INTERNATIONAL CONFERENCE ON ENGINEERING AND PRODUCT DESIGN EDUCATION
6 & 7 SEPTEMBER 2018, DYSON SCHOOL OF DESIGN ENGINEERING, IMPERIAL COLLEGE, LONDON, UNITED KINGDOM

DESIGN THEORY PEDAGOGY AS A CONCEPTUALISING PRACTICE

Lise Amy HANSEN
The Oslo School of Architecture and Design, Norway

ABSTRACT
This paper will present a case where designers are educated through a studio approach to position and develop their own design knowledge and theory building. The paper discusses a selection of exercises that bring theory close to product design student practice by connecting the materialising, body-based and future-shaping practice that is design, to that of more lecture-based learning such as in disciplines of design history and design theory. It looks at how design theory may be conceptualised and taught in a design school, to challenge how design thinking is increasingly taught with limited design studio practice. As design practice is increasingly abstracted to design thinking and theorising, from the body to the head so to speak, what is at stake when we ignore the designing, culture-building and connecting body? The paper will reflect on some of these concerns and considerations in building conceptual structures to support design as practice and design as theory building. The paper makes a contribution to a theorising design discourse by examining some underpinnings of theory building relevant for design and to position embodied, material knowledge from studio work as a necessary experience for understanding and incorporating theory in design futures.

Keywords: Design, Practice, Practise, Theory, Pedagogy

1 INTRODUCTION

This paper discusses how designers are educated primarily through an explorative and iterative studio practice and how one may relate and expand upon this practice to further their own design knowledge and theory building. In this sense, this paper argues for an approach to concept-building in which the body is acknowledged as playing a fundamental part: the particularities of a body as seen in its preferences and perspectives. Objects - as making materials or as technological tools - lets us do things we cannot do without them, apart from with huge efforts involved [1]. These ‘things’ we know how to do with things - the particular embodied practice of developing a field through doing, as a way to build knowledge - is a central dynamic element in other body-based practices such as dance and theatre. In such fields the rehearsing body is seen as pivotal in enabling expressions and communications, in creating the artefact, event or performance. In turn, and through its training, the body itself is also altered [2]. Yet in design, the body is seen as a constant - and to a certain extent a given - in cultural production [3].

Recent findings in neuroscience has shown that when we observe activities, we do not merely mirror these, rather we understand activities differently if we have ourselves performed or acted them out [4]. And my argument hinges on this slow, incremental, in part tedious repeated and performed rehearsal of skills. Here the body has a central role, also in designing, especially by recognising the body as a construct of culture, ability, age, gender and more [5]. I argue that such repeated activities or exercises taught in art school inform design practice, in choice of method and material, choice of technique and tools [6]. Richard Sennett refers to such an approach as ‘engaged material consciousness: we become particularly engaged in what we can change’ [7]. In other words, design is not a cognitive blueprint which is merely executed; rather it is an engaged, performed and a personal activity [8].

It is with this background I position a teaching of design theory whereby an enactive approach is essential to integrate design critique, theory and history. How to teach design critique, theory and history in such a way that it connects to and crucially, is perceived that it can be built upon, by the design student?

2 MAKING CONCEPTS & MATERIALISING THEORY

The connections between physical enactments and abstracted concepts have been discussed in fields further removed from the body; such as mathematics. Rotman proposes that a simple function of mathematics – counting – is an ordering procedure that makes sense as it is enacted, taking into account the style and manner of a number's role and function as we count with reference to our fingers [9]. In this sense, Rotman challenges the view that numbers are objective and abstract entities, and he urges us to reconsider whose fingers are doing the counting. In other words, an abstract entity – the number – may be considered as a culturally performed convention. Taking such an approach to building design knowledge, positions design as a practice whereby material representations are fundamental to the creation and composition of those concepts that design practice performs.

Furthermore, material representations not only mediate, but can also be understood as an embodied enactment – a materiality constituted through an act of performance, of being materialised in some contingent way. Lenoir has argued that communication technologies are fundamental to building concepts as they mediate and provide stable representations with which to theorise [10]. In this sense, media and materialisations constitute more than a supplement to theoretical concepts.

In this sense, abstract concepts may have a physical origin as well as performative element. How to position the designer in such theoretical workings? Redström proposes that we consider theory not as stable and constant, but as 'something unfolding and acted as much as articulated, inherently fluid and transitional'. He further foregrounds the role of the designer by identifying the use of combinations of fluid terms to articulate issues and the definition of complex concepts through practice as "building blocks for creating conceptual structures to support design" [11]. Biggs and Karlssons work on artistic design researchers furthers this drawing out of theory from within design. Their study resulted in identifying non-traditional aspects of research, such as the instrumental role of the individual creator in the research, a constructive perspective on the phenomena of experience related to the research and in turn, how these are construed and communicated through artefacts and creative production [12].

Together this makes a case for considering the teaching of theory as an exercise in knowing and implementing, going from taking in to acting out by making and relating [13]. Positioning theory in this manner matters also for how designers relate to theory and engage in a discourse on design.

3 WRITING & EVALUATING CONCEPTS

In my approach to teaching theory I favour knowing over knowledge, as something situated, necessarily partial and embodied, as well as historically and culturally qualified and modified. This shift in focus from knowledge and epistemology to the conditions of knowing is a political move, as well as intellectual and practical move [14]. This is relevant to position students' perception of the role of theory and their writing. Pritchard et al. has studied art, media and design courses and found variation in student's perceptions of relevance as key to their understanding of the context of the academic task: the dissertation. The study suggests that for these courses the attitudes to the dissertation were linked to the students' "understandings of the institutional relationship between theory and practice" [15].

This is pertinent, as for design, student's grasp of theory is traditionally evaluated by way of their dissertation, or in a portfolio of writings. Lockheart has questioned this role of writing in Higher Education (HE) design courses. Through her work on the misconceptions that The Coldstream Reports [16] recommended the humanities style academic thesis or dissertation, she questions how these assumptions have caused writing to be used as an examinable measure rather than as a tool for learning. However, avoiding or sidelining writing would make it more troublesome for students, she argues, rather engaging with it and defining it with and for our students allows practitioners to identify and embody the nature of writing for creative practice. If design practice then, is taken as a baseline starting point, she reasons, writing practice can "bridge theoretical and contextual thinking about art, design, craft, politics, culture and philosophy coming from the students" [17].

Next I will describe and discuss some exercises in an HE design theory course whereby the students positioned and worked on building conceptual structures to support design as practice and design as theory building. Taken together the tasks be seen as *bridging concepts,* as a form of generative and solution-oriented knowledge intended to bridge the gap between general theories and particular design challenges [18], where the aim of the concepts is to enable theoretical frameworks to inform design. However, the aim of these exercises is for the studio-based design frameworks to activate the design students' perception of theory, thus one could better describe these as *bridging exercises.*

4 EXERCISING CONCEPTS

Below I describe the set of exercises that aim to enable students to position themselves in an expansive field of design, with an increasing set of theories pertinent to their studies. These were conducted with second and third year students on a BA Product Design course, in the course module Design Theory.

4.1 Enactive themes

The students were asked use their current studio practice as a starting point and to map out all the parameters that could be relevant for a designer in a creative project. They worked in a set of groups of five to six students. On a large sheet of paper, they were asked to mark what is at stake when making design decision as part of the making process. They were requested to do this by way of parameters as dichotomies, such as expensive or cheap, one-off or mass-produced, ugly or beautiful etc. They were to draw out as many of these parameters as they could possibly think of, based on the discussions that arose within each group. In a second part of the exercise, they were to identify the overriding themes or fields that could describe some groupings of the parameters, such as economics, ethics, aesthetics and more (see Figure 1). The students gained an overview and extensive number of fields of knowledge they will have to relate to in their work as designers. It also gave them a way of working out and articulating what matters, to them.

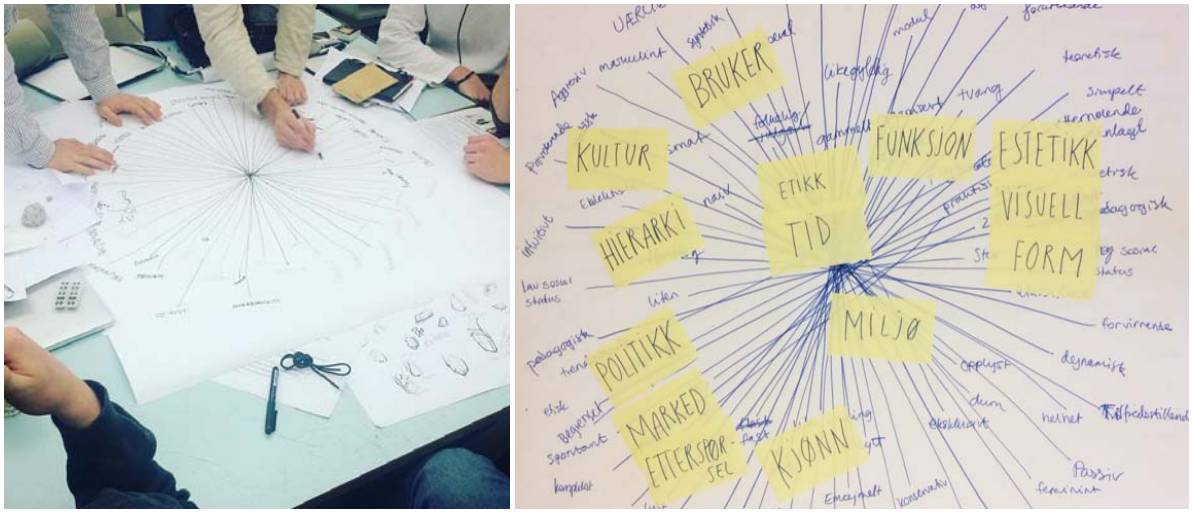

Figure 1. Student examples: themes and topics at play

4.2 Articulating methods

In a second exercise, the students were asked to draw a timeline for a project, typically three to four weeks for a design studio project, again in groups of five to six students. The exercise was set at a time when the students were halfway in a studio project, thus were in the middle of navigating workshops, methods and design decisions. Below the timeline they were to mark out in succession, the various aspects of the project that required a decision, e.g. choice of user group, of materials, references, tools, forms etc. For each decision, they were asked to identify the ways in which they were to make the different choices, and write these out above the timeline (Figure 2). The aim here was to create an awareness of the variety of methods and the need to articulate the many methods (even if one only used it partly) and in particular the many underlying assumptions and related theories at play in each set of decisions. The exercise resulted in debates that made the groups articulate and question the design process in a wider context to whether the choices would answer the brief as well. The students found these valuable, to clarify what each decision could entail and how it could be made otherwise. It also allowed the students to speculate whilst working themselves backwards to the beginning of the project, particularly regarding realistic timings, which benefitted the planning of reminder of the project. It also enabled the students in making a case for positioning themselves as designers beyond this single brief and discusses higher-order organising principles as part of this process.

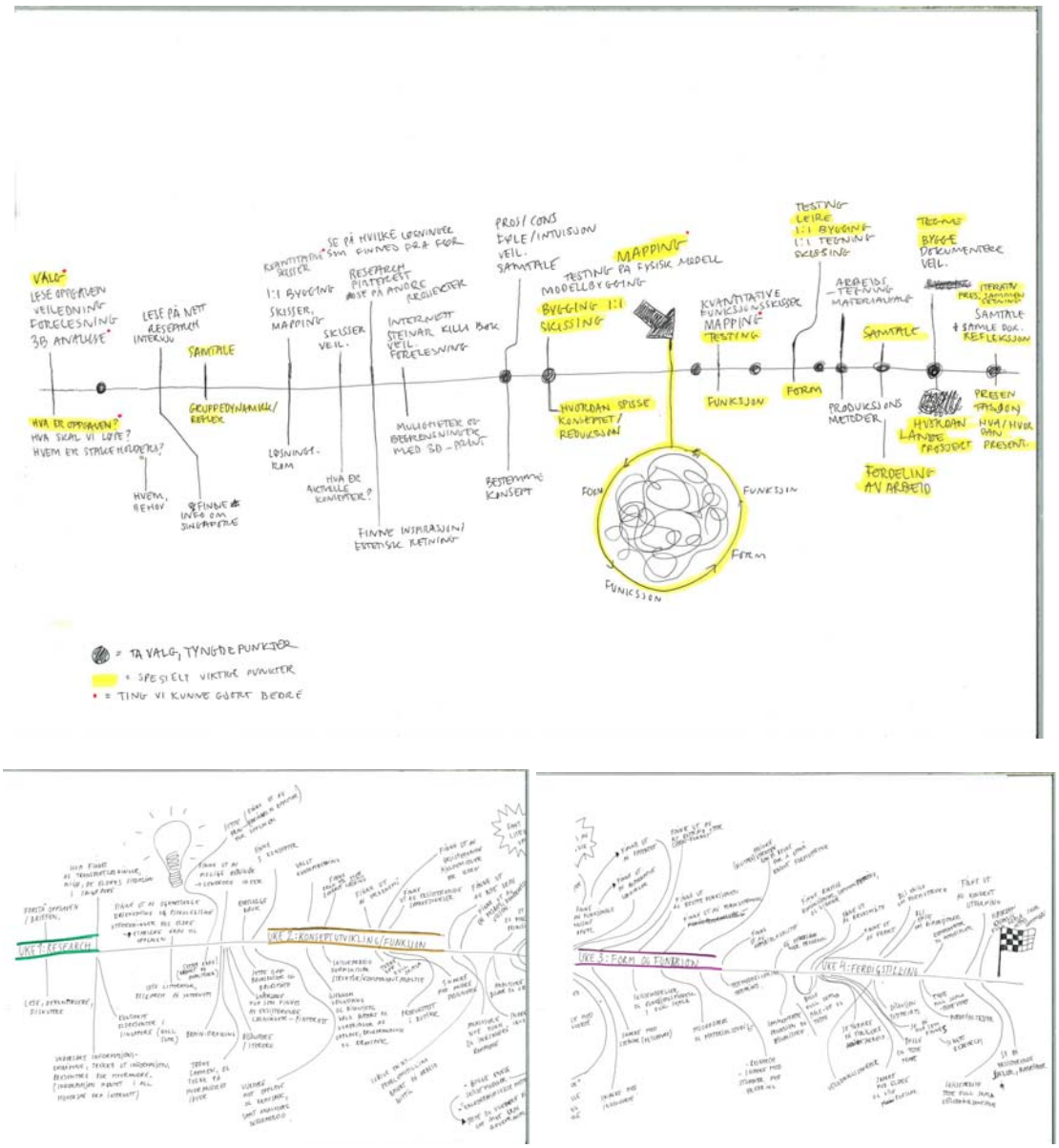

Figure 2. Student examples: Design decisions and methods timeline

4.3 Performing arguments

In the third exercise I will describe, the students had each been asked to formulate a topical sentence which could then be discussed from at least to opposing views. The students then voted on the three topics that they would most like to debate. They were randomly divided into three groups, given one of the three topics and within each group assigned to a ‘for’ and ‘against’ group. They were then given time to research their ‘side’ and topic and were asked to create an argumentation in collaboration. They were told that they would be evaluated on logic and facts, with a bonus for performed persuasiveness. As the subject themes were chosen by the students themselves, the topics were relevant and by being asked to perform this in front of each other a competitive streak seemed to be activated.

Figure 3. Student examples: Debating choices and schedule.

The exercise – which had a short time span – nevertheless created robust arguments from both points of view, for and against. The students were 'freed' from having to personally stand for what they were arguing and could play around with how they presented the facts and in turn tweak the argumentation to win the debate. The debate was set in their design studio and whoever was not debating was voting in who they sided with. It made for lively debates and in the performance both sides built their argumentation beyond what they had worked out beforehand. After the debate the students were asked to reflect on the material they now had at hand, and encouraged to make use of discussions with their fellow students and engage in design debates. This work led on to course teachings on how to invite critique into design processes, from users to design experts, to experts from other disciplines etc.

5 ENACTING THEORY

The exercises described above bring design decisions and their underlying knowledge frameworks into a cognitive space, whilst acknowledging that they came from practicing design. The aim of these exercises was to show students the ways in which they can connect and articulate their own perspectives and preferences to a wider theoretical context. Each of the exercises uses personal design experience to form a theoretical stance. All the exercises also generated discussion and critique by way of the variety in the contributions and solutions. This variation in itself gives valuable insight; the personal point of view matters in an expansive profession. Today the term 'design' appear in an extensive number of curricula today, and the designer's role is vastly expanded into areas where negotiation, collaboration and specialisations require the design field to increasingly articulate what previously could remain tacit, implicit or only come to expression in the designed artefact itself.

I found that in developing a critical stance to design theory and by starting with what they already knew, the students became engaged in articulating their tacit knowledge and underlying assumptions. Through the exercises based on their design practice, the relevant concepts and their theoretical subjects were teased out, in particular by using current projects to find a way to evaluate the relevance and application of methods. From the set of exercises, the value of how they frame and perform their activities when they design were made to matter, not only for the resulting design but for wider societal matters and for themselves. Students reported that abstracting, articulating and debating and contextualising were valuable exercises, also for their creative design studio work. I suggest that exercises such as the ones described above, are vital for the students to position theory in relation to design practice. The exercises allow for the students to use their own practice a starting point with which to both critique what they know and find ways to expand on what they know.

These exercises are examples of an enactive approach to design theory. Taken together and built on by studio work as well as 'traditional' theory teaching (lectures, essays and readings) there may be entry points for design students' future engagements with theory. By bringing theory into the studio work, it allows for a design student to go from knowing about relevant theory to understanding its relevance. By using exercises like this in the teaching of theory, the exercises become tools for laying out and making available intellectual spaces and abstracted concepts in the studio work. In particular, it activates a mode of being perceptually attuned to the design process, beyond producing the design and the (often) implicit theoretical frameworks. In other words, the aim is in giving the student a critical stance to how their knowledge is relative to them and the situation they find themselves in. In turn, this

offers an articulated and informed starting point to expand upon: “We enact our environments thanks to our skilful engagement with them. We enact our perceptual world by attuning ourselves to it” [19].
The paper has discussed some concerns and considerations of building theoretical knowledge from practice, through incorporating, rehearsing and practicing knowledge building as part of the design studio work. We have described some exercises that aim to position design students in having agency in marking out what theories are relevant for their practice and develop a personal, practice-informed stance in building and articulating design knowledge.

REFERENCES

[1] Kirsh, D. Embodied cognition and the magical future of interaction design. *ACM Transactions on Computer-Human Interaction (TOCHI),* 2013, 20 (1): 1-30.

[2] Noland, C. *Agency & embodiment.* 2009. Cambridge, Massachusetts: Harvard University Press.

[3] Wegenstein, B. Body. In Mitchell, W. J. T. and Hansen, M. B. N. (eds.) *Critical terms for media studies,* 2010, pp. 19-34. (Chicago: University of Chicago Press).

[4] Cross, E. S. and Ticini L. F. Neuroaesthetics and beyond. *Phenomenology and the cognitive sciences,* 2012, 11(1), 5-16.

[5] Keay-Bright, W. ReacTickles: playful interaction with information communication technologies. *International Journal of Arts and Technology,* 2009, 2(1-2), 133-151.

[6] Paim, N. Bergmark, E. and Gisel, C. *Taking a Line for a Walk: Assignments in design education.* 2016 (Spector Books).

[7] Sennett, R. *The craftsman.* 2008 (New Haven, Conn.: Yale University Press).

[8] Ingold, T. (ed.) *Redrawing anthropology: materials, movements, lines*. 2011 (Farnham: Ashgate).

[9] Rotman, B. *Mathematics as sign: writing, imagining, counting.* 2000 (Stanford, Calif.: Stanford University Press).

[10] Lenoir, T. *Inscribing science: scientific texts and the materiality of communication.* 1998 (Stanford, Calif.: Stanford University Press).

[11] Redström, J. *Making design theory*. 2017 (MIT Press).

[12] Biggs M, and Karlsson H (eds). *The Routledge companion to research in the arts.* 2010 (Routledge).

[13] Ingold, T. (ed.) *Redrawing anthropology: materials, movements, lines*. 2011 (Farnham: Ashgate).

[14] Drucker, J. *Graphesis: Visual forms of knowledge production.* 2014 (Harvard University Press).

[15] Pritchard T, Heatly R and Trigwell K. How art, media and design students conceive of the relation between the dissertation and practice. *Art, Design & Communication in Higher Education*. 2005, 4(1):5-15.

[16] Lockheart, J. Why should art and design students write: Objectifying Writing, Identifying Praxis. In *The Theory and Practice of 'Theory and Practice' in Art and Design HE* 17 may 2017 (Chelsea College of Arts, UAL) http://events.arts.ac.uk/event/2017/5/17/The-Theory-and-Practice-of-Theory-and-Practice-in-Art-and-Design-HE/

[17] Lockheart, J. *Doing language together: collaborative writing practice for design teams in higher education.* Unpublished PhD, 2016 (Goldsmiths, UAL).

[18] Dalsgaard, P. Pragmatism and design thinking. *International Journal of Design*, 2014, 8(1), 143-155.

[19] Noë, A. Making worlds available. In Gehm, S. et al. (eds.) *Knowledge in motion: perspectives on artistic and scientific research in dance,* 2007, pp. 121-127 (Bielefeld: Transcript).