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REFLECTION AND DOCUMENTATION IN PRACTICE-LED DESIGN RESEARCH

MAARIT MÄKELÄ
AALTO UNIVERSITY SCHOOL OF ART AND
DESIGN, DEPARTMENT OF DESIGN
MAARIT.MAKELA@AALTO.FI

NITHIKUL NIMKULRAT
LOUGHBOROUGH UNIVERSITY,
SCHOOL OF THE ARTS
N.NIMKULRAT@LBOU.AC.UK

ABSTRACT

Practice-led research has been under debate for nearly three decades. One of the major issues of this form of research concerns how the researchers who are also the artists/designers can reflect on and document their creative processes in relation to their research topic. In this paper, we review and discuss reflection and documentation in practice-led design research through four doctoral research projects completed at the Aalto University School of Art and Design. The cases come from craft related fields, i.e. from ceramics, glass, jewellery and textiles. This paper poses twofold questions: firstly, it examines the role of creative processes and their outputs in practice-led research context and secondly, the role of documentation and reflection of the creative processes and products in the studies. In conclusion, documentation in practice-led research context can function as conscious reflection *on* and *in* action. Any means of documentation, whether it is diary writing, photographing or sketching, can serve as a mode of reflection.

INTRODUCTION

In the last three decades, practising artists, designers and craft people have taken up an innovative position as

practitioner-researchers in academia by conducting academic research *through* their own practice. The notion of research through practice can be traced back to the separation made by Christopher Frayling (1993) in his examination of the role of art and design in relation to research practices. He divides design research into three different categories depending on the focus and mode of the given task. *By research into art and design* he implies that art and design is the subject of inquiry to be looked into, a phenomenon to be studied from the outside. *By research through art and design* he proposes that the creative production can be understood as a research method. *By research for art and design* he refers to a kind of research in which the end product is an artefact within which the thinking that led to its making is embodied (Frayling 1993, 5; see also Scrivener 2009, 71). The exploration of knowledge partly through making artefacts has brought a new dimension to design research as the practitioner-researcher not only creates an artefact but also documents, contextualises and interprets the artefacts as well as the process of making them. This way of creation allows practitioners to elicit reflection in and on their working processes (Schön 1991) that can be considered new knowledge gained in action.

This form of gaining knowledge sheds light on the development of design research to include the traditional basis of the field, the creative practice, with a focus on the sources of knowledge – the making process and the maker. The interchangeable labels of research with the inclusion of creative practice embrace ‘practice-based’, ‘practice-led’ and ‘artistic research’. The core concept of research labelled with these terms is the relationship between the researcher who is simultaneously an artist/designer, whose artistic process and production of artefacts is the target of the reflection. “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, 10).

This paper reviews and discusses practice-led design research through four completed doctoral research projects from craft related fields, that is, in the fields of ceramics, glass, jewellery and textiles. Each case includes both creative processes and exhibitions executed by a researcher who is also a practising artist/designer. The paper poses twofold questions. On the one hand, it tackles the role of creative processes and their outputs in practice-led research context. On the other, it examines the role of documentation and reflection of the creative processes and products in these studies.

In this paper, we will first update the debate on the discourse of practice-led research in art and design, focusing especially to discussion related to documentation and reflection. After this, we will closely examine four individual craft-oriented cases, focusing on the creative process and ways in which each artist-researcher documented, reflected and contextualised their own creative processes. Finally, we will compare these cases' creative processes' documentation, reflection and contextualisation in the context of practice-led research.

ROLE OF REFLECTION AND DOCUMENTATION IN PRACTICE-LED RESEARCH

Contemporary art and design practices are saturated with theoretical knowledge as artists and designers integrate research methods into their creative processes in diverse ways. Indeed, the field of academic research, qualitative research in particular, seems to be able to offer methods, theories and approaches that are able to constructively support creative production. Kathrin Busch (2009, 1-2) points out that the attempt to implement a theory-derived and practice-based concept of art within an academic curriculum initially was a response to a changed notion of art – one in which art and theory has become entangled in multiple ways and focused on the production of knowledge rather than that of artworks. This trend clearly changed the concept of art from what had been traditionally/historically taught at art academies to the development of processes and capacities. This is also one reason why the desire to institutionally anchor work methods based on investigation or research to new curricula is arguably justified. Further, Busch (ibid.) states that artistic appropriation of knowledge evokes different and independent forms of knowledge that might be seen to complement or stand as an equivalent to scientific research. However, the spectrum of that which can be substantiated under the term 'artistic research' is broad and certainly not homogeneous. In this paper, we use 'practice-led research' as an umbrella term that includes ongoing discussions under the terms 'practice-led', 'art-led' and 'artistic research'.

Mika Elo (2007, 14) reminds that a reflective relationship with tradition has been part of the practice of art at least since the age of Romanticism, just as in the natural sciences the production of 'epistemic things' has been intimately connected to experimental praxis throughout the modern era. Similarly, Ilpo Koskinen (2009, 11) states that research in social and so-called 'hard' sciences has shown for more than 40 years that practice is its basis. In this regard, the notion of 'practice-led' or 'artistic research' is not new – the new element is rather the connection between the art practice and the university institution. What is essential concerning this paper is a result of this connection, i.e. a new actor that has appeared on the stage – a practitioner who reflects upon her/his own practice.

Stephen Scrivener, who has discussed the relationship between art and design practice and research in his several writings, argues for design research where research and design are coupled and calls the foundation for such practice 'research-in-design' (Scrivener 2000, 392). This corresponds to social scientist Donald Schön's theory of design as reflective practice (Schön 1991). According to Schön, our knowing is in action, ordinary in tacit form and implicit in our patterns of action. *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 have originally planned (ibid., 128-136). On the other hand, *reflection-on-action* includes an analytical process in which practitioners reflect their thinking, actions, and feelings in connection to particular events in their professional practice (ibid., 275-283).

Scrivener (2000, 392) emphasises that in each 'research-in-design' project, systematic documentation and reflection-in-action play a crucial role as it supports the practitioner's reflections and brings greater objectivity – or critical subjectivity – to the whole project. He also stresses the importance of the final reflection – or *reflection-on-action* in Schön's term – that it should reflect not only on the project as a whole in relation to the issues explored but also on the goals attained and the reflection in action and practice itself. The reflection conducted in different stages of the project provides primary material for communicating and sharing of the experiences related to the project. According to Scrivener (2002, 25) documentation can assist in capturing the experiential knowledge in creative process, so that what the practitioner learns from within his/her practice becomes explicit, accessible and communicable.

Correspondingly, Nigel Cross (1982, 223-335; 1999, 5-6) discusses knowledge intertwined in the practice of design. He argues that the knowledge of design resides in people, processes and products. Part of this knowledge is inherent in the activity of designing and can be gained by engaging in and reflecting on that very

activity. According to Cross (2001, 54-55), knowledge also resides in the artefacts themselves, in their form and materials. Some of this knowledge is also inherent in the process of manufacturing the artefacts, gained through making and reflecting upon the making of these artefacts. Thus, the triangle of maker-making-artefact seems to provide a useful means through which it is possible to approach practitioners' ways of knowing (Mäkelä & Routarinne 2006, 21-22).

The theatre director Mark Fleishman (2009) uses the term *creative discovery* when discussing the relationship between creative process and knowledge. This concept underlines the importance of the two-fold process of making and reflecting and the knowledge that this process might be able to reveal. He also stresses the need for documentation to be related to the different stages of the creative process, thus sketching out the link between (art or design) practice, documentation and evaluation. The linkage will be next examined more closely by introducing four craft-related doctoral dissertations completed at the Aalto University School of Art and Design, or formerly named University of Art and Design Helsinki. The Doctor of Arts degree has been available in this university since 1983. The opportunity to create products as part of the dissertation began in 1992 (Ryynanen 1999, 13). As all the studies undergo a scientific evaluation process, the written component of the study is therefore expected to meet academic requirements. The following reviews will focus on the creative process and ways in which each artist-researcher documented, reflected and contextualised their creative processes.

MAARIT MÄKELÄ: CLAY PICTURES AS FEMALE REPRESENTATIONS

The ceramic artist Maarit Mäkelä graduated as a Doctor of Arts in 2003 with her study *Memories on Clay: Representations of Subjective Creation Process and Gender* (Mäkelä 2003). The supporting structure of the study is the art making process that is documented in three exhibitions. The domain of the female body is intertwined in the arguments of the study in several ways. The female body is the theme of the art made during this research process, as well as thematically the main focus of the theoretical discussion used for contextualising and making sense of these artefacts.

In this study an artist-researcher connected art with research by following certain routes that have informed her experience as a female artist and as a feminist researcher. Thus, the speaker in this study is the artist-researcher who reflects and reviews her intuitive work process. The research proceeds as a dialogue between ceramic art and feminist research. The inquiry begins with making artefacts. This means hands-on actions with clay and, the product of which are artefacts arranged in the form of an exhibition. Each artistic work period is followed by a research period. In this study the

artistic work periods and research-oriented work periods are repeated three times.

To be able to reflect the overall process, Mäkelä utilised two means of documentation. Firstly, a professional photographer documented the exhibitions and each exhibit. Secondly, she kept working diaries throughout the creative processes related to her study where she collected various textual and visual materials related to the topic. In some parts of the diary she developed her ideas by sketching. She also reflected her creative processes in the diaries by making notes, clarifying her thoughts and developing the ideas in a written format. In her case, the content of notes is connected closely to the idea of self-reflection, i.e. the mode of reflection where author scrutinises and clarifies her thoughts and conceptions related to her own actions by writing (see e.g. Anttila 2006, 78). For example, while working in the studio, she notes:

Physical work has begun – apparently with a slow process during which I take the material into my possession both physically and mentally. The process has a meaning like a ritual. My working methods are simple. I use as simple tools as possible and touch the material a lot... This is a rite, an initiation rite during which I move from the level of (logical) thinking to an intuitive and physical mode of working (Extract from working diary, 9 January 1996; see also Mäkelä 1997, 64).

All documentation served as data for the written part of the study. The written dissertation consists of three main chapters, each of which focusing one of the three exhibitions. In each chapter she reflected on one exhibition and creative processes related to that exhibition.

During the study, the artist-researcher updated culturally tied representations of femininity. By playing with already existing female representations and printing them on clay, in this way, Mäkelä brought them into a new context and participated in their reproduction and re-contextualisation. For example, in the first exhibition, she interrogated the experience of femininity by using the post-modern device of loaned images. In the series of clay pictures appointed with the name *Monthly Bleeding* (Fig. 1) the photograph of Marilyn Monroe is used as a starting point of the work (Fig. 2).



Figure 1: Mäkelä's work *Monthly Bleeding*, 1996, silkscreen and painting to Finnish earthenware. Photograph: Rauno Träskelin.



Figure 2: Original photograph of Marilyn Monroe, 1956.

When brought to the rough earthenware, the sister figures of Monroe continue the complex representations of femininity as the outlines of Monroe's body have been strengthened by rugged, scratchy marks. The marks have been carved as a part of the wet ceramic surface. The smooth feminine shapes have thus acquired new lines, which are partly atop the original lines, and partly pushed under the original ones. Even though its serial nature is one of the central features of this work, each of the plates is also meaningful, as they all embody different representations of femininity.

According to Griselda Pollock (1988, 6), representation bears the wider meaning of analysing something or some phenomenon, giving it meaning and making it understandable in relation to other representations. As a concept, representation emphasises the meaning-producing nature of saying, presenting, thinking and knowing. When understood in this way, the ceramic representations of women produced during the research process have a central meaning: not only do these works preserve the female experience but also analyse and comment on it. In this way, personal experience has been woven in as an integral part of the study and, as such, forms a central source of the process of producing knowledge.

Thus, in the case of Mäkelä, the artistic production operated as a reflector with which she was able to explore her theme, femininity, profoundly. The result of this process was clay pictures, which were then shared via three exhibitions. The documentation consisted of photographs taken from the exhibitions and each exhibited artwork. The related creative processes were also reflected in the working diary. The final reflection took place in the pages of the dissertation, when all these documents served as data for discussing and contextualising the topic profoundly.

KÄRT SUMMATAVET: ARTISTIC INNOVATION INSPIRED BY TRADITION

Kärt Summatavet is a jewellery artist who received a Doctor of Arts in 2005. Her dissertation is entitled *Folk Tradition and Artistic Inspiration: A Woman's Life in Traditional Estonian Jewelry and Crafts as Told by Anne and Rooski* (Summatavet 2005). Her study comprises a written thesis and three art projects carried

out between 2001 and 2004. It investigates the relationship of the Estonian oral tradition and traditional crafts with the life experience of a female member of a traditional community. The work seeks ways in which folk tradition can be utilised as a source of artistic inspiration for contemporary jewellery art.

In her research, Summatavet utilised fieldwork with participant observation – a method used in cultural anthropology and ethnography – to study Estonian traditional crafts and oral tradition that cannot be found in any literature or archives. The information collected during the fieldwork also acted as inspiration for Summatavet's artistic creation. The fieldwork was carried out mainly with two bearers of Estonian traditional handicraft: the Setu singer and craftsman Anne Kõivo and the Kihnu Island's craftsman Rosaali Karjam. Through deep communication with these bearers, Summatavet not only expanded the knowledge of her country's living tradition and handicraft as the reflection of one's life story, but also gained artistic inspiration useful for her own jewellery creation presented in three art projects. When knowledge of traditional jewellery and crafts combined with modern technologies, new opportunities and challenges for carrying out jewellery art projects emerged.

In Summatavet's case, the process of documentation took place substantially during the fieldwork, forming a collection of research and artistic material as the product of documentation. During the fieldwork, the interaction between Summatavet and the traditional bearers generated mutual relationship and understanding between them. On the one hand, the artist motivated the artisans to discuss their experience in a contemporary context, and in Rooski's case, to start documenting her own mitten's patterns. On the other hand, the artisans inspired the artist, especially in Anne's case when she assisted the artist in interpreting Setu's women's life and utilising the interpretation for the three jewellery projects. The data collection collected during the fieldwork over several years thus consisted of not only interview records and photographs of the bearers and their collections, but also sketches, notes and diaries kept by the tradition bearers.

Summatavet studied the collected material repeatedly, then interpreted and used it as data in her written thesis and as inspirational basis for her art projects. The inspiration evolved into a close association between the documented material and the artist-researcher's emotion elicited during the fieldwork, and was then presented in the form of jewellery art. The fieldwork and the art projects influenced each other and were carried out as an intertwined process. In other words, while the fieldwork supported the creative work, the creation production generated new questions to be tackled in the fieldwork.

In each art project, Summatavet reflected her interpretation of life stories told by the bearers and developed the project's theme further based on a particular story. Her art projects aimed at combining tradition with modern techniques. For example, in the project and exhibition namely *Childhood and Girlhood*, Summatavet gained inspiration from Anne Kõivo's life stories about the brooch and song of women in Setumaa, southeast of Estonia. 'The brooch is so old that mother's voice is in it', says Anne (Summatavet 2005, 141). A Setu woman wears a brooch and silver chains when singing in an important event (Fig. 3 and 4). The brooch symbolises protection and has been passed from one generation to another within a family.

The lyrics of autobiographical songs usually tell about childhood's happiness and freedom. This ornament and songs inspired Summatavet as she connected it to her own childhood's lullaby. She then conceived 'lullaby' as one of the main themes of the exhibition. The theme was presented in a collection of copper brooches representing a fairytale world dreamed by a little girl. Summatavet employed symbols, signs and patterns in presenting the theme through a concrete material (Fig. 5). In the creative process, Summatavet also learnt technical possibilities of applying fine and thin enamelling and enamel painting onto big copper convex forms.



Figures 3 and 4: Anne Kõivo's silver ornament and Anne (middle) wearing the ornament when performing in a choir. Photograph: Märt Summatavet.



Figure 5: Kärt Summatavet's jewellery piece namely *The Forest Nymphs, 1999-2000*. Materials and techniques: copper, silver, enamel, painting enamels. Photograph: Rein Vainküla.

OUTI TURPEINEN: INSTALLATIONS AS TEST SPACES

The glass artist Outi Turpeinen graduated as a Doctor of Arts with her thesis namely *A Meaningful Museum Object: Critical Visuality in Cultural History Museum Exhibitions* (Turpeinen 2005). Her study consists of a series of three exhibitions and a written thesis. The study examines the relationship between a cultural history museum exhibition and the objects on display, especially the formation of meaning of the exhibition. Therefore, as part of her study, Turpeinen created sculptural glass works as fictional museum objects, and based on these works, constructed installations in the museum context.

For this purpose, Turpeinen visited several cultural history museums and analysed their exhibitions. Some of these museums displayed exhibitions, which were done in collaboration with artists. In these cases Turpeinen examined how artists changed the exhibition design and how this brought new meaning to the museum objects. Based on the abovementioned experiences and studies, she created three installations, which were displayed as part of her doctoral study.

In the case of Turpeinen, documentation is related to the study in two phases. The first phase took place while visiting cultural history museums. During the visits, she documented the exhibitions by photographing, and kept diary where she wrote notes and sketches (Fig. 6). This kind of experimenting and documenting went on during the whole study process. For Schön (1991, 80-81) the verbal and non-verbal expression is analogous: drawing and talking are parallel ways of designing, and together make up what he calls 'language of design'. The drawing reveals qualities and relations unimagined beforehand and thus, the moves of hands are able to function as experiments. Therefore, the graphic world of the sketchpad can also function as the medium of *reflection-in-action* (Schön 1991, 157). Accordingly, the sketches Turpeinen did while visiting in the museums is a kind of visual reflection based on the theme explored.



Figure 6: Outi Turpeinen makes notes in her diary in Thalang Museum in Phuket, Thailand, December 2003. Photograph: Rauno Rönneberg.

Physicist and historian of science Peter Galison (2002, 300-308), has discussed the role of visualisation in discovery. According to him, only pictures can develop within us the intuition needed to proceed further towards abstraction. Pictures acts as steppingstones along the path to real knowledge that intuition supports. In this light, Turpeinen's visits and documentation in the museums have a central role: they serve as intuitive knowledge, background as well as inspiration for Turpeinen's own installations. In the installations she reflected and developed certain themes and ideas further and in this way, testing her 'research findings' in concrete spatial constructions. For example, the sketches and diary notes made in the British Museum (Fig. 7) was used as starting point and inspiration when making a fictional museum artefact *Stupa* (Fig. 8) for her third installation.



Figure 7 and 8: Outi Turpeinen's sketches made in the British Museum; her fictional museum artefact *Stupa* in her installation in the Kiasma Art museum in 2003. Photographs: Otto Karvonen and Minna Kurjenluoma.

The installations were exhibited in three art museums, where they functioned concurrently as test spaces for the study. Via these test spaces Turpeinen was able to experiment and develop her research themes further. The second phase of documentation took place in relation to each artistic working process when setting up each of the three installations. In this phase, Turpeinen photographed the final installations and their spatial construction, individual exhibits, as well as the process of setting up of the exhibitions. By documenting the installations and creative processes related to them, she was able to reflect and analyse these test spaces afterwards, i.e. when the particular time and space related event had already ended. Thus, after the 'test', Turpeinen was able to contextualise her own artistic working process and discuss her 'findings' with the help of the relevant literature. In this way, the related artistic working process functioned one of her main research methods, which on the other hand produced data for the study, and on the other hand served as result of the research. According to Turpeinen (2005, 40), the aim of this kind of practice-led study does not lie in one singular or objective truth. Rather, the aim is to open up the creative processes related to the study as well as analyse the process of meaning constructing.

NITHIKUL NIMKULRAT: PAPER AS EXPRESSIVE MATERIAL

The textile artist Nithikul Nimkulrat received her Doctor of Arts Degree in 2009 with her dissertation entitled *Paperness: Expressive Material in Textile Art from an Artist's Viewpoint* (Nimkulrat 2009). The thesis focuses on the relationship between material and artistic expression, exploring the expressive quality of a tangible material that is beyond its physical, touchable qualities. In the other words, the study aims at understanding the influence of a physical material on the artist's thoughts and the formation of her ideas during creative processes. The material taken for this study is paper string. It was used to create to two art series and exhibitions: *Seeing Paper* (2005) and *Paper World* (2007). These exhibitions together with a written thesis are combined as the result of this research. The creation of artworks was considered the main vehicle for research whose structure was divided based on the periods of art productions and exhibitions into five phases (Fig 9).

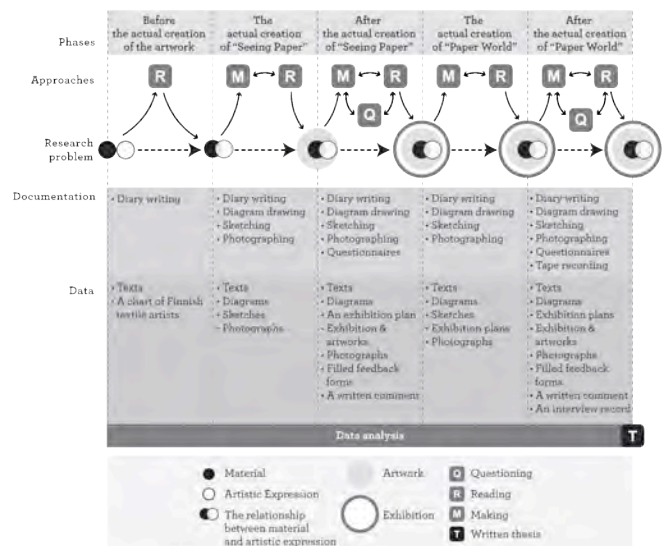


Figure 9: Five phases of the research process (Nimkulrat 2009, 57).

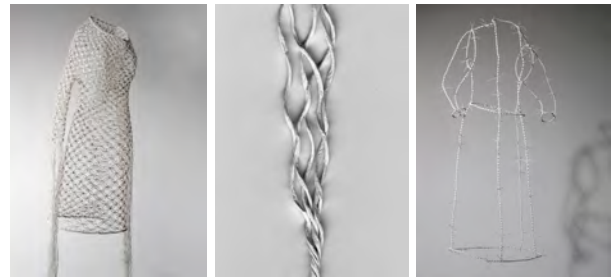
Throughout phases of research, documentation was carried out visually and textually in various forms, including diary writing, photographing, sketching, diagram drawing and questionnaires. These means of documentation were used not only during the creative processes and exhibition but also when studying theories related to the research topic. Regarding the key documentation – photographing – Nimkulrat took photographs of her artworks in both art series throughout the processes from her studio to the exhibition spaces. Photographs in combination with diaries facilitated her subsequent art production and provided material for research that she can revisit and reflect on when preparing the written thesis.

In her daily diary writing, Nimkulrat recorded her actions and experiences in the creative process from

conceptualising to manipulating the physical material to execute artworks. She noted both factual and tangible aspects, such as the choices of material and the reasons for selecting them, and less concrete ones, such as her emotions when handling a material. In Nimkulrat's case, diary writing was a reflective process evolving correspondingly with the situations she stumbled upon in the artistic process. In other words, diary writing facilitated her self-awareness of cumulative thoughts, intentions and decisions in the action, or *reflection-in-action* (see Schön 1991, 128-156), which she could revisit and reflect on when preparing the written thesis. Some writings about thoughts or actions, which seemed trivial in the creative process, shed light on the overall process after it was completed. An example can be seen in a diary entry made during the making of *Get Sorted* (Fig 10), an artwork in *Seeing Paper* series:

... Life is in a mess because one makes it messy, like I did with the neat twisted paper yarn. I am the one who created a terrible mess with the strings, and I must be the one who sorts the mess out in order to form the piece on the mould. ... I have to control not only the messiness of the strings but also my pulling strength. If I pull the strings too hard, I may break some strings. On the other hand, if I pull them too gently, the knots are too loose. This material doesn't want to be controlled. I have to add new strings at several places where the old strings are broken. I hide the broken strings very neatly. ... (Extract from working diary, 28 March 2005; Nimkulrat 2009, 115).

The above note shows not only her intense experience with a type of paper string (Fig. 11) but also her feelings towards it in relation to the material's physical qualities, such as being weak and difficult to sort out. As this type of paper string was untwisted from a strong, straight and smooth type, the experience with the weakness and messiness of the material became unexpected to her and influenced her thoughts of the ongoing work. When the work was finished, the note led to the title *Get Sorted*. Then, Nimkulrat associated the experience of the rough textured and easily broken strings with her earlier experience of something else – barbwire (See also Nimkulrat 2007b, 17-24). She adopted phenomenological thinking to understand the association. A tactile phenomenon, as Merleau-Ponty (1962, 369) pointed out, is effective when it finds something similar within the person who touches. The material's association with barbwire thus shows the way in which the artist-researcher's tactile experience sought connection with consciousness and recalled the memory of prior experiences. This association became the input of her creative process of a subsequent artwork using the same material, namely *Private Area* (Fig. 12). She knew that she could represent the association and made the material's qualities visible as the key feature of the work through forceful pulling to break the strings.



Figures 10, 11 and 12: *Get Sorted*; material used to create *Get Sorted* and *Private Area*; *Private Area*. Photographs: Maj Lundell and Minna Luoma.

In Nimkulrat's case, the creation of artefacts was performed as the *reflection-in-action* of her previous creative process. Through the interaction between different research approaches (i.e. making, reading and questioning) the research problem regarding the relationship between material and artistic expression developed and was tackled accordingly. Documentation was proven crucial for conducting this practice-led research. Without the documentation of the artistic process, artworks produced in the process may not be adequate to provide data for analysis and to generate reflection (Nimkulrat 2007b). The documented visuals and texts became data, which was later organised, reflected on and articulated. The implicit artistic experience is thus attainable and debatable in the context of disciplined inquiry because of documentation (ibid.).

RELATIONSHIP BETWEEN REFLECTION AND DOCUMENTATION

In this article, we have reviewed the different roles and modes of reflection and documentation carried out in four completed practice-led doctoral research in the field of design. The craft-related cases portrayed above demonstrate various ways of documenting research and creative practices, as well as of reflecting *in* and *on* actions in the creative processes. This is to locate the cases in terms of Schön's division, the two steps of reflection, i.e. *reflection-in-action* and *reflection-on-action*. These steps can be traced from the cases in different levels.

Firstly, in Mäkelä's and Nimkulrat's cases, *reflection-in-action* functioned as an inherent method for collecting information about the creative processes related to the study. In these cases, the reflection is made possible by utilising diary writing, photographing and diagram drawing i.e. means of documentation. Also, Turpeinen utilised this form of reflection when making sketches in her diary during her visits in the museums. Secondly, in later steps of the study, when bringing the data in connection with the relevant research literature, the collected data elicit insights and understanding for the study. This step of the study,

reflection-on-action, is apparent in all the reviewed cases.

On the other hand, when considering the meaning of documentation, it can be utilised in two ways. Firstly, as shown in the cases of Mäkelä and Nimkulrat, documentation can serve as the references *of* making artefacts, and secondly, as apparent in the cases of Summatavet and Turpeinen, documentation can be used as basis *for* making artefacts.

The first mode of documentation – documentation *of* making artefacts – takes place at the same time as the artist-researcher gradually forms material into artefacts. This mode of documentation can be carried out visually and textually, as both Mäkelä and Nimkulrat did throughout their creative practices related to the topics of their doctoral dissertations. The textual documentation is carried out in the form of diary writing. As presented above, some texts in Mäkelä's and Nimkulrat's diaries reveal their thoughts and emotions evolved during their encountering with their materials, techniques and tools. The proceeding thoughts and emotions once recorded play a significant role as material for discussing the research topic in the process of writing up the thesis. In this way, the textually and visually recorded documents illuminate when sharing the artist-researcher's ways of working, thinking and knowing in his/her action.

The second mode of documentation – documentation *for* making artefacts – arises before the actual creation of artefacts when the artist-researcher is in the process of searching inspiration for his/her creation. As can be seen in both the cases of Summatavet and Turpeinen, this mode of documentation can also be performed visually and textually. In Summatavet's case, the recorded interviews and photographs collected during fieldwork were used as inspiration for her jewellery art making. On the other hand, Turpeinen utilised visuals and notes in her working diary documented during her visits to different cultural museums as the basis for developing themes of her installations. Both cases reveal ways in which the documented visuals and texts have an important role of providing themes for the artist-researcher's creative process.

Based on the introduced cases, it can be concluded that in practice-led research context, documentation can function as a research tool for capturing reflection *on* and *in* action. When artist-researchers document their practice-led research processes, they consciously reflect on the current experiences during the process (*reflection-in-action*) and on the documented experiences after the entire process (*reflection-on-action*). This does not mean that documentation is the foundation of research or theory construction (Freidman 2008, 157). Rather, documentation makes reflection explicitly articulated in a form available for the

practitioner-researcher to revisit and analyse in order to develop and construct design knowledge.

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