CAN THE ‘DESIGNERLY WAY OF THINKING’ BE TAUGHT REMOTELY?

A B S T R A C T

It is widely accepted that certain domains of knowledge are better made accessible to students by a complex set of strategies comprehensively known as ‘designerly way of knowing’. This ‘way of knowing’, which is appreciated as essential to (good) design, is developed within the framework of the design process, the copying and reusing of existing forms, and the making of artefacts. The distant teaching applied during the Covid-19 pandemic lockdown could only partly substitute for the in-person guidance provided to students in normal design studios. While the transfer of explicit aspects of knowledge, such as constant critical evaluation and reflection on the various stages of the design, could more-or-less be kept to the in-person tutoring, the transfer of implicit aspects of knowledge based on bodily involvement probably suffered considerably. The latter is involved in both the reactions to the modified design presented by students each week, and in the new modifications proposed by the tutor, or the critique realised by means of exploratory sketches meant to show the weaknesses or suggest ameliorations to the design presented. But, there is an upside, too. Students open up their personal space; the instructor can make adjustments to their tutoring on the basis of information they normally don’t have access to.

KEY WORDS

DISTANT TUTORING,
DESIGNERLY WAY OF THINKING,
MANUAL AND DIGITAL SKETCHING,
PRIVACY

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INTRODUCTION

This paper examines the up- and downsides of architectural design remote tutoring practiced during almost three semesters of the Covid-19 pandemic induced lockdown.

Remote tutoring has been the most common, if not the exclusive, form of tutoring design studios during the Covid-19 pandemic in large parts of the world. The problem faced by academics was quite straightforward: Can the ‘designerly way of knowing’ be taught remotely? Can the main means of communication between a tutor and students, namely sketching on paper, and, the students’ provisional proposals, in case these are printed, be substituted by digital sketching? How can a tutor compensate for the loss of physical contact which takes place in any normal university environment?

Closed universities offering only online classes and studios was a novelty. However, aspects of the issues raised, and the problems faced by online design studios tutoring, have been researched since the emergence of digital drafting tools, and the rise in online communication. This paper will base its arguments on this research.

THE NATURE OF DESIGN AND DESIGN TUTORING

Design is a kind of, so-called, creative art, whereby the expected goal is the production of unforeseen blueprints for the making of never-seen-before artifacts. It is widely accepted that design is a discipline employing its own methods of gradually approaching its goals.¹ It goes without saying that these goals vary significantly, and depend heavily on ideology and world views of designers, owners and users of the artifacts, and created settings.

The methods employed in design practice are quite different to those used in hard science, such as biology or physics.² What really sets it apart from other disciplines is that these forms of knowledge which are ‘special to the awareness and ability of a designer, independent of the different professional domains of design practice,’³ are based on the premise that multiple answers to a given task may be valid; that the criterion of veracity isn’t valid, since there are no ‘rights’ or ‘wrongs’ in the absolute sense these judgements have in hard science; and that the livability of an answer is proved, if at all, decades after it is provided.
This unique kind of knowledge is partly inherent in the activity of designing, gained through engagement with, and reflection on, that activity. This is exactly what Vitruvius claimed 2,000 years ago, when he urged architects to enrich their knowledge by both acquiring explicit knowledge and practicing their trade. As Donald Schoen put it, the knowledge and skills required for design are ‘implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict’; design is a ‘reflective practice.’

Some of it is the knowledge inherent in the artifacts, gained through using and reflecting upon the use of those artifacts. Some of it is knowledge inherent in the processes of manufacturing the artifacts gained through making and reflecting upon the making of those artifacts. And some of each of these forms of knowledge also can be gained through instruction in them.

It is similar to the knowledge ancient Greek philosophers thought is required to perform any kind of artisanry, a knowledge (episteme) ‘inherent in the application’ of arts such as those relating to building and to handicraft in general, as Plato put it. Transmission of such kind of knowledge is quite difficult since it can only to some extent be communicated verbally through instruction. While part of instruction is more or less conventional in the sense that it is clearly articulated, another part of it is of a special kind, involving the body.

Martin Heidegger had pointed out that actually all our thoughts are more or less based on corporeality, on the fact that we who do think are made of flesh and bones - in his own words ‘at any rate, [thinking] is a craft, a ‘handicraft.’ The bodily involvement in design is well known among practicing architects and educators. Bryan Lawson’s ‘thinking pencil’ condenses the essence of tutoring as practiced in architectural schools around the globe. Body language is key for conveying non-verbal reactions to, and critique of the design presented: such reactions and critique express sentimental or automated responses, rooted in the deepest layers of the self that are beyond one’s control. They partly result from empathy.

Empathy is a psychological mechanism thought to be activated during interaction with one’s surroundings; it involves the projection of oneself onto the object of perception. Empathy (German: Einfuehlung), is a term coined by German philosopher and aesthetics theorist Robert Vischer in the late 19th century (1887), and further elaborated on, among others, by his peer Theodor Lipps who expanded its use in psychology. The theory goes that the beholder
identifies themselves with the object they see, and ‘feels’ on their own body what the object would feel was it a living creature. When we are in front of a Greek temple we ‘feel’ the burden of the epistyle that columns have to carry, and sympathise with them; the successful response of the columns, emulating the flexing of our muscles when we have to carry a load, deeply satisfies us. The aspects of instruction not dependent solely on verbal communication, but also involving body language and gestures and other non-verbal forms of expression, are considerably hindered by the absence of physical presence, in the same room, around a table of the instructor and students.

**SKETCHING AS A PRIME TOOL OF IDEATION**

Prime among these non-verbal forms of expression is sketching. Sketching is a form of ideas and design representation widely used in creative arts and especially in architecture.\(^1\) It is quite unique, differing substantially from other types of representation, and drawings, in particular.\(^2\) It can be a solitary process or a part of tutoring. The core aim of sketching is not to convey information that cannot be easily communicated in other ways, although this can be central during tutoring sessions; actually, it is the exploration of several possibilities and the opening up of new horizons unthought-of up to this point; this function of sketching is common among student novices and accomplished architects.

By sketching, the designer creates ideas, they don’t just record preexisting images or solutions already formed in their mind, as Aristotle suggested in his famous passage in Metaphysics 1032b, who drew a clear distinction between *noesis* (νόησις: cogitation) and *poiesis* (ποίησις: production) by claiming that ‘things are generated artificially whose form is contained in the soul [of their maker]… In generations [i.e. in the making of things]… part of the process is called cogitation, and part production – that which proceeds from the starting point and the form is cogitation, and that which proceeds from the conclusion of the cogitation is production.’\(^3\) It must be stressed that this passage must be read having in mind that in the designer’s case the ‘production’ is the drawing completely and precisely describing the object intended to be constructed, be it a car, a spoon, or a building.

The opening up of new horizons brought about by sketching is hinged with the very nature of design, especially in architecture. It is widely accepted that architecture poses more or less ill-defined problems. In an ill-defined problem …‘the initial state is usually vague, and the goal state either unknown or ambiguous; neither
stop rules nor algorithms for operators are specified in advance. The solver of an ill-defined problem must generate and represent a great deal of additional information that he or she ‘imports’ into the problem space in order to construct states, including the initial and goal states, and in order to construct a path or paths that connect them.\textsuperscript{14}

Actually, modernism has sought to make architectural design a well-structured problem by clearly stating the design goal: the seamless function of the building which, alongside with its plain form, derived from this function, and the adequate application of building materials. Clear-cut goals free of contradictions and complexity were sporadically set to architects by centralised or authoritarian regimes: the Nazis wanted to overwhelm opponents and subjects alike, and their principle means were to construct buildings of huge dimensions and strictly laid-out at every scale. However, historical, associative, symbolical, and aesthetic considerations have usually blurred the design goals as well as the means to achieve them.

Sketching helps generate new ideas: as Donald Shoen put it ‘the designer ha[s] a conversation with the drawing.’\textsuperscript{15} Such conversations are extremely fruitful, and there is now consensus\textsuperscript{16} that are cornerstones of innovative creations since they help the designer ‘see more information in them than was invested in their making.’\textsuperscript{17} By attempting to formulate some initial thoughts on the paper, hardly consciously drawing lines that represent their first approach, either of the design goal (no matter how ill-defined it is), or by fine-tuning a part thereof at a later stage, the designer comes up with a sketch. By seeing it and evaluating it, they can judge its merits and pinpoint its weaknesses, or they can uncover some scarcely visible potential - research has shown how differently each designer perceives a sketch.\textsuperscript{18}

Designers then ‘appear to see visual clues in their sketches that trigger mental images’\textsuperscript{19} helping them to propose new ideas and new approaches to the problem posed, and transform what they see in front of them so that it better serves the goal they themselves have set, even to amend this goal if they come up with some new idea.\textsuperscript{20}

Sketching is widely used as a tool for instructors to help trigger the student’s imagination by conveying some initial reactions to their design; the instructor uses sketching (usually on the very sheet of paper the design is presented) to pinpoint the weak areas of the design, and to unveil what they think is the hidden potential thereof - a potential not visible to the student who has presented their design to the instructor.
In the times of the pandemic, the interaction between the instructor and students takes place online; Sketches were used, but they were digitally supported sketching tools employed, not conventional ones made with pencil on paper. The differences between digital and manual sketching has been studied since the immergence of the powerful design, drafting, and sketching tools available more than a decade.

Sketching, either with conventional means or digitally, is aimed at producing a variety of solutions, which are examined, approved or rejected in split seconds. The gradual approach to even more satisfactory design is a long process of engagement, involvement, distancing and all over again; each round produces better and better outcomes, or explores the limits of an idea, so that it can be discarded, and a new thread followed.21

However, the question is what are the substantial differences between hand-made sketches and digital sketching computer aided ones, such as those used during the pandemic by tutors commenting on the students’ work? Research is quite inconclusive. Some research has shown that computer aided sketching had ‘no significant influence on the nature of design activity during conceptual ideation;’22 and that digital sketching environment is similar to free-hand sketching ‘in all significant aspects of the design process.’23 In contrast, other research concluded that conventional sketching is better suited for supporting reinterpretation as well as generation of design ideas.24 Interpreting and reinterpreting these during the initial phases of design - that is during the ideation phase - manual sketching provided better opportunities to reflect upon the provisional results; better understanding the weaknesses and strengths of the design at each stage of elaboration as well as minor or major revisions facilitated by manual sketching.

THE CHALLENGES AND BENEFITS OF ONLINE TUTORING

The Landscape Architecture Design Studio III of the Landscape Architecture Post-Graduate Programme offered by the Agricultural University of Athens presented and commented in this paper was taught remotely. The programme called for the design of an open-air theater at the tip of a large brownfield area at the mouth of Piraeus port, the main sea-getaway of Athens, which is earmarked to become some kind of cultural park (Figure 1).

The instructor used a variety of means to communicate her reactions, ideas, and guidelines to the students who presented their draft designs digitally each week: verbally formulated critique following a general assessment of the progress
made the week before; widely understood gestures and body postures; and sketches drawn digitally on the students’ plans shown on computer screens. While verbal communication conveyed the intended message, the quality of non-verbal communication was rather poor. Body language used by both the instructor and the students was mutually hard to grasp and properly understand.

However, what suffered most was the quality of instruction through sketches. The lack of immediacy provided by the pencil drawn on the paper was detrimental to real contact between the instructor and students. The pressure applied on the pencil during sketching on paper, or the delicacy of the movement of the hand holding it; the accuracy or the lack of precision; these nuances were substituted for the indifferent and soulless lines of predetermined width and colour digital sketching tools provide. Good for pointing the exact area of the plan shown and suggesting directions or shapes, digital sketching proved quite inadequate for communicating the enthusiasm or the disappointment of the instructor, the hopes and challenges seen by her in the draft designs she was presented with. An example is given in Image 1, which is a screenshot of the online tutoring described above. The students had worked out a draft design: the theatre consisted of a stage inscribed in a circle facing the audience sitting on banks on the slope across it; the slope and the banks are designed concentric with the stage but are developed in fragments. It thus reminded of - but did not imitate - some ancient theatre, partly in ruins as are the remnants of the ancient city walls nearby.

Fig. 1. Online tutoring. The instructor conveys their comments sketching on a student’s draft proposal.
The tutor noticed that the theatre is well-placed in the landscape, but raised two issues: first its relation to the embankment which is shaped in straight line to facilitate the docking of ships; and second, the access to the theatre by the audience coming mainly from the south. While both issues were presented verbally, drafting on the drawing presented helped the tutor to make her point clear. However, the intensity of the collision between the stage circle and the embankment, and the obstruction of view to the theatre by the line of trees parallel to the embankment (which, on the other hand, provided a border line and some degree of protection and privacy) as perceived by the instructor could not be accurately conveyed.

However, Image 2 depicts what can be perceived as an advantage of online tutoring: the simultaneous sketching/commenting by various agents (Figure 2). The most difficult thing the students had to do in online studios was to connect with their instructor and understand her objections and remarks. The tools available online on shared screen programmes allowed them to ‘meet’ by sketching on the same image (even temporally like the thoughts which come and go). In person-to-person instruction this would be a no-go since three hands working on the same area of the drawing would be extremely confusing and frustrating for all participants. During online tutoring, the instructor’s comments were sketched on the students’ draft proposal, and the students would reply by pinpointing what they think is important, and depicting movement of people, vistas, and shapes of buildings. In the screenshot presented here, we
can recognise the communication taking place. What is normally a succession of interventions on a drawing in progress, here is an almost chaotic, but nevertheless vivid collaboration.

Any creator views the sketch drawing they make as objects belonging to them, and where they have the exclusive rights. But here we see how this ‘ego’ object escapes from its owner. We can recognise that from the balance of the different colours and lines provided by Cisco’s Webex platform used for the studio sessions coexist on this same drawing. Something personal becomes something common, one of the main goals of architecture.

Fig. 3. Online tutoring. The instructor conveys their comments sketching on a group’s draft proposal. Parts of the students’ working environments are visible.

Here another aspect of design studios online tutoring comes into play (Figure 3). According to Sigmund Freud, human personality is complex and has more than a single component. In his famous psychoanalytic theory, Freud states that personality is composed of three elements known as the id, the ego, and the superego. These elements work together to create complex human behaviours. And, in online tutoring some aspects thereof become prominently visible. The glimpse offered in their working environment unveils aspects of the students’ personality that would be otherwise unknown to the instructor. Students and other instructors participating in what is usually group work opened up their personal space to the instructor and fellow students. It wasn’t the carefully groomed image projected in social media platforms, but the real environment where a student lives and works. It was their space, a deeply familiar environment.
Actually, to some degree they also chose what aspect of this space they would show; they set up the stage for their appearance to the public, but this could have been doctored to a lesser degree than let’s say an Instagram story. However, one could still see what they hang on their walls, how many books they had. One could also discern how many people shared a room, and sometimes one could sense what kind of relations they had with their roommates or their family; students and fellow tutors may not have exposed themselves as they usually do in the studio taught at the university, but still, they presented their work and their views on the background of a privacy partly compromised.

People often regard their home as an extension of their own body. British philosopher and art theorist Peter Lamarque considers the tendency to ‘anthropomorphise buildings and speak of them as ‘living’ or as having a character or personality to be revealed’ as ‘fairly innocuous’. Moreover, buildings are often considered metonymies of the human body, not just metaphors of the human body. The burglary of a home often causes more distress than the actual loss because it is ‘experienced metaphorically as an assault on, a penetration of, the owner’s body’: home is strongly associated with self-identity.

Such ideas were mostly developed by phenomenology. French philosopher Maurice Halbwachs in the first half of the 20th century intensely reflected on the relation between people - both as individuals and as groups - and the edifices in their surroundings; a relation often bordering identification, since ‘homes and walls, and the roofs sheltering people’ have become ‘integral parts of the group’. This may explain, he noted, why people pay ‘disproportionate attention’ to the material aspect of the city, with the great majority being ‘more sensitive to a certain street being torn up, or a certain building or home being razed, than to the gravest national, political, or religious events.

And, knowingly, the controversial German philosopher Martin Heidegger, held that the notion of home is essential for the Being. Man (standing for humans in general, and not just for males), is by dwelling. Heidegger clearly distinguished between housing, which he considered to be a technical problem to be solved by technical means, and dwelling, which he perceived as a condition of man’s being in the world. The concept of home was fundamentally redefined. Moreover, Heidegger argued that man dwells in ‘places’, not in abstract ‘space’; home is essential for space to be transformed into place; or, better, for places to be created in oceans of undifferentiated and hostile places which cannot form the environment for any meaningful life. He thus placed dwelling at the heart of the debate on built environment.
Heidegger’s thought deeply influenced subsequent thinkers, not least in the domain of architectural theory. For Mark Wigley the notion of house is associated with the drawing of a line that produces an ‘inside’ as opposed to an ‘outside’ and acts as mechanism of domestication. Emmanuel Lévinas, a philosopher who sought to enrich the notion of being at home with a concept of hospitality towards the Other, held that the house has a privileged role in the life of every human being by being an essential condition of human activity, and in this sense its commencement. To dwell, he claimed, is recollection, a coming to oneself, a retreat home with oneself, as in a land of refuge. No need to say that the concept of home and homecoming is as old as human narratives. Myths and poems from all cultural environments abound with related references. For many thinkers, a house is clearly much more than a shelter.

The opening, therefore, of the most essential modern human abode and refuge to the gaze of ‘others’, may it be fellow students or tutors, has profound psychological implications. Admittedly, this ‘opening’ is also metaphorical: no one really intrudes the personal space of the participant; the ‘guests’ are just given the opportunity to see inside it, and invade it visually, not physically. Thus, while the participants who open up their personal space are physically safe, they are socially vulnerable to judgement, disapproval, or irony for their choices regarding its configuration.

In great many cases during tutoring sessions, they chose to do exactly this. But, they earned something vital in return: the personalised approach of the tutor who was able to grasp the nuances of the milieu the students lived in. For sensitive tutors this knowledge provided a very powerful tool for making their contact with the students more profound and substantial. The real-time camera and the real-time sketch brought them closer. Showing the places where the participants worked and lived partly eliminated the distance between them (Figure 4).

It was these personal moments that an instructor took advantage of to adjust her way of lecturing and tutoring, with the aim to gain access to some deeper layers of the student’s personality, so that she could energise the student’s potential and set their creativity in motion. The opening up of the personal space was transformed with the help of technology into an opening-up of some of the participants’ personality layers that are normally hidden from public view, or carefully manicured to conform to the widespread social norms in our times immensely reinforced by the omnipresent social media.
CONCLUSION

The quality of Architectural Design Studio may suffer as a result of online tutoring because the means of communication between the tutor and the students are significantly impoverished. Verbal communication may be almost as good as that of in-person classes, but the body language and bodily involvement suffer a lot during classes. This poses a major problem since the ‘designerly way of thinking’ cannot be transmitted solely by explicit learning methods. Sketching, which is a prime method of communicating, and helps to generate ideas also suffers. The subtlety of hand sketching is missing; the typified lines of uniform predetermined width cannot substitute for the richness of the hand-made sketch.

However, there is an upside: the students and fellow tutors alike opened up their personal space, allowing the tutor to partly understand their background and fine-tune her way of teaching to the specific challenges that are hardly perceivable in normal circumstances. The lack of physical contact has been partly compensated for by the intimacy of private worlds partly shared with others.
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6. E.g., in their forms and configurations - knowledge that is used in copying from, reusing, or varying aspects of existing artifacts, Cross, ‘Designerly Ways of Knowing.’
7. Statesman, 258d.
17. Lawson, 2006

Tang, Lee, and Gero, ‘Comparing collaborative co-located and distributed design processes in digital and traditional sketching environments.’


BIBLIOGRAPHY


DA LI SE "DIZAJNERSKI NAČIN RAZMIŠLJANJA" MOŽE PREDAVATI NA DALJINU?
Nora Lefa

Opšte je prihvaćeno da su određeni domeni znanja bolje dostupni studentima pomoću složenog skupa strategija koje su sveobuhvatno poznate kao „dizajnerski način saznanja“. Ovaj „način saznanja“, koji se cenio kao suštinski (dobar) dizajn, razvija se u okviru procesa dizajna, kopiranja i ponovne upotrebe postojećih oblika i pravljenja artefakata. Nastava na daljinu koja se koristila tokom pandemije Kovid-19 mogla je samo delimično da zameni lično vođenje koje se pruža studentima u normalnim dizajnerskim studijima. Dok bi se transfer eksplicitnih aspekata znanja, kao što je stalna kritička evaluacija i razmišljanje o različitim fazama dizajna, mogao manje-više zadržati na nivou ličnog podučavanja, prenos implicitnih aspekata znanja, zasnovan na fizičkom prisustvu, verovatno je znatno pretrpeo. Ovo poslednje je uključeno kako u reakcije na modifikovani dizajn koji studenti predstavljaju svake nedelje, tako i u nove modifikacije koje predlaže nastavnik, ili kritiku realizovanu pomoću istraživačkih skica koje imaju za cilj da pokažu slabosti ili sugerišu poboljšanja predstavljenog dizajna. Ali, postoji i dobra strana. Studenti otvaraju svoj lični prostor; instruktor može da prilagodi podučavanje na osnovu informacija kojima obično nema pristup.

KLIJUČNE REČI: PODUČAVANJE NA DALJINU, DIZAJNERSKI NAČIN RAZMIŠLJANJA, RUČNO I DIGITALNO SKICIRANJE, PRIVATNOST