essays* (1st ed), New York, Princeton Architectural Press.

Habraken, N. J. (2007), *To Tend a Garden- Thoughts on the Strengths and Limits of Studio Pedagogy*, in A. M. A. Salama & N. Wilkinson (Eds.), *Design studio pedagogy: Horizons for the future*, Gateshead, Urban International Press, pp. 11–20.

Haraway, D. J. (2016), *Staying with the trouble: Making kin in the Chthulucene*, Durham, Duke University Press.

Hilburg, J. (2020, June 12), *The coronavirus pandemic is forcing architecture schools to rethink remote learning*, "The Architect's Newspaper" [Online].

Available at: https://www.archpaper.com/2020/06/coronavirus-pandemic-architecture-schools-rethink-remote-learning/ [Accessed 15 October 2021].

Holmes, R. (2020, July), *The Problem with Solutions*, "Places Journal" [Online].

Available at: https://placesjournal.org/article/the-problem-with-solutions/ [Accessed 15 October 2021].

Ing, W. (2020, April 8), *School's out: How are architecture students coping with coronavirus shutdowns?*, "Architects' Journal" [Online].

Available at: https://www.architectsjournal.co.uk/news/schools-out-how-are-architecture-students-coping-with-coronavirus-shutdowns [Accessed 15 October 2021].

Kohne, A. (2021), *Hackathons - From idea to successful implementation*, Springer Nature [Online].

Available at: http://link.springer.com/10.1007/978-3-030-58839-7 [Accessed 15 October 2021].

Lewis, M. J. (2012), *The Battle between Polytechnic and Beaux-Arts in the American University*, in J. Ockman & R. Williamson (Eds.), *Architecture school: Three centuries of educating architects in North America*, Cambridge (MA), MIT Press ; Association of Collegiate Schools of Architecture, pp. 66–89.

Loidolt, S. (2014), Hannah Arendt on Plurality, Spaces of Meaning, and Integrity, "The Integrity Project" [Online].

Available at: https://integrityproject.org/2014/09/30/hannah-arendt-on-plurality-spaces-of-meaning-and-integrity/ [Accessed 15 October 2021].

Massumi, B. (2019), *Introduction*, in *Architectures of the unforeseen: Essays in the occurrent arts*, Minneapolis, University of Minnesota Press, pp. vii–xviii.

Nespoli, O. G., Hurst, A., & Gero, J. S. (2021), *Exploring tutor-student interactions in a novel virtual design studio*, "Design Studies", n. 75, 101019.

Ockman, J. (2012), *The Turn of Education*, in J. Ockman & R. Williamson (Eds.), *Architecture school: Three centuries of educating architects in North America*, Cambridge (MA), MIT Press ; Association of Collegiate Schools of Architecture, pp. 10–33.

Olweny, M. (2017), *Socialisation in architectural education: A view from East Africa*, "Education + Training", n. 59(2), pp. 188–200.

OZKAR, M. (2018), *RETHINKING BASIC DESIGN IN ARCHITECTURAL EDUCATION: Foundations past and future*, New York, Routledge.

Rancière, J. (2006), *The politics of aesthetics: The distribution of the sensible* (Pbk. ed), London, Continuum.

Rancière, J. (2009), *The Aesthetic Dimension: Aesthetics, Politics, Knowledge*, "Critical Inquiry", n. 36(1), pp. 1–19.

Sachs, A. (1999), *`Stuckness' in the design studio*, "Design Studies", n. 20(2), pp. 195–209.

Schön, D. A. (1985), *The design studio: An exploration of its traditions and potentials*, RIBA Publications for RIBA Building Industry Trust ; Exclusive distributor, ISBS.

Scott, J. W. (2019), *Knowledge, power, and academic freedom*, New York, Columbia University Press.

Siegel, H. (1996), *Education and cultural transmission/transformation. Philosophical reflections on the historian's task*, "Paedagogica Historica", 32(sup1), pp. 25–46.

Storonov, T. (Ed.). (2018), *The design-build studio: Crafting meaningful work in architecture education*, New York, Routledge.

Varnelis, K. (2007), *Is There Research in the Studio?*, "Journal of Architectural Education", n. 61(1), pp. 11–14.

Wang, S., Yeoh, W., Ren, J., & Lee, A. (2021), *Learnings and Implications of Virtual Hackathon*, " Journal of Computer Information Systems", vol. 66, n. 3, pp. 547-559.

Wigley, M. (1991), *Prosthetic Theory: The Disciplining of Architecture*, "Assemblage", n. 15, pp. 6-29.

Wigley, M. (1998), *The Architecture of Atmosphere*, "Daidalos", n. 68, pp. 18–27.