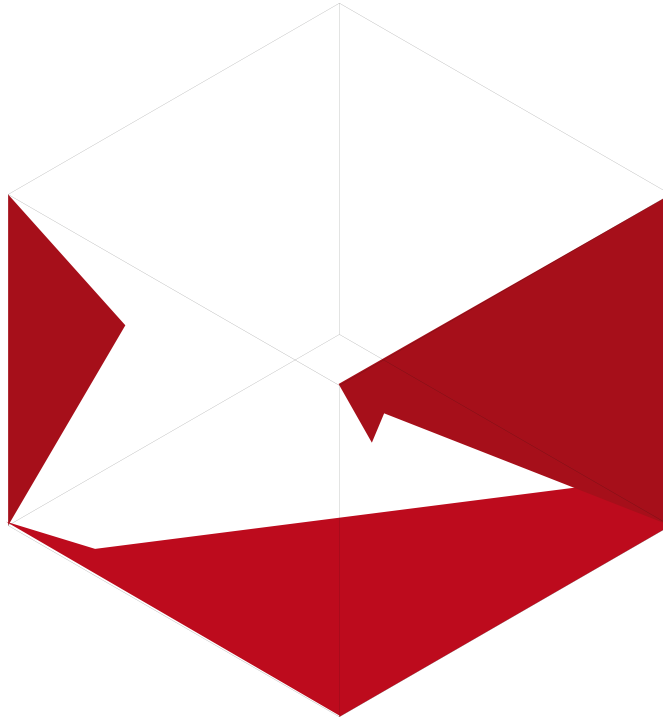


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Editorial / Drawing as a Research Tool:
Making and understanding in art and design practice

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The Discursive Context

Since 2005, *The Art of Research* conference series has provided a forum for sharing and discussing research in the fields of art and design. The core notion behind the series is that the spheres of knowledge, material thinking, and experience that are fostered through creative work have long and extensive histories, but the term 'research' has only been used for less than three decades to describe the intersections between these spheres in a formal, academic sense. The debate concerning research in this context is still very much alive as we can see from the gradual proliferation of publications related to practice-led or artistic research (e.g., Hannula et al., 2005; Mäkelä & Routarinne, 2006; Elkins, 2009; Nimkulrat & O'Riley, 2009; Biggs & Karlson, 2011; Koskinen et al., 2011; Van Schaik et al., 2012). Practices, methods, and examples relating to the discourse have started to be documented and disseminated. This has also enabled profound and critical discussion around the topic. The idea shared between these publications can be pinned down to the understanding of research as a simultaneously creative and rationalizing process, at the heart of which lies the undeniable curiosity of the artist or designer (Mäkelä & O'Riley, 2012, p. 8).

This special issue is based on *The Art of Research* conference that took place in Helsinki at the Aalto University, School of Arts, Design and Architecture, 28-29 November 2012. The topic of the conference, *making, reflecting and understanding*, also provides a framework for this special issue. The theme has developed in recognition of the fact that while the power of artistic imagination is widely recognized generally, in academia the exploration of artistic and designerly methods of knowledge acquisition has only just begun to gain acceptance in other disciplines and professional communities of researchers and practitioners. Building on a contemporary discourse regarding the notion of practice-led research, the *Art of Research Conference 2012* aimed to examine the relations that can be constructed between making and critical reflection, and how these enable artistic and designerly practices to be characterized as research.

Different fields of creative practice construct these relations in a number of different ways, for example: through material or conceptual form; in methodological approach; the use of tools and specific skills. The emphasis of the conference was to explore how these fields might relate to and influence each other, and the selected papers in this issue acknowledge the work currently being done to extend this exploration into other disciplines, such as medicine, architecture, and education. The papers demonstrate diverse ways in which creative practice—drawing in particular—has been adapted and utilized in the research domain of subjects beyond art and design.

Drawing As An Activity

A brief discussion on the activity of drawing within different creative disciplines of art and design will lay the ground for our introduction to the selection of papers in this issue. It is important to acknowledge the many varied approaches to sense-making through drawing, including artistically oriented research, where art and design production plays a central role. This special volume has been restricted to four authors and an editorial contribution, a limited collection, in order to focus the range of ideas about drawing into an assertive declaration on the material thinking and sense-making importance of drawing as a research approach in a time when academic quality assessment regimes, technological advances, and pedagogical shifts are threatening this traditional mode of discovery. The best value to be obtained from this volume is to read all the papers in order of presentation, starting with the editorial text.



Drawing, like dancing, is an exploratory, sense-making process where the observer, and the thing or idea observed, are inextricably bound together in a physical, material space/time relationship. Drawing is both an active and subjective engagement, valued by artistic researchers, not only for what may finally be encrypted in the drawing, but more significantly for the access provided through drawing to thinking that is close to the unconscious. Because of the complex nature of drawing activity and its wide applications, the value of drawing as a research method has only recently been acknowledged. This has resulted in fruitful and profound discussions, that are taking place currently both inside the art and design academic community as well as outside in the wider scientific communities.

The making of drawings has been studied within different scientific disciplines, social sciences in particular, often with a focused interest in artists, designers, and architects as "creative" subjects. Drawing has been seen as a tool that characterizes these disciplines and possibly even as a mysterious gift that needs to be explained. Over the years, our scientific understanding of drawing has become more nuanced. Studies relating to drawing range from an examination of the social context of using drawings and models (Henderson, 1998; Bucciarelli, 1994; Schön, 1983), psychological and cognitive approaches that connect drawing processes to underlying modes of thinking (Arnheim, 1969; Goel, 1995) and drawing research itself (Garner, 2008; Thistlewood et al., 1992).

For designers, drawing has been characterized as an emerging dialogue between the individual and the drawing (Schön, 1983). Self-generated sketches are defined as extensions of mental imagery, from which meanings and new insight are "excavated" (Goldschmidt, 2003). Architectural design drawings do not always depict the physical shapes to be built (Suwa & Twersky, 1997). They may explore other designerly or aesthetic functions, such as: people flow and the navigation of space; the ambience of natural and artificial lighting; potential ventilation; the experience of the textural environment; and the use of interior or exterior spaces.

Research in design fields, such as industrial design, furniture and spatial design, and service design, has been in the position to assimilate research outcomes from various other disciplines. This unfolding of associated thinking processes has been studied within design, where drawing is situated as part of the broader context of generative and explorative design approaches (Lawson, 2004 and 2006; Cross, 1997 and 2006; Rosenman & Gero, 1993). Drawing serves many purposes and takes on diverse meanings throughout a design process, ranging from exploratory concept drawings to outcome illustrations (Lawson, 2004). It would be a mistake to pinpoint one exact task for drawing within the design process. Design drawing is nowadays seen as part of the overall idea-creation and sense-making of any collaborative process in design. The term sketching is increasingly used as a metaphor for diverse activities so that its meaning is not always limited to drawing (Buxton, 2007). Drawing is increasingly understood in a broad sense as an activity that facilitates communication for creative proposes.

The social scientist Donald Schön (1983, pp. 80-81) considered verbal and non-verbal expressions as analogous: drawing and talking are parallel ways of designing, and together make up what he calls the "language of design". According to Schön, drawing reveals qualities and relations unimagined beforehand and, thus, the actions of hands are able to function as experiments (*ibid.*, p. 157). This notion has been reinforced by contemporary researchers like Nigel Cross, whose view on the role of drawing in design thinking (2011) resonates with Schön's. Cross (2011, pp. 239-241) proposed that even a designer working alone can "act as a team of one", talking to him or herself and thinking out loud implicitly through drawing in the design process. The potential of drawing has also been studied by the cognitive scientist Vinod Goel (1995) who researched how designers work and, in particular, what kind of visual representations they generate during the design process. According to Goel, designers produce and manipulate the representation of the artefact rather than the artefact itself: all the reasoning and decision making is done through the construction and manipulation of models of various sorts, including for example, different kinds of sketches and mock-ups (*ibid.*, p. 128).



Goel (1995, p. 134) proposes that designers are confident that there are significant differences in the various systems of representation and that these differences affect thinking processes. He suggests that, in certain phases in a design process, thoughts and their representations need to be 'intersecting, undifferentiated and ambiguous' (ibid., p. 189). In addition, he implies that freehand sketches play an important role in the creative, explorative, open-ended phase of problem solving as the sketches facilitate lateral transformations and prevent early crystallization of design development (ibid., p. 218). Pei et al. (2010) also observe that sketches have various roles in the progressive stages of new product development carried out collaboratively between industrial designers and engineering designers.

One of the most challenging aspects of studying creative processes is that artists, craftspeople, and designers can have complex thoughts and beliefs about their own way of working. They do not often know explicitly where their ideas originate from, as they may have inherited their approaches from studio masters, colleagues, and literature. Schön (1983, p. 68) states that the practitioner construes theory out of each unique case of personal practice, regardless of established theories. He also acknowledges that, over time, the practitioner's conceptual framing of his or her own work can become refined or even overturned.

Craft researcher Pirita Seitamaa-Hakkarainen (2000; Seitamaa-Hakkarainen & Hakkarainen 2004) finds that textile artists often work to satisfy a self-defined goal and thus characterizes the work of textile artists as a "dual space search". While the first space concerns the creative process of exploring the characteristic and potential material properties of textile, the second space is related to composition, which can be considered open to more personal, interpretative approaches. According to Seitamaa-Hakkarainen, these spaces are explored not only through materials but also through sketching. It is likely that similar observations might be made of other design and artistic practices. In this respect, material exploration and personal expressions seem to form a space where the act of drawing can be productively engaged.

The variety of contemporary research into drawing has demonstrated that drawing is an activity that has almost boundless potential applications and roles within design and artistic practices. However, the relationship between these three modes, drawing, design and artistic practice, and research also raises questions about the position of drawing in research per se and opens an interesting sphere of investigation into the ways that drawing may support research.

Drawing as a Driving Force of Artistic Research

As discussed above, sketching as method of processing and communicating design ideas has already been examined in numerous forums. However, much of the emphasis of research in the area has been focused on three primary uses of design drawing, i.e. concept sketching, presentation drawing, and drawing for manufacture (Rodgers et al., 2000). Ings (2013, p. 121) proposes that through a process of immersion the designer can also engage in a drawing method he calls "enstasic drawing". He suggests that in design research, enstasis might refer to an induced interior state of selfhood where one dwells in the creative potential of what is not yet formed (ibid.). In this respect, rather than being a form of communication, enstasic drawing may be used to stimulate thinking, describing a state and process used for developing creative thoughts (ibid., p. 125). Drawing in a slow, reflective process encourages the designer's thinking to become contemplative, so that the designer and the drawing flexibly converse with each other to generate ideas. This conversation is metaphorical rather than literal, as it takes place "in tone and weight, emphasis and potential" (ibid., p. 121). In this way, thinking is not prescribed by the territorial limitations of words: images operate with a more flexible grammar and one is able to connect possibilities in comparatively abstract and intangible ways.

Within this concept, Ings refers to artist and design theorist Terry Rosenberg who describes this kind of drawing process as a state "where one thinks with and through drawing to make discoveries, find new possibilities that give course to ideas and help fashion their eventual material or conceptual form" (Rosenberg, 2008, p. 109). Rosenberg's view implies that drawing is



thinking and acting between the not yet formed and the formed (ibid., p. 114). Following this train of thought, Ings (2013, p. 121) suggests that in a state of enstasi one is not outside of one's self, but inside one's self, and the drawing process is not for the creation of an image, but for the exploration of the potential of a thought. Furthermore, Rosenberg (2008, pp. 109-112) refers to the same state by noting that the process of drawing is simultaneously mental and physical and that the known and the un-known are drawn to and through each other. "We are drawn into making drawing and the drawing draws us into further thinking," says Rosenberg (2008, p. 110).

Painter Tarja Pitkänen-Walter (2006, p. 151) describes the same moment when painting is considered a process, where something that is "too fragile to make it into [an] image" seeks to find expression. To be able to achieve this moment, the artist has to develop the ability to give up planning and give shape to something that is more heterogeneous than an already-existing notion (ibid., p. 121). The experiences of hesitation and groping are elemental parts of this process, where the artist as the creator of a new image has to sidestep and offer the emergent space to a new picture that seems to be creating itself (ibid., p. 135). During this process, the artist is guided to the source of the unconscious by unexpected, casual surprises and sensuousness that he or she discovers, and expresses with figures, forms, colours, structures, and textures (ibid., p. 101).

"Drawing is an example of multi-sensory thoughtful engagement with the world", says Susan Kozel, professor of new media who works with bodies, ideas, and technologies (Kozel, 2012, p. 209). She explains that when one encounters the unknown, one will first attempt to describe it, rather than hold it within an existing conceptual structure (ibid.). Similarly, artist Matt Mullican (2008, p. 8) observes that one cannot answer but only demonstrate the question (the unknown), and the artist demonstrates the unknown through drawing. Drawing in this sense acts as a guide for the one who draws to contemplate, describe, or demonstrate a particular idea. In a research context, a study begins with a research question or topic that requires appropriate methodological approaches to demonstrate and describe it before the research findings can emerge. The methodological orientations assumed will inevitably influence the emergence of the specific findings, the new creative interpretations and new material forms. In the artistic research context, researchers are typically artists or designers who possess a well-developed drawing ability. Hence, it is natural that artistic researchers are predisposed to use drawing methods in their research processes

A skill such as drawing is not uniform and monolithic, but richly informed by our other experiences and conceptions—all of which are brought into the drawing process. Papers in this special issue will illuminate the richness of experiences of drawing and how drawing may drive a variety of research projects in art, design, architecture, and education.

Papers in this Special Issue

The submissions included here have been selected for their insight into ways in which drawing as an artistic process contributes to research inquiry. Common to all the papers are: 1) the researcher's aspiration to use drawing as a driving force of research; 2) an intention to advance our theoretical and philosophical perspectives on different topics, and 3) work that reflects the broader potential role of the contemporary artist-researcher. Thus our interest is not simply to discuss how to advance the skill of drawing in the most usual sense. This special issue does not focus on artistic outcomes as exhibited pieces, but rather on how the process of drawing and various artefacts that entail the idea of drawing can be utilized in the research context to enable making, reflecting and understanding of the topics being researched in art and design and beyond.

The special issue consists of four papers that have been selected from double-blind peer reviewed papers presented at two conferences: three papers from *The Art of Research 2012* and one from the *DRS Special Interest Group on Experiential Knowledge (EKSIG) 2013*. These papers have been developed further by the authors, in consultation with the journal's editorial team, and they have undergone the *Studies in Material Thinking* double-blind peer review process. The paper by Kaisu Koski is based on her keynote presentation



from *The Art of Research* conference, where she discussed what might happen when the act of drawing is utilized in the field of medicine. With this approach the paper sets the tone for the whole special issue, as all the papers are concerned with the idea of drawing and, in particular, how the act of drawing might be utilised and applied in other domains and disciplines.

In **Mapping the Female Reproduction System**, Kaisu Koski shows how she utilizes drawing in her art-based research in two ways. On the one hand, drawing is a method for collecting data and, on the other, it is a means to elaborate and disseminate the data further. The paper discusses a case where she collected anatomy drawings from 62 medical students. The students were asked to visualize the female reproduction system and, in addition, their understanding of the conception process. The enquiry resulted in a diverse collection of students' drawings that Koski then analyzed and clustered. These are also the drawings that Koski 'draws with' in the later steps of her study.

In Koski's art-based research, the artist-researcher goes beyond written analysis and uses multiple forms for interpreting and making sense of the data. In the case presented, she merged the data, i.e. student's drawings, with her own artistic expression through drawing. According to Koski, this provided several new interpretations or readings of the collected images. This resulted in two animated films: one is a flythrough of students' drawings and the other is a cartoon-like animation that reveals the creation process based on the selected drawings.

In her paper **Reflect | React | Redraw**, Judith Dobler presents work from an ongoing process of initiating and reflecting on different types of drawing tasks. The project demonstrates that a variety of drawing exercises can be used to examine and bring into light different aspects of drawing—producing surprise moments for reflection and supplying the researcher with new phenomena. Her process has qualities of a sustained inquiry that suggests different theoretical perspectives from which to interpret the drawing outcomes. The kind of approach being developed in this work would be valuable not only as a working method for the practically minded designer or artist, but also for the researcher who is intent on developing a rigorous drawing, seeing and observation methodology as a component of their research orientation.

For example, by using different modifications to the life drawing approach, the author was able to steer the drawing tasks to fuel discussion on the nature of the human perceptual apparatus and the role of eyes and hands in the drawing process. Repetition, superimposition, and blind drawing were some of the techniques used to tease out qualities that would not easily reveal themselves from an examination of ordinary life drawings. Overall, this artistic research project has demonstrated clearly how the act of observing and drawing can become a way to examine and reflect on the nature of drawing by means of the drawing activity itself.

In the paper **Painting Architecture: Towards a Practice-Led Research Methodology**, Agnieszka Mlicka opens up a discussion on the possibility of using the particularities of a painterly approach to examine and reflect on architectural practice and the role of painting as a process rather than outcome. This is distinct from using drawings and paintings to represent or generate architectural form. The investigative position is made possible by appreciating architecture as a broad domain of human activity that includes various negotiations and conflicts between live and inert constituents.

The project was actualized by the researcher's engagement in a series of dialogical sessions themed around architectural practice, where the painting was used as a way to both visualize the ensuing discussion and to propel it forward. The encounters were developed with sensitivity to the fact that "painting" can be considered in terms of artistic outcome, specific practice and material process. By bringing these aspects directly to the situation and also allowing the painting to act as an outcome delivered to the discussants, the researcher was able to produce experiences that helped to reflect on the painting project from these three angles. The result is a critical examination of the ways insight can be produced through the project and some of the challenges such an approach entails.



Drawing is explored from a design education perspective in Mari Lecanides-Arnott's paper **Drawing as "learning to see": A strategy to locate the "white/open space" that encourages intuitive thinking in designers**. The paper focuses on verifying and demonstrating the essence of developing drawing or "thinking through making" skills in the basic education of designers, through an examination of a design foundation course in South Africa that Lecanides-Arnott has taught since 2003. Through drawing, students can "learn to see" and develop the self-awareness and self-confidence necessary for effectively participating in the iterative design process while maintaining generative self-criticism. Lecanides-Arnott claims that when students learn the opposing approaches of gesture and contour drawing well, they are better able to engage effectively, not only in the subject of drawing itself but also in studio-based design subjects that entail drawing phases for generating ideas and evaluating possible outcomes and iterations.

The paper considers visualizing ideas through drawing as a successful strategy to locate the "white/open space" of possibility, which encourages intuitive thinking and enables the imaginative leaps that are so necessary for creative design action and innovative change to emerge. It shows the way in which the novice designer's perceptual, expressive, and analytical abilities are developed through the use of drawing as "learning to see". Lecanides-Arnott argues for the retention of all modes of thinking through drawing based on traditional hand skills, new digital technologies, self-expression, and comparative analysis through the group critique. All of these learning modes contribute to the development of critical thinking and should remain as core ideas in design education.

Final remarks

Drawing has been one of the basic skills possessed by artists and designers throughout history and in all parts of the world. It has played a crucial role in the creation processes of most art and design practices. When drawing is re-examined in the research context, where it is now being performed as a definitive activity within art and design research, it can be understood in its functionality as a driving force that moves the research inquiry forward. The authors of papers in this special issue have demonstrated through their research projects, critical thinking, and analysis that drawing is valued not only as a skill or an ability needed for their art and design practices as artist, designer, architect, or educator, but also a research activity performed in order to investigate a research topic or to answer a research question.

Artistic research represents the voice of designers and artists who make drawings as part of the process by which they become more acutely aware of the underpinnings of their personal work and in turn can communicate with others these new levels of discernment. Artistic and practice-led research can, in this sense, both supply their own fields with new knowledge and insight and complement and challenge the views offered by other scientific domains.



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