

NESTED PERSPECTIVES ON DESIGN-DRIVEN RESEARCH

CLAUS PEDER PEDERSEN

AARHUS SCHOOL OF ARCHITECTURE

At the Aarhus School of Architecture (AAA), we aim to support our doctoral fellows in developing confidence in their design skills and competencies as research tools. Drawing on seminal texts such as Nigel Cross' 'Designerly Ways of Knowing' (Cross, 1982), we invite fellows to reflect on the knowledge contributions made possible by design. Cross makes distinctions between the synthesising solution-focused problem-solving of designers and the analytic approach to generalised problem-solving imposed by scientists. He points out that designers focus on satisfactory solutions for specific contexts rather than general solutions for global contexts. That designers deal with 'wicked problems' without ideal or correct solutions. That they tend to act on available and piecemeal information rather than from a state-of-the-arts understanding of existing knowledge. That they often work simultaneously on problem-defining and problem-solving. Following Cross' argumentation, we help fellows develop a critical awareness of design-driven research's limitations. But, first of all, we aim to strengthen their confidence in using design as a research methodology. We encourage them to start designing as soon as possible and reflect on the knowledge contribution as the research develops, rather than construct a comprehensive intellectual framework before starting to design.

To guide the research development, we ask fellows to engage with the design from different perspectives throughout the doctorate. At times the fellow may be fully immersed in the design process without being concerned with the overall research outcome. At other times the fellow might step back from the actual design to reflect on the design process or outcome. Or, contextualise design activities with practices or theoretical positions that resonate with the work. The 'zooming' in and out of the design process opens up nested reflections and meta-perspectives that informs and qualifies the research.

AAA's participation in the ADAPT-r Marie Curie ITN has informed the focus of nested perspectives on design-driven research. The ADAPT-r network invited experienced and peer-recognised practitioners to enrol in doctorates to research their practice. The fellows mapped the development of their practice and identified key moments and projects. They explored their motivations and design processes, identified relevant

peers and studied the reception of their work. Often, these findings would challenge the fellow's long-held narratives and beliefs about their practices. It would lead them to change their working methods or take up new projects that would form new layers in the research process. The research would weave these nested perspectives to intriguing insights into creative practices as unfolded in 'What if Design Practice Matters?' (Blythe & Schaik, 2013)

Siv Helene Stangeland's PhD *Wilding and weaving: a relational design practice* (Stangeland, 2017) is one of the most exciting examples of practice-based research that we have hosted at AAA. Siv is one of the founding partners in the architectural practice Helen & Hard that has gained peer recognition for its socially conscious and playful engagement in sustainable, user-involving architecture. She enrolled in a practice-driven doctorate through the ADAPT-r ITN to examine the practice's design DNA. She aimed to identify the practice's core values and beliefs to share responsibilities with a growing staff. Siv mapped the practice and selected projects through hand-drawn maps and diagrams. The investigation gradually led her to focus on the act of drawing, and she developed a series of processual and explorative drawings. The shift of focus from the practice to personal expression might seem counterproductive to the research's initial aims. However, it led her to reflect with more depth on the practice's design processes and her contribution. She simultaneously developed the explorative drawings as research tools, and she re-drew selected projects to uncover new relations and intentions. The process also led her to experiment with drawing sessions at the practice and develop new ways of presenting projects to clients. Siv's doctoral dissertation documented the research process: the mapping and analysis of the practice and selected projects, the immersive creative drawing process and the changes in the practice stimulated by the research. It also wove the different research strands together to a meta-reflective narrative.

The PhD of Siv Helen Stangeland forms a particular instance of design-driven research based on an already established practice. However, it also makes sense to approach doctoral projects that do not build on an already established practice in similar ways. 'Ways of Drifting – 5 Methods of Experimentation in Research through

Design' (Krogh, Markussen & Bang, 2015) argues for an approach to research by design that recognises the importance of an open-ended approach to design experiments. The authors study ten PhDs from the design field and identify five knowledge production typologies through design experimentation: 'accumulative', 'comparative', 'serial', 'expansive' and 'probing'. The typologies operate according to different logics and rationalities. The 'accumulative' typology repeats the same design experiment to understand better and refine a particular approach. The 'expansive' typology modifies one experiment's focus or methodology as starting points for the next to cover new ground. The 'probing' typology is perhaps the most radical as substantially different design experiments probe a field without a unifying systematic. The authors argue that all the typologies are legitimate ways of carrying out design experiments in a research context. However, to qualify as research, mapping and reflection are needed to link the design experiments to explain how they contribute to knowledge as an aggregation.

Anders Kruse Aagaard's PhD 'Bespoke Fragments: Materials and digital fabrication in architectural design' (Kruse Aagaard, 2017) is not included in 'Ways of Drifting' but represents a probing typology. Anders' research focused on digital manufacturing and materiality at the intersection of craft and technology. He carried out a diverse range of design experiments framed by an open matrix organised by machining techniques (subtractive, additive and transformative) and material properties (wood, steel and concrete). The experiments grew out of hands-on experiences with different digital manufacturing tools and typical building materials. Some experiments were left as initial explorations, while others were further developed and combined to more complex assemblages. However, they all fed different perspectives into a general discussion of control and uncertainty in digital design and manufacturing.

At AAA, we have experienced that consciously shifting between different perspectives on designing provide a constructive mental framework for design-driven research. It allows fellows to adapt and develop their design competencies in a research context. When used successfully, it helps fellows disseminate rich and complex insights into designerly knowledge without losing the design works' individuality and specificity.

References:

- Blythe, R. & Schaik, L. (2013). What if Design Practice Matters? In: Murray F. (eds) Design Research in Architecture: an overview, Ashgate.
- Cross, N. (2006). Designerly ways of knowing, Springer.
- Frayling, C. (1993). Royal College of Art Research Papers Vol 1 No 1 1993/4: Research in Art and Design, Royal College of Art.
- Krogh P.G., Markussen T., Bang A.L. (2015) Ways of Drifting—Five Methods of Experimentation in Research Through Design. In: Chakrabarti A. (eds) ICoRD'15 – Research into Design Across Boundaries Volume 1. Smart Innovation, Systems and Technologies, vol 34, Springer, New Delhi.
- Kruse Aagaard, Anders. (2017). Bespoke Fragments: Materials and digital fabrication in architectural design, Arkitekt skolens Forlag.
- Stangeland, Siv Helene. (2017). Wilding and weaving: a relational design practice, Arkitekt skolen Aarhus.