

<http://dx.doi.org/10.7577/formakademisk.1461>

Maarit Mäkelä

Personal exploration: Serendipity and intentionality as altering positions in a creative process

Abstract

Artists and designers have recently begun to take an active role in contextualising the creative process in relation to their practice. Thus, understanding how the creative mind proceeds has been supplemented with knowledge obtained inside the creative process. In this way, the spheres of knowledge, material thinking and experience that are fostered through creative work have become entangled and embedded as elemental parts of the research process. This article is based on documentation and reflection of the author's creative practice in contemporary ceramic art at the beginning of 2015. The article discusses how the creative process proceeds by alternating between two positions: serendipity and intentionality. By describing the different phases of the process, it reveals the interplay between the diverse range of activities and how these gradually construct the creative process.

Keywords: ceramics, creativity, documentation, reflection, personal knowledge, walking

Introduction

The exploration of knowledge, partly through making, has recently brought a new dimension to research in the creative fields. In addition to producing artefacts, practitioner-researchers also document, reflect and contextualise their related creative process as well as its outcomes (Mäkelä & Latva-Somppi, 2011, p. 39). In this way, the spheres of knowledge, material thinking and experience that are fostered through creative work have become fundamentally entangled (Mäkelä & O'Riley, 2012, p. 8) and embedded as elemental parts of this form of research. Currently, these kinds of research approaches – relying fundamentally on researchers' subjective knowledge – are developed under a wide range of trends, such as practice-based, practice-led and artistic research, as well as some sub-trends that are embodied within the notion of constructive design research (Koskinen, Zimmerman, Binder, Redström, & Wensveen, 2011). These trends support the idea of a practitioner-researcher who is, on one hand, the executor or facilitator of the creative process and, on the other hand, the one who reflects on the entire process:

The whole issue is ... about the self-reflective and self-critical processes of a person taking part in the production of meaning within contemporary art, and in such a fashion that it communicates where it is coming from, where it stands at this precise moment, and where it wants to go. (Hannula, Suoranta, & Vaden, 2005, p. 10)

Social scientist Donald Schön (1991) discusses the essence of reflective practice and proposes that our knowing is in action, ordinarily in tacit form and implicit in our patterns of action. He maintains that there are two kinds of reflection that take place at different stages of action. The first, reflection-in-action, indicates a process in which practitioners encounter an unusual situation and have to take a different course of action from that which they usually do or originally planned (Schön, 1991, pp. 128–136). The second, reflection-on-action, includes an analytical process in which practitioners reflect on their thinking, actions and feelings in connection with particular events in their professional practice (Schön, 1991, pp. 275–283; see also Mäkelä & Nimkulrat, 2011, p. 2). Artists and designers have recently begun to further explore these ideas in the context of their own practice. In this way, understanding how the

creative mind proceeds has been supplemented with the knowledge attained inside the creative process.

To enable this reflection, practitioner-researchers have begun documenting steps relating to their professional practice in diverse ways. In these studies, documentation is used as a research tool for capturing reflection *on* and *in* action (Mäkelä & Nimkulrat, 2011, p. 8). When documenting their creative processes, they consciously reflect on their current experiences during the process (reflection-in-action) and on the documented experiences once the entire process has been completed (reflection-on-action). In this way, documentation can assist in capturing the experiential knowledge in the creative process so that what the practitioner learns from within her practice becomes explicit, accessible and communicable (Scrivener, 2002, p. 25).

Social anthropologist Sarah Pink (2011, p. 271-272) discusses the use of visual recording as a way of representing elements of the experience and the memories and imageries related to it. Furthermore, she observes that there are certain forms of knowledge that cannot be understood simply through observation but instead only by being engaged in a practice *per se*. The idea has been applied by several practitioner-researchers who have recorded their practical endeavours by means of photographs (e.g. Ings, 2014; Nimkulrat, 2012) and video (e.g. Groth, Mäkelä & Seitamaa-Hakkarainen, 2015). The visual recordings have also included sketches. For example, industrial designer Owain Pedgley (2007, p. 480-481) filled systematically preformatted diary pages in order to capture his own design practice through sketches and written diary notes. According to him, a diary that is allied to reflective practice is well-suited for capturing one's own design activity on a macroscopic level. He encourages the further exploration of whether diaries would also be suitable for illuminating specific subjects, such as creativity and discovery.

In this article, I follow these tendencies and use my own creative practice to gain knowledge, insight and understanding of the creative process. Creative work can be considered an interplay between serendipity and intentionality (Finke, 1996) in the sense that it is based, on one hand, on accidental discoveries and, on the other, on systematic thinking and doing. The leading question of this study is as follows: How does the creative process proceed in alternating between positions of serendipity and intentionality?

The documents gathered during the course of the study – photographs, written diary notes and sketches – serve as representations of the related creative process. In addition, the documentation served as a research tool for capturing my experiences and memories when looking back on the physical actions, embodied experiences and related thoughts that took place during the process. The article begins with a description of how the creative process began to evolve, followed by a description of the different stages of the creative process that took place either at the studio or in the surrounding countryside. The paper concludes with a discussion of how walking came to be an important part of the creative journey that directed the entire process.

The evolving creative process

As a ceramic artist, I am fascinated by the geological features of a given place, including the local soil, rock and sand reserves. These materials create a fundamental base for my art practice. I would even consider their use as a strategy through which I construct meanings embodied in the works. In discussing the connection between aesthetics and ethics, American aesthete Marcia Eaton (1997, p. 361) recommends a conceptual interdependence between these spheres: 'In order to understand morality and thus become a mature moral person, one's action must have both appropriate style and content, and this requires aesthetic skills'. According to Eaton, in this position, neither the aesthetic nor the ethical is prior. Even so, she advocates a role for

ethics that defies traditional aesthetics, thus calling for an aesthetics that does not exclude ethical, ecological or environmental concerns (Brand, 1999, p. 5).

Accordingly, political theorist Jane Bennett calls for a deeper understanding and recognition of the linkage between nature, ethics and affect. Through the concept of *vital materiality*, she refers to a force that cannot be separated from matter. A craftsperson, or anyone else intimate with things, senses a force which is manifested as a propensity or tendency trapped in the matter (Bennett, 2010, p. 56). This force has an impact for the creator, and the direction in which it takes her depends on the other forces, emotions and bodies that are present in the process. As a consequence of this, the craftsperson develops a deep understanding of the ‘vitality’ of a specific material, and this leads to a productive ‘collaboration’ with it (Bennett, 2010, p. 60; see also Mäkelä & Löytönen, 2015, pp. 179-180). This idea is at the heart of my own artistic practice. I believe that my handling of the earth-based materials invites me into a certain collaboration with them.

Even though my roots are in Finland, the context of this case study is Australasia, where my 2015 artistic practice occurred. The stay preceded a short preparatory trip to New Zealand. During this stay, I collected some samples of the local soil. This was not a planned endeavour but rather an unintentional occurrence that happened during my walks in the local surroundings – the forests and beaches in Auckland (Figure 1). The walks resulted in a collection of tiny gatherings of ochre, yellow sandstone and black sand. The most unique was the black sand as this was something that I had not seen before.



Figure 1: Black sand in Te Henga, Auckland, October 2014. Photo: Maarit Mäkelä.

When I returned to Finland, I put the sand into a ball mill with water, and after 20 hours, this had transformed into a black liquid – a combination of water and powdered sand (Figure 4a). This liquid was one of the few things I took with me when I finally left Finland for my journey, which was to last the entire year of 2015. Only while writing this article did I understand that all of the above-described experiences and experiments were important as they gradually formed the way I proceeded in my work when I arrived in Australasia.

In one of my earlier writings with my co-author Tim O’Riley (Mäkelä & O’Riley, 2012), we introduced the notion of serendipitous moments – the point at which intention and accident collide. We noted that creative practice often entails an amalgamation of things discovered by

chance. Commonly, ‘these chance occurrences become discoveries through an intentional perception, one that betrays at times an unspoken or tacit intention or, on other occasions, an overt and definable method and goal’ (Mäkelä & O’Riley, 2012, p. 10). I consider that my own work as an artist is a dialogue between serendipity and intentionality; it is partly based on experiments and accidental discoveries, partly on careful planning and systematic making.

Encountering the local natural environment

The year started with two months as an artist in residence in Tasmania. I arrived by boat from Melbourne, thus moving from the mainland of Australia to an island. After this, I drove slowly through the island towards the opposite coast where Hobart, and the studio I was going to work in for the next two months, was situated. The drive followed the east coast, and during the journey, I walked in the forests and on the beaches, trying to understand the nature of the land I had arrived in. Just before reaching Hobart, I had a walk on one of the nearby beaches. This walk is recorded in my working diary as follows:

The bedrock at the northern end of the beach was amazingly yellow, and water had carved its artworks in it. The earth was easily eroded, and some pieces of soil had fallen onto the beach. The pieces formed huge boulders that the water had sculpted. Some of the stones had broken further into smaller pieces. When I touched one of them, it was evident that I could easily crush it into powder. Thus, I decided to take some small pieces of the stone with me. (Working diary 26 January 2015)

In addition to the yellow sandstone (Figure 2a), I gathered small red stones from the beach. Together with the black sand, these formed the collection on which I based my first material experiments.



Figure 2: (a) Yellow sandstone in Orford, January 2015; (b) gathering ochre samples on Bruny Island, February 2015. Photos: Pertti Mäkelä.

The first encounters with the local natural environment had a fundamental influence on my evolving creative practice. On one hand, I was impressed by it, especially the earth-based materials such as ochre and sandstone. On the other hand, I was fascinated by the important role the land played in the local history, that is, the history of the Aboriginal people who had lived in the area for at least 40,000 years. I soon learnt that Tasmania was once brimming with

walking tracks, well-signposted with related historical information. Many of these tracks followed the original paths that the Aboriginals had put to use.

Circumambulatory knowing

Social anthropologist Tim Ingold (2004, p. 331–333) considers walking itself to be a form of circumambulatory knowing and, as such, a highly intelligent activity. Not only does he propose that through the continuous and never-ending process of walking, landscapes are woven into life but, also vice versa, that lives are woven into the landscapes. For me, walking is a multisensory experience during which the body perceives its surroundings through a diversity of senses. In this experience, seeing, hearing and smelling are combined with a moving body that adapts its movements to the surrounding landform. I enjoy this continuing movement that stimulates the entire body, especially when walking in an environment where the landform is not stable.

During longer walks, my mind travels freely, following sometimes surprising mental routes. I cherish this state of mind and do not usually interrupt the state by, for example, taking photographs or recording diary notes. However, while in Tasmania, and as the importance of walking gradually increased, my relationship with this documentation changed. First, I asked my partner to document certain moments and subjects during the walks that I found important. I also started to document some issues with my mobile phone camera.

During my stay in Hobart, walking became an elemental part of my everyday practice as I walked to my studio daily. In addition, during the weekends, I enjoyed the longer tracks. While walking, I imperceptibly moved to the mode of discovery, both in the sense of immaterial ideas and physical materials. The primary purpose of my walks was not to gather materials for my artistic practice; however, during most of the walks, I ended up collecting samples for my emerging collection of local soils (Figure 2b).

In Hobart, my practice proceeded initially by following two avenues, one being material experiments and the other drawing and painting. As these practices progressed, the two avenues finally encountered and melded into each other, resulting in a diversity of outcomes. I shall now discuss how the two avenues proceeded as a holistic, embodied making process in which making, thinking and walking practices served as catalysts for the entire creative process.

Experiments with soil

Soon after arriving in Hobart, I went for a short walk on the local beach. In addition to the working diary, I had with me some colours, brushes and one of the red stones I had recently found. I also carried with me some bark from a eucalyptus tree as these were the first ‘treasures’ I had picked up during my stay in Tasmania. At some stage of the walk, I sat down on the seashore and started to paint the forms and colours I found on the inside of the bark. The result was an abstract painting, and I decided to experiment by adding some colour that I was able to scratch from the red stone to the picture. With the water, this resulted in a bright ochre colour that seemed to adhere to the paper (Figure 3a).

I continued my painting experiments with the stones. The next steps were undertaken in my studio, which was situated in an abandoned ceramic workshop belonging to the Hobart College. It had the basic equipment to proceed with the experiments although most of the specific tools and machines had been removed when the workshop was closed. However, with a mortar, water and manual labour, I was able to transform the yellow stone and one of the red stones into a liquid form.

These liquids were used when I continued to paint with the earth-based materials I had collected. In the next step of the process, ordinary watercolours were abandoned, and all of the subsequently used colours were extracted from the earth samples collected (Figure 3b).

Following this, I painted figures with these colours. The result was surprisingly good, and I decided to follow this avenue in the painting experiments.



Figure 3: Painting experiments with (a) watercolours and stone and (b) stones. Maarit Mäkelä's working diary 21-22 January 2015. Photos: Peter Whyte.

At that time, I made my first test pieces in clay. In Hobart, my host was a ceramist, and she supplied me with recycled clay from a project she was currently working on. From this clay, which was white porcelain, I made test pieces that were then dipped in the three liquids (Figure 4). The test pieces were fired up to 1,260 °C. From these results, I could see that the black sand had smoothly melted on the top of the clay, and the colour varied from black to dark brown. The two other tests were different as the structure of the liquid was more granular. In addition, the colours had lost their intensity. Based on these results, I decided to continue my experiments in ceramics mainly with the black sand.



Figure 4: (a) Black sand, (b) red stone and (c) yellow sandstone ground and mixed with water, January 2015. Photos: Maarit Mäkelä.

I continued by adding paper to the same porcelain that I had already used in the test pieces. This enabled me to make very thin porcelain slabs that I could then use as canvases for my 'ceramic paintings'. Before I left Finland, I had visited the exhibition of Norwegian artist Edward Munch. I was deeply touched by his images, and I had taken some postcards with me that I had purchased from the exhibition. Two of these cards served as inspiration for my first painting experiments – both in paper and ceramics. In ceramics, the first images were painted with black sand and were inspired by his lithography *Lady with the Brooch* (1903).

Because of the success of the experiments, I continued by experimenting on the same topic in the form of double-sided ‘ceramic paintings’. This resulted in pieces in which the final picture evolved on the top of the ceramics when light passed through the slab, making visible the white lines that had been painted on top of it. On the other side of the slab was the painting with black sand. The final image evolved on the top of the transparent slab with the aid of light as this combined these images into a single entity (Figure 5). At this stage, I felt that I was still too closely attached to Edward Munch’s original figure and wanted to bestow my own touch on the image. I tried to modify the hair of the figure but could not get rid of the round forms that are typical of Munch’s expression.



Figure 5: Double-sided painting on porcelain: (a) front painting with black sand and porcelain; (b) back painting with yellow stone; (c) front of the slab with proper lighting, February 2015. Photos: Peter Whyte.

Finding my personal visual expression

While working in the studio, I continued my walks in the local natural environment. I also walked daily to the studio, which was situated at the summit of Mount Nelson. I often followed a forest track to get there. The walk took one and a half hours, and during this time, I enjoyed the various views, sounds, smells and landforms that the track offered. One day, I had a longer walk to the nearby higher mountain. The track proceeded through forest towards low bushes, and thus, I was able to enjoy a full view of my surroundings. It was only during this walk that I finally understood the shape of the mountains (Figure 6).

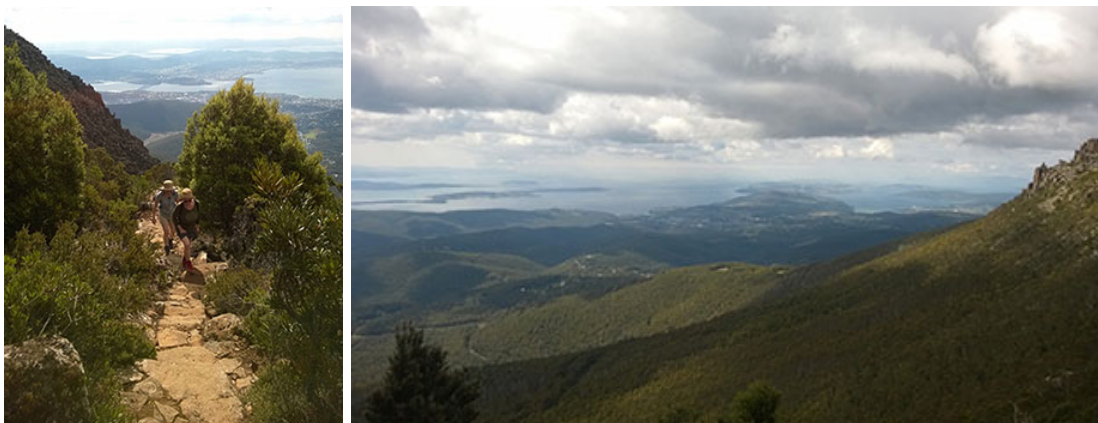


Figure 6: (a) Walking towards the summit of Mount Wellington; (b) scenery from Mount Wellington, February 2015. Photos: Pertti Mäkelä.

The following day, I walked along the familiar route to my studio through the forest in the rain. By combining the sound of the rain and the previous day’s views, I suddenly understood that I

was experiencing a different sensation of the forest. It was no longer only the immediate surrounding vegetal environment that I sensed, but instead, I became aware of the shape of the entire landscape, which consisted of countless rivulets through which the water was finding its way downward.

This multisensory experience corresponds to Tim Ingold's (2000; see also Pink, 2011, p. 266) proposal in terms of the relation between the eyes and ears: as the sensitive surfaces of the skin, these senses should not be understood as separate keyboards for the registration of sensation. Instead, 'they are to be understood as integral parts of the body that is continually on the move, actively exploring the environment in the practical pursuit of its life in the world' (Ingold, 2000, p. 261). Furthermore, he considers looking, listening and touching not as separate activities but, on the contrary, as different facets of the same activity – that of the whole organism in its environment. For me, the event in the forest was an important embodied experience during which I finally understood how the hair of the female figure should be painted. When I reached the studio, I painted the inner scenery on the paper (Figure 7).



Figure 7: Earth painting in the studio inspired by Edward Munch's lithography (figure on right), February 2015. Photo: Maarit Mäkelä.

This was not a unique endeavour as it is fairly common that when processing new ideas, artists and designers use drawing as a method for availing the process (e.g. Goel, 1995). For example, filmmaker Welby Ings (2014) refers to his own creative process in a discussion regarding his methodical use of drawing and interior dwelling to reach potentials beyond those available to the thinking prescribed by the written word. Within this construct – which he calls embodied drawing – the hand and pencil, as realising agents in the act of drawing, serve as tools transforming the image from the mind to the tangible world. As architect Juhani Pallasmaa (2009, p. 17) puts it: 'the pencil... is a bridge between the imagining mind and the image that appears on the sheet of paper'. In my own case, the act of drawing finally brought me to a satisfactory solution: the inspirational source, which is Munch's *Lady with the Brooch*, had led me to a new image that I could consider 'my own'. This was also the image that was later transformed onto the surface of two stones when I started my experiment with lithography.

The possibility of making lithography printing occurred because during my stay in Hobart, I was also collaborating with the University of Tasmania. The College of the Arts had

an excellent printmaking studio, and this was the environment in which I conducted my first experiments with lithography. The image was made on top of a huge stone and then etched into it, and the colour was then applied to the top of the image and printed onto the paper. For the lithography, I applied the same theme as in the painting described above.

As the result was successful, I also wanted to try out whether my earth-based colours could be applied to lithography. As the time available to work in the printmaking studio was limited, I was encouraged to combine the lithography with my painting practice. This enabled me to proceed quickly. As a result, before printing the images with the lithography stone with the standard black colour, I painted the papers with my earth-based colours. I documented the following process in the working diary:

Before printing, I painted the six sheets of paper with the earth colours I had made. The paintings were very wet and simple. While making them, I had in my mind the image that was going to be printed on top of these sheets ... The image from the lithography stone and paintings settled down by itself where they belonged, and the outcome was much more than I had anticipated (Figure 8). (Working diary 4 March 2015)

The printmaking was undertaken at the end of my visit to Tasmania, and soon after that, I moved with these ideas, experiences and experiments further to New Zealand where the process continued.



Figure 8: *Ms Wellington*, lithography and earth painting, March 2015. Photo: Peter Whyte.

Conclusions

In Tasmania, my evolving creative process featured both serendipitous moments and intentional making. Cognitive scientist Ronald Finke (1996, p. 391) considers this interplay and proposes that the cognitive processes that underline creative thinking and imagination involve both conscious control and spontaneity. Thus, he believes that creativity is neither fully controlled

and structured nor completely unplanned and unstructured. Accordingly, creative ideas, concepts and images can result either from the intentional working of the human mind or from its spontaneous, intuitive qualities. When considering the exploratory processes that occur outside an individual's awareness or consciousness, he or she can often sense meaningful directions of exploration in seeking to solve problems – even though he or she might not be aware of the actual reasons underlying these choices (Bowers, Regehr, Balthazard, & Parker, 1990). Shooler, Ohlsson and Srooks (1993, p. 166) maintain that it is important to not seek to verbalise or overregulate exploratory processes when searching for insights into how to solve problems.

During my creative process, I identified one problem that needed to be solved before I was able to attain the desired outcome: I had to find a new design for the hair of the female figure I was working on, which was inspired by Edward Munch's original image. Regardless of several conscious attempts to solve the problem with different media that already belonged to the sphere of my professional practice – that is by drawing, painting and ceramics – I remained unsatisfied with the result. Finally, I decided to place the problem aside as I knew this to be the way I usually found solutions to the most challenging problems I encountered. In this way, I relied on the natural emergence of a problem solution.

In my case, even if I decided not to allocate any effort to solving the problem, the unsolved problem became part of my everyday life – in a way, it dwelled constantly within me. Finke (1996, p. 390-391) clarifies the situation by noting that creative thinkers have a tendency to become deeply involved in a new idea, and they freely explore its creative implications. Therefore, they are good at seeing remote associations and connections, particularly those that cut across traditional conceptual boundaries. Even if I was not consciously aware, my embodied mind was constantly working with the problem.

In this case, walking emerged as an elemental part of my everyday practice: it gave direction to the entire creative process and was also the embodied practice per se through which the recently-emerged problem was solved. In the beginning, I began to familiarise myself with my new surroundings by walking. This led to the first 'discoveries' and sample gatherings in the form of the yellow sandstone. I simultaneously began to document the places where the gatherings occurred. Even when the materials found were further processed in the studio, the walks continued. Thus, walking and the local environment formed an important part of my creative practice, during which I not only gathered materials and inspiration for my art practice, but also proceeded with my related ideas and concepts. Finally, the solution to the problem that had occurred during the creative process was closely linked to the walking practice: I had identified the problem prior to a long walk a day before the solution occurred, and furthermore, the original insight that led to the solution appeared while walking in the rain.

It can be concluded that in my case, walking constructed an embodied practice that underpinned the creative process. In addition to walking, the process featured other embodied activities occurring mainly in the studio. These activities included painting, printmaking, ceramics and the related material experiments. This article has discussed the different phases of the creative process, revealing the interplay between the diversity of activities and how this gradually constructed and advanced the creative process. It has presented the author's personal creative process as a dialogue, featuring on one hand experiments and accidental discoveries and, on the other, careful planning and systematic making. The process proceeded as a dialogue between the action and the reflections of action that resulted in new works of art.

Acknowledgements

I am grateful to the ceramist Belinda Winkler for inviting me to share her studio on the premises of Hobart College. I am also thankful for the opportunity to proceed with my experiments in the printing studio at the University of Tasmania, College of the Arts, and especially to the Head of the studio, Jan Hogan, who kindly aided me with my experiments with lithography. Finally, I would like to praise my colleague Welby Ings from Auckland University of Technology for his insightful comments. This research is part of the Handling Mind research project funded by the Academy of Finland (project number 266125).

Maarit Mäkelä

Professor of Design

Aalto University School of Arts, Design and Architecture, Department of Design

Email address: maarit.makela@aalto.fi

References

- Bennett, J. (2010). *Vibrant matter – A political ecology of things*. London: Duke University.
- Brand, P. Z. (1999). Beauty matters. *The Journal of Aesthetics and Criticism*, 57(1), 1–10.
- Bowers, K. S., Regehr, G., Balthazard, C., & Parker, K. (1990). Intuition in the context of discovery. *Cognitive Psychology*, 22, 72–110.
- Eaton, M. M. (1997). Aesthetics: The mother of ethics? *The Journal of Aesthetics and Art Criticism* 55(4), 354–364.
- Finke, R. A. (1996). Imagery, creativity, and emergent structure. *Consciousness and Cognition* 5, 381–393.
- Goel, V. (1995). *Sketches of thought*. Cambridge, MA: Massachusetts Institute of Technology.
- Groth, C., Mäkelä, M., & Seitamaa-Hakkarainen, P. (2015). Tactile augmentation: A multimethod for capturing experiential knowledge. *Craft Research*, 6(1), 59–83.
- Hannula, M., Suoranta, J., & Vaden, T. (2005). *Artistic research – Theories, methods and practices*. Helsinki and Gothenburg: Academy of Fine Arts, Finland and University of Gothenburg, Sweden.
- Ingold, T. (2000). *The perception of the environment*. London: Routledge.
- Ingold, T. (2004). Culture on the ground. The world perceived through the feet. *Journal of Material Culture*, 9(3), 315–340.
- Ings, W. (2014). Embodied drawing: A case study in narrative design. *Artifact*, 3(2), 2.1–2.10.
- Koskinen, I., Zimmerman, J., Binder, T., Redström, J., & Wensveen, S. (2011). *Design research through practice: From the lab, field, and showroom*. London: Elsevier.
- Mäkelä, M. (2007). Knowing through making: The role of the artefact in practice-led research. *Knowledge, Technology & Policy*, 20(3), 157–163.
- Mäkelä, M., & Latva-Somppi, R. (2011). Crafting narratives: Using historical context as a reflexive tool. *Craft Research*, 2, 37–60.
- Mäkelä, M., & Nimkulrat, N. (2011). *Reflection and documentation in practice-led design research*. Paper presented at the 4th Nordic Design Research Conference NORDES, 29–31 May 2011, Helsinki, Finland. Retrieved from <http://www.nordes.org>
- Mäkelä, M., & Löytönen, T. (2015). Enhancing material experimentation in design education. In R. Vande Zande, E. Bohemia, & I. Digranes (Eds.), *Proceedings of the 3rd International Conference for Design Education Researchers, Learn x Design Vol. 1*, (pp. 168–183). Helsinki: Aalto University.
- Mäkelä, M., & O’Riley, T. (2012). Serendipity and Intentionality. In M. Mäkelä & T. O’Riley (Eds.), *The art of research II. Process, results and contribution* (pp. 6–32). Helsinki: Aalto University.
- Nimkulrat, N. (2012). Hands on intellect: Integrating craft practice into design research. *International Journal of Design*, 6(3).
- Pallasmaa, J. (2009). *The thinking hand. Existential and embodied wisdom in architecture*. Chichester: John Wiley & Sons.
- Pedgley, O. (2007). Capturing and analyzing own design activity. *Design Studies*, 28(5), 463–483.
- Pink, S. (2011). Multimodality, multisensority and ethnographic knowing: Social semiotics and the phenomenology of perception. *Qualitative Research*, 11(3), 261–276.
- Schooler, J. W., Ohlsson, S., & Brooks, K. (1993). Thoughts beyond words: When language overshadows insight. *Journal of Experimental Psychology*, 122(2), 166–183.
- Schön, D. (1991/1983). *The reflective practitioner. How professionals think in action*. New York: Basic Books.
- Scrivener, S. (2002). Characterising creative production doctoral projects in art and design. *International Journal of Design Sciences and Technology*, 10(2), 25–44.