

# Design Processes and Co-Activity in Design Education

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Co-activity and interaction are necessary in education as well as in design processes. In an artistic design process, interaction occurs between the material, the techniques and the artist. In design education, interaction occurs between students and the lecturer, between students and other students, and between students and the task. To explore the similarity between design and education processes, this article uses the Black Thread project, which involves co-design embroidery, with a focus on design education within higher education. The project involved nine student groups studying design education in the Specialised Teacher Training Programme in Design, Arts and Crafts at Oslo Metropolitan University in Norway and took place over a three-year period. The lecturer's instructions and recommendations were vague in the first year and clearer in the final two years. The groups cooperated and collaborated, showing how they related to the design and describing the communicative and relational processes. Co-design embroidery projects such as the Black Thread project help to develop the patience, manual skill, creativity and ability of the participants.

*Keywords: development work; design education; embroidery; co-activity*

## 1. Introduction

Design participation and cooperation takes place both in education and in professional practice. Participating in a long design process provides opportunities for the development of designs and materials as well as the opportunity to analyse processes and working methods. Professional education is also based on education and practice. It might be helpful to note how research-based teaching relates to the idea of both education and research being required for design and education. Following the introduction of a new common law for universities and colleges in 1996, research requirements became clearer. The term research-based teaching was emphasised to stimulate quality and diversity in Norwegian higher education. The term is multifaceted, and the form it should take depends on the subject area in which it is being applied (Hyllseth, 2001). The strategy of Oslo Metropolitan University is to develop and stimulate interaction between education, research, professional practice and innovation (Havnes, 2011), but it is important to determine how this strategy can be implemented practically and which materials and techniques are the most suitable.

Both Richard Sennett's *The Craftsman* (2009) and Kristine Riis's Ph.D. thesis (2016) about design and the design process support the importance of working with and exploring materials and techniques thoroughly. The master's degree programme offered by the Oslo Metropolitan University's



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Department of Art, Design and Drama was established in 1976 and for many years emphasised a balance between practical work in workshops and academic anchoring (Fauske, 2014). The programme gave students the opportunity to experience practical work with textile materials and embroidery and, through this experimentation, to gain a deep interest in the subject area. Moreover, the studies involved cooperation with an artist in a textile workshop. The design work became part of a new system for the students and artists, providing with an outlet for experimentation and teamwork based on business and private assignments.

This interaction with an artist was, similar to Schön (Schön, 2000), called *internship practice*. Alexander Carnera (Carnera, 2012) describes the work between a master and unskilled workers as a laboratory for focused motivation with an emphasis on supporting committed working relationships. Academically, the process evolved from a kind of basic research to the development and application of knowledge. Kristina Niedderer (Niedderer, 2013) discusses which research questions are important to ask in the creative practice of art and design, noting a distinction between art knowledge and design knowledge, which require different questions. In this article, questions related to two areas are presented: the lecturer's development work in exploring materials and the facilitation of student education. In both areas, interaction is important for change and development.

When reflecting on the course of the design process, the study's author identified four main roles resulting from the dynamism and flexibility of co-activity. The roles evolve from practitioner to designer to facilitator and, finally, to researcher (Figure 1).

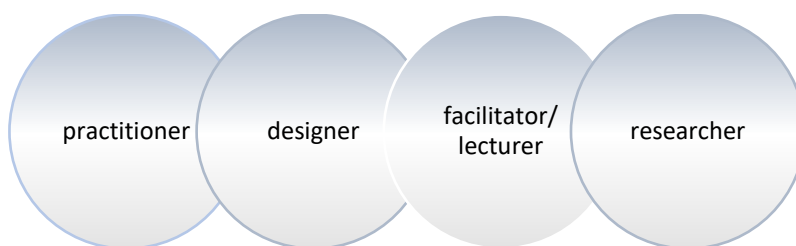


Figure 1: The roles in co-activity: practitioner, designer, lecturer and researcher

The students in the Black Thread project were involved in the lecturer's exploration of synthetic leather and silk thread. The project was a kind of action research in a practical course with materials. Retrospective reflection linked what and how the students designed and improved their performances. Small communities (Wenger, 1998) occur when students discuss design, materials, methods and function, and this dialogue plays a central role in training and preparing them for the teaching profession. Within co-activity, there is a difference between cooperation and collaboration in interaction; in this project, some groups cooperated while others collaborated, with interesting differences in outcomes. Throughout the project, the roles of the students and the lecturer switched between practitioner, facilitator, designer and researcher.

## 2. From basic research to applied knowledge and development

In 1996 (Kvellestad, 2004), the author of this study participated in the master's degree programme being studied, and it was possible to engage in practical research in materials as a part of the degree. Thus, the practical working method was an exploration in process with systematic work included pre-phase and multiple trial phases on materials, details and the end use of knowledge for new expressions. The work followed the hermeneutical research tradition, with an exchange of understanding and experience between completeness and detail. Thurèn (Thurèn, 1994) calls this a *hermeneutic circle*. An interpretation of the material indicated the further work to be done and the end results. In particular, the interpretation became important when knowledge and experience were to continue after the original exploration. This research method suited the material field. However, at this time, there were different traditional research methods used depending on the subject being studied (Fauske, 2014). Fauske claims that education was widely oriented with regard

to research methods and traditions, opening the door for research and specialisation within the practical field of materials and allowing the field of study to be documented in a more scientific way.

In retrospect, this work seems to be a type of basic research within the field, where the examination of a tool in various ways can indicate a new use of the tool without the aim of a specific application. The use of dialogue and the questioning of techniques played a useful role in the systematic work in the master's degree programme. Through many phases, in which the results were described using categories, there was always a conclusion that led further into a new phase. The material choice was constant, but the pace and direction of the gear varied. There was a dialogue between the researcher (practitioner) and the technique. Figure 2 shows the stages of study and practice that result in the development of design competence. The design process began in a seemingly random way but evolved to have meaning and growth.

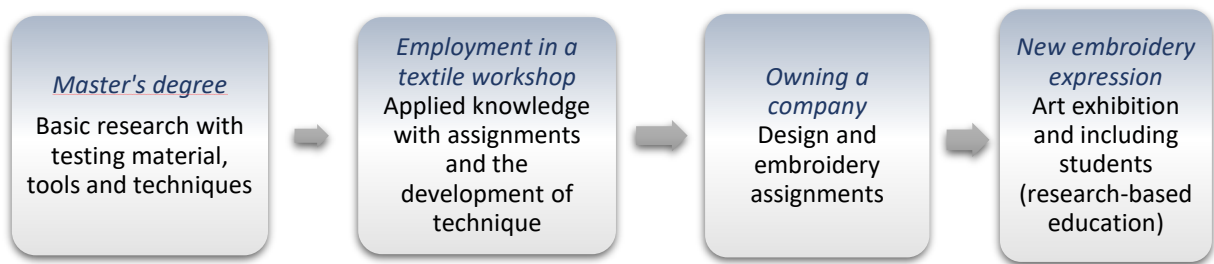


Figure 2: Stages in artistic development work

After completing the master's degree, the author secured a position in higher education in which she participated in additional research and development work. This opened up possibilities for continued practical work in materials. In 1995, the university introduced artistic development as a parallel to research and professional development. That is, artistic development work became aligned with scientific research according to university law. This supported a practical approach in research and development work. In 2007, the *Weight on Artistic Development* report was published, and performance-based indicators were developed in Stortingsmelding (Parliamentary Report) nr. 20 (2004–2005): "Development work is a systematic business that uses existing knowledge from research and practical experience and is aimed at presenting new or significantly improved processes, systems and services" (Kunnskapsdepartementet, 2005).

Research and development work made it possible to remain in the design process over time and to develop personal art while also involving students in the project. Dialogue between thought and action developed in the design processes (of both art and craft). Flexibility is an important property in the creative process and necessitates reflection and judgment. It results in co-activity with the materials and the techniques. In professional practice, expertise and competencies were used in new ways (Schön, 2000), prompting questions related to materials, processes, concepts and the use of objects (Niedderer, 2013).

In 2009, Sennet published the book *The Craftsman*, which emphasised and elevated crafts by discussing them with great respect and insight. He mentioned targeted work as an important part of crafts. According to Sennet (Sennett, 2009), targeting is something that is achieved, not something that is set in advance. You work and work, then you stop and you reflect before you start working again. This process is similar to Riis's creative dialogue, which is characterised by openness, complexity and a dynamic nature. A creative dialogue contains sketches, form studies, solutions and changes (Riis, 2016). Knowledge in design emerges through application, challenge and the development of experiences as well as through knowledge and action rules (Riis, 2016). It is, therefore, useful to have a break in the creative process.

### 3. Interaction with the materials

In embroidery exploration, a break could mean choosing unknown materials and themes or assembling two or more unusual embroidery materials in an attempt to expand borders. For example, synthetic leather with silk embroidery is not an obvious combination, but this increases the novelty of the materials. In the project, the lecturer was a researcher, a user and the initiator of the material, and there were many questions. It was necessary to take small steps and select clear constraints: only one colour was used, either white-to-white or red-to-red. This limited the possibilities and gave a deeper understanding of the material through experience and reflection in designs and crafts (Kvellestad, 2017). Through different tests with the material, new critical questions arose. A thorough investigation of the combination of materials and stitches was conducted. Combinations with different stitch densities, lengths and directions yielded interesting variations and possibilities (Figure 3).



*Figure 3: Randi Veiteberg Kvellestad, details from embroideries in synthetic leather and silk thread, white-to-white, 2016*

Exploration continued in dialogue with the simple stitch and by looking at previous works. The material's dull surface provided resistance to the needle, and when the stitches tightened, a relief arose, resulting in the embroidery rising from a two-dimensional surface. Applying only one colour inspired creativity and innovation with new expressions in the material. This was an experiential and procedural type of knowledge—knowledge derived from experience (Niedderer, 2013).

The use of questions and dialogue played an important role on three levels: the material, technique and embroidery topics (Figure 4). To take the material seriously, a sense of co-ownership was required, which was important for creating quality. Among other things, Sennett (Sennett, 2009) highlights the curiosity regarding whether a material will produce a work of great quality. To achieve good craftsmanship, it is crucial to work with great respect and to derive meaning from the works. Quality is a likely outcome when you spend time and have patience with the embroidery in the design process. A creative process takes time, and in a research context, it always includes reflection and judgment (Hansen, 2013). There is a binding working relationship between the artist and the material. Questions are asked, tests are evaluated, new tests must be made, new questions must be asked and, thus, the work and research are established. Carnera (Carnera, 2012) writes beautifully about a binding working relationship, defining it as that which occurs in the meeting between skill development and experience formation and which adds to the learning process an assessment of both poetic and aesthetic judgment.

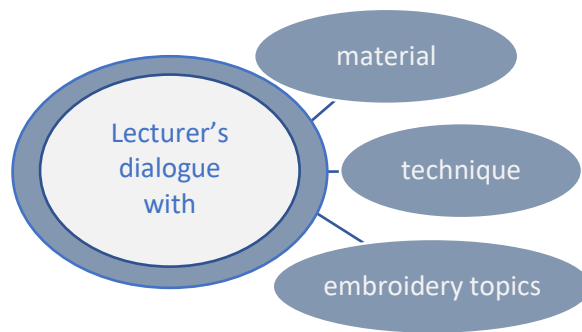


Figure 4: The lecturer's dialogue played a role in three areas: material, technique, and embroidery topics

Other characteristics of embroidery were mentioned by textile artist Annika Ekdal, explaining that “to embroider takes time and time is visible”; this visibility gives the embroidery respect (Robach, 2012). Stitch after stitch is added, a motif is added and the slow becomes visible (e.g., see Figure 5). The material-based creation process is slow, and so courage and patience are important factors (Karlson, 2012).



Figure 5: Randi Veiteberg Kvellestad, embroideries in synthetic leather and silk thread, red-to-red, 2016

#### 4. Co-designing embroidery: The Black Thread

A big advantage to working with students is that they can be included in the research and development work. On one hand, they can do practical work, and on the other hand, they can be informants and critics. Before any of this, however, they must be asked to participate. Oslo Metropolitan University's Specialised Teacher Training Programme in Design, Arts and Crafts, organises several material-based periods, including a four- to six-week textile period. During these periods, the students learn different textile activities through workshops. In most of these activities, the students work individually. They learn the craft and can be creative, testing new ideas at short notice. Later in the study, they are given the opportunity to immerse themselves in the techniques and materials. The present project, the Black Thread project, took about one week and was organised differently than were other activities, requiring students to learn and cooperate in groups—a professional didactic approach with practical material work.



A total of nine student groups distributed over three years (i.e., three groups each year), were involved in the completion of embroidery tasks. Each group consisted of 12–17 students who were required to collaborate in solving challenges concerning the task and the practical work. All student groups were provided with one piece of light grey synthetic leather and different black threads. The idea was to use different stitches on an uncommon material. The instructions explaining the task became more precise as the years progressed, from the first-year groups in 2013 to the final groups in 2016. The improved explanations were reflected in the results of the project (Kvellestad, 2017).

#### 4.1. First year: 2013–2014

Every day for six weeks, students were asked to make a track on a collective picture according to their sense of humour or other states of mind. They had the opportunity to embroider either on their own design or on those of their neighbours. The final results differed substantially among the student groups. The tracks went all over the leather in a free composition. Although the students cooperated, they worked as individuals, with limited dialogue related to the final product (Figure 6).

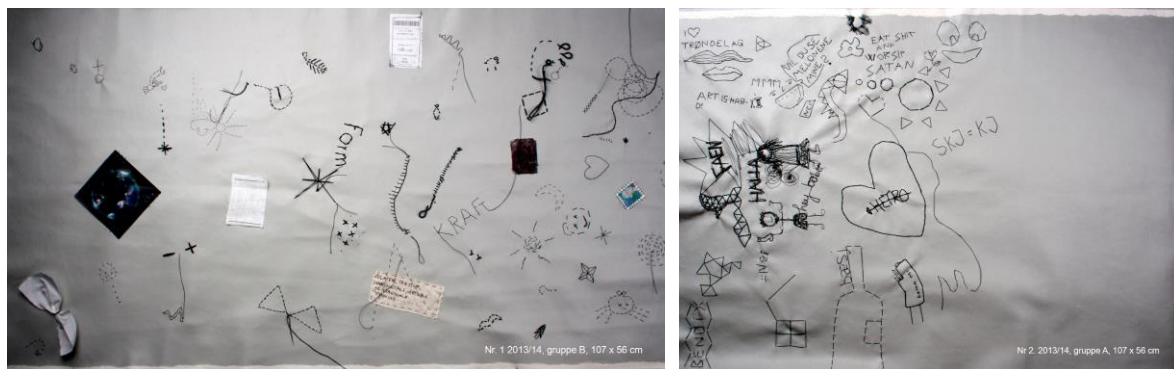


Figure 6: Students works, two examples of the Black Thread project results from the 2013–2014 groups

#### 4.2. Second year: 2014–2015

The task was essentially the same as that which was set the previous year, but the lecturer instructed the students to make links between the tracks and to invite their neighbours to continue and finish their embroidery. However, before they began, they decided to have a common subject, which was defined through creative and open-minded dialogue, collaboration, discussion and planning of the composition. Therefore, these preparations provided new experiences. Two of the finished works can be seen in Figure 7.

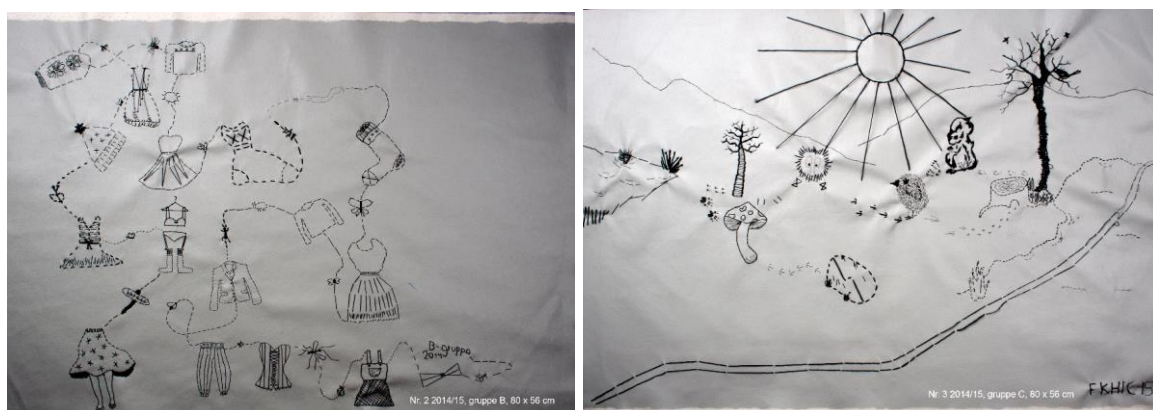


Figure 7: Students works, two examples of the Black Thread project results from the 2014–2015 groups

#### 4.3. Third year: 2015–2016

In the project's third and final year, the lecturer's instructions for the students were even more precise. The students were advised to transfer sketches from their drawing course or from an exhibition in the National Gallery to embroidery, and their neighbours were invited to continue the

design. The stitches, textural possibilities with the surfaces and formal composition knowledge were emphasised. The students took photos and discussed and exercised the composition in different ways. The design process was characterised by openness and appreciation. Examples of student work from this group can be seen in Figure 8.



Figure 8: Students works, two examples of the Black Thread project results from the 2015–2016 groups

#### **4.4. Completion of the project**

The differences between the nine resulting pictures were obvious when exhibited in Gallery PP33 in 2016. The three pictures from the first year lacked a planned design process and were characterised by free compositions and tracks with personal messages. The students were not well informed about the project but simply completed the task. Differences in teamwork were observed. In the first year, the students cooperated; their spontaneous embroideries were rougher and their compositions were disjointed and not unified. In the final two years, the students collaborated in the planning of their work and followed material and composition rules. These embroideries were more figurative and the compositions had been planned out. Both approaches to the professional development work required a variety of learning skills and experience with the materials. The observed difference between cooperation and collaboration underlines the role of the lecturer in influencing the dynamics of a group.

#### **5. Co-activity in a design process**

The terms *co-design* and *co-creativism* evolved from the area of participatory design. Collective acts, including the dialogue between students and other students and the lecturer, borrow perspectives from the area of co-design. In co-design, collective acts of creativity are shared by two or more people (Sanders, 2008). Figure 9 shows a schematic overview of how the co-activity was conducted in the student project, particularly in the last two years.

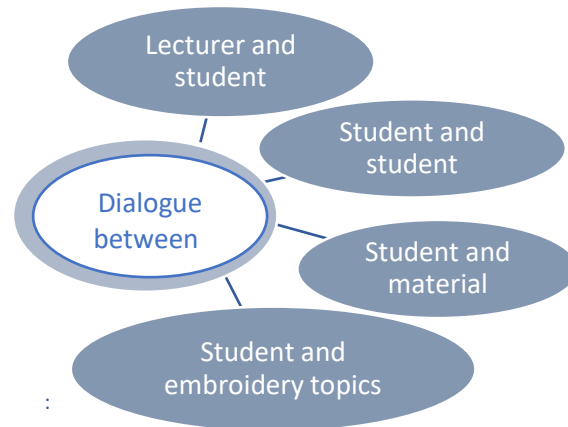


Figure 9: Dialogue in collaboration work: the basic actions at four levels

For students in the two final years (i.e., the last six groups), dialogue in collaborative work was a basic action at four levels: between the lecturer and the students, between the students themselves, between a single student and the material and, finally, between the students and the embroidery topics. The lecturer's role switched between designer and researcher. The lecturer's communication with the students played an important role by initiating the activity and precisely articulating the task. Students were users and designers in completing the embroidery as a whole; they worked with a sense of co-ownership and shared responsibility. In pursuit of a common goal, the dynamics of a group can be characterised as degrees of cooperation and collaboration (Ness, 2016). As the process became more collaborative, recurring challenges gradually disappeared.

In the evaluation at the end of the project, some students mentioned that it was fun to design something without knowing how it would turn out. They used the thread like a pencil—albeit a substantially limited pencil—which could be perceived as beneficial or inhibitory. For example, some students commented that the synthetic leather was nice, solid and comfortable to embroider. The three spontaneous embroideries from the first year were rougher, and their compositions were not unified. Compared with embroideries from the last two years, those of the first were more abstract in composition, as these groups had not discussed a strict framework for the task. They had complete autonomy, free from agreements with the rest of the group, during the creative process.

Before issuing instructions for the groups in the final two years, the lecturer knew more about the material and the possibilities, which allowed the lecturer to explain the task more clearly. These students' plans and discussions contributed to thoughtful and clear compositions with harmonious tracks. It is possible that the lecturer's clarification of the task influenced the results, as the students had to interpret from her instructions whether it was her wish for composition, thoughtful design and the use of the needle and thread. This is a question that should be posed to the students in the evaluation at the end of the project.

The greatest challenge to interaction was the time limitation of the students; their evaluations suggested that they wanted more time to do a better job. Some said they worried about ruining the whole and that it was difficult to get things to harmonise because everyone had different ideas. The majority were satisfied and highlighted their eagerness to see the end result; it was exciting to see how totally different expressions and motives could be conveyed and still constitute a whole. The concept here can easily be transferred to other materials in design education.

In a design process, practitioners take part in collective creativity applied across the whole span of the process. This is one of the strengths of the co-activity method. A designer or a lecturer has ideas and begins a project, and when other users, students or technicians become involved, the ideas change. New ideas, materials and technologies that arise in the process influence the outcome. Co-activity is not rigid or static but rather characterised by flexibility and fluidity, which allow for change



and a greater appreciation of the product. Through collaboration in educational contexts, the lecturer leads the students in their actions, guides them in adapting to changes and provides support for their creations (Kvellestad, 2017). Such interaction challenges the lecturer to ensure that the students take ownership of the task and are users and designers in the process. A good dialogue involves interactions involving mutual inquiry: sharing, exploring, discussing and weaving new ideas, through which newness and possibilities emerge. Responding to one another, a critical aspect of dialogue, is by nature an interactive process (Anderson, 2012). It is, therefore, important to examine the lecturer's influence on the design process and on co-activity, and this examination provides scope for future research within this topic.

## 6. Cooperation and collaboration

In the healthcare field, a distinction is made between cooperation and collaboration to create better outcomes for patients and their families (Ness, 2016). The definitions of *cooperation* and *collaboration* as they relate to design clearly describe communicative and relational processes. The students of the Black Thread project established such a community, and everyone participated and worked effectively over a short period of time. The project had features common to those in Wengers' (Wenger, 1998) social theory of learning, which can be used to describe and understand elements in a partnership. According to Wenger, learning is created by a social act or in a process between people. Learning is characterized by the situation in which you are and takes place in every practice community.

A thorough analysis of teamwork in the Black Thread project showed differences in participation in the design process, as some groups cooperated while other collaborated. The actors were both users and designers, and they progressed through the levels of doing, adapting, making and creating (Sanders, 2008). All nine groups had about one week to complete the task to achieve a common design. In the first year, the groups cooperated: they communicated, but with minor processual contact. They did not ask questions about the material of one other. Each student completed his or her own task and then passed the piece on to the next person. The contents of the sketches and the topics were fragmented. In the final phase, a few students embroidered wildly and freely and completed the work because there were no group leaders and no common rules for the task. The results appear more abstract compared to those of the last two years.

In the final two years, six groups had a collaborative relationship and dialogical conversations about the material and designs. They asked questions and interacted with one another in mutually responsive ways, and new possibilities emerged. This interaction led to a co-ownership of the project (Anderson, 2012), which was extremely important for its completion. The compositions of the collaborative groups were more figurative. This is an interesting observation, prompting the question of whether it was the lecturer's clear instructions for these groups that impacted the result or whether it was the conversation between the students before they began. The groups had a short deadline, so they had to think and act quickly, and maybe it was easier to embroider effectively when the design was already planned and drawn before the embroidering began. Routines and rules streamline a creative process. A good example of this is in the children's educational context, where it is very important to have clear tasks. Pupils must know what they are to do and what is expected of them. One of the goals of the Black Thread project was for the students to be able to transfer their experiences to their own practice as teachers.

This perspective pertains not only to learning in an artistic context but also to a social phenomenon, with a focus on action and participation; however, it also includes flexibility and fluidity—a community in motion (Anderson, 2012). The students who are creating and exploring together will eventually be teachers and participate in communities of practice. Such co-activity is an action used in school projects in music, language and science courses. Frisch (Frisch, 2010) studied child development in drawing, using the term *wildfire effect* to explain a drawing activity in which pupils looked at and learned from each other. The sketches progressed and created informal learning. The

pupils were aware of each other's work, borrowed from each other and realised joint development. A fearless approach, with both constructive and instructive interactive moments among the pupils, characterised the activity (Frisch, 2010). By working practically and physically with materials, the students in the present project also achieved a better feeling for touch and a sense of the material and the needle. They might also remember the activity better because co-design embroidery is a long-term process. Even though the timeframe of this project was just one week, which was not a sufficient amount of time for the many students to embroider, students worked on the project at their leisure to complete their portions.

## **7. Community of practice and interaction**

The Black Thread project is an example of a community of practice, which evolved from textile design education involving elaborate dialogue and participation during the design process. Teamwork or small communities of practice (Wenger, 1998) are important parts of training and preparing for the teaching profession, in which the building process itself, as well as dialogue, discussions, co-working and co-exploring, play central roles (Kvellestad, 2017). In design education, small communities emerge and persist when students discuss design, materials, methods and function. Other significant factors include mutual trust and respect for each other's differences. The importance of dialogue is based in the tradition of practical knowledge, such as Molander's (Molander, 2015) knowledge theory.

Participation design emerged within the design community in the 1970s when users were given a contributing role in design work alongside the researcher and the designer (Sanders, 2008). The knowledge building was in a practical field, with dialogue and collaboration with materials, techniques, the artisans and the principals to solve textile assignments. Co-activity as practiced today takes on quite different manifestations depending upon the expertise and mindsets of the practitioners (Sanders, 2008).

Reflecting on the process and results is useful and educational in all professions, although the main focus of this article is artistic development work and the involvement of students in the work. Molander is a pragmatic philosopher who reflects on Donald Schön's main case in *The Reflective Practitioner*: the communication between an architecture student (Petra) and her teacher (Quist) in design learning. Petra was a novice at the University of Architecture, and she had to listen to an experienced practitioner. In their communication, Petra switches between arguing for her own knowledge and being open to the teacher's coaching. Molander mentions four tensions that characterise the action in a dialogic structure: part-whole, commitment/involvement-detachment, criticism-confidence and action-reflection (Molander, 2015, p. 286). In the Black Thread project, students had to work with their own embroidery (the part), select the stitch and thread and make expressive lines. However, it was also important to pay attention to the whole design by looking for balance, repetition and texture effects. They had to discuss, make choices and defend their views with professional arguments, just like Petra. In this little project, they had to trust in those with whom they did not agree. In this dialogue structure, knowledge was maintained and even evolved (Molander, 2015). In a school situation, the teacher will always influence pupils with advice and suggestions for improvement. The same thing happens among students. The lecturer advised, but the students should make their own choices. In this project, the students helped each other, made compositions together, combined designs and explored stitches and textures.

## **8. The value of being part of a process**

In a design process in an artistic development work, both creativity and patience are important for completing the work. This process is similar to Riis's (Riis, 2016) creative dialogue, which is characterised by openness, complexity and a dynamic nature. A creative dialogue contains experiential knowledge or skill that can be described; however, some parts of it evade communication, because we can know more than we can tell (Niedderer, 2013). The concept of *tacit knowledge* (Polanyi, 1983 [1966]), however, will always follow a creative dialogue. Long artistic

experience, a practical sense of judgment and life experience are of great value in this dialogue. The core of many professions, such as crafts, healthcare and learning, is that human executive judgment is important, being linked to wisdom and reflection.

Meyer (Meyer, 2007, p. 52) describes how skills development occurs through five stages: beginner, advanced beginner, competent exercising, proficient practitioner and expert. Developing skills, crafts or design knowledge takes time. All experience contributes to insight and understanding. Løvlie (Løvlie, 2011) claims that the foundation of experience is developed within an educational environment when one has a reflective relationship with one's own practice. If one participates in a process over time, innovation and development will occur.

This is in line with a professional education based on both education and practice, and there is a close link between education and occupation. Oslo Metropolitan University's goal is to develop and stimulate the interaction between education, research, professional practice and innovation (Havnes, 2011). Jarning (Jarning, 2011) characterises the educational institution as a knowledge triangle, with education/research/knowledge, sharing and innovation. In higher professional education, there is an interaction between these areas. The institution will offer education based on research, professional and artistic development and experience. As a professional employee, one can apply for time allocated for research and development work. This provides opportunities for diverse and non-stagnant work. Jarning also addresses trends in today's Norwegian education race that attempt to remove practical work in education. He points out that performing more research at the expense of gaining experience leads to practical skills and training becoming less valuable (Jarning, 2011). Even when completing one's own research and development work, student participation can help in a practical way as well as allow for research-based teaching.

In the Black Thread project, embroidery students worked within a short timeframe. Their challenge was to make various lines with stitches and texture surfaces and to produce compositions. Schön (Schön, 1991) characterises a second aspect of reflection about craftsmanship as knowledge in action and reflection in action. In action research, knowledge can be both tacit and spontaneous; however, through thought and action, adaptation and adjustments create new knowledge and extend reflection. Dialogue and collaboration aids in the development of curiosity and the understanding of materials, techniques, theses and compositions (Riis, 2016). According to Wenger (Wenger, 1998), groups develop a shared repertoire of resources: experiences, designs, tools and ways of addressing recurring challenges.

In the larger educational context, the present project in design work supports the three themes promoted by the Ministry of Education in the upcoming renovation of the subjects in Stortingsmelding (white paper, Parliamentary report) nr. 28 (2015–2016): democracy and citizenship, sustainable development and health and life skills. The present project stresses life skills, with everyone participating, working, stimulating creativity and demonstrating good attitudes. This knowledge has both academic and social aspects. Interaction is important in almost all professions. Teamwork and participation characterise the work of politicians, educational institutions and health services. The international project *Education 2030* is a framework for the qualifications pupils will need in Organisation for Economic Co-operation and Development (OECD) countries in 2030, including professional knowledge; cognitive skills such as creativity, problem solving and critical thinking; and social competencies such as interpersonal relationships and communication skills (28, 2016). The Black Thread project can serve as an example of an interaction in which these competencies are important to the task's progress. To co-embroider, one must consider the other participants. In the co-design embroidery project, the co-activity was both a method and an action for obtaining results in design education. The value of co-design is that the methodology involves students developing interdisciplinary resources.

Co-design embroidery projects such as the Black Thread project develop participants' patience, manual skills, creativity and abilities. These personal qualities are important for design education

and represent the cornerstones of almost every community. The students learned how to successfully manage and complete a project. The forms of cooperation they employed affected the results. Hopefully, they can transform the competences they gained and apply them to teaching pupils of all ages.

## 9. Concluding remarks

The value of my master's degree programme was greater than originally thought. The degree-initiated processes developed and stimulated both innovation and change as well as the inclusion of students (in the last five years), and experimentation with materials and techniques has been important for artistic development work and design education at the university level. In order to move forward in a design process, violation (that is, the breach of the known or established) is crucial, as this is the only way to try out new materials and possibilities. A crucial issue remains, however, in determining how to use this knowledge in student education. The importance of the Black Thread project was primarily exploring how the students interpreted and reacted to the lecturer's development work (i.e., focused on the subject didactics). This article shows how the organisation of teaching affects the outcomes. Co-activity challenges, but also stimulates, cooperation in several ways, and this concept can be transferred to other materials in design education.

## 10. Acknowledgements

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