WOVEN THOUGHTS

exploring the ways in which material experience guides designing woven textiles

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In this practice-led thesis I set out to explore how material experience guides designing woven textiles. Material experience includes multiple dimensions, such as aesthetic, emotional, associative, and cognitive dimensions. In the context of textile design, this means paying attention to for example the sensorial properties of textile and the meanings and feelings evoked by the material. It means focusing on the very practice; how a textile designer approaches material, interacts, understands, and works with it. By studying the knowledge required in textile design, I aim to understand how I design woven textiles and to clarify what is meaningful for me in textile design.

This thesis consists of literature research and a production. Chapter Seeing hand, touching eye outlines the role of the sense touch in our culture, how touch functions, and how all this relates to textile design. It lays the groundwork for the following chapter. On designing, which discusses textile design as a field, explains the term "textile thinking," and contemplates the key aspects, thoughts and aspirations for textile design. On designing concludes with thoughts about the collective role of textile material in the design process. Throughout the text I reflect on the findings and mirror them to my own design values, weaving the text and my practice together.

After backgrounding the thesis with literature research, in chapter Woven thoughts I present the research methods I used in this thesis and introduce the design process as well as the design process map. The design process map is constructed onto the literature findings presented in previous chapters and compiles the key touch points where material experience guides the process. The process map clarifies my thinking during the process, explains the interaction with the material and illustrates the thinking behind design decision. The design process map is divided in three stages, called material, structure and sample, to exemplify the different forms material is in during the process of designing woven textiles, and to discuss the different ways of approaching, interacting and communicating with the material.

This thesis is a deep dive into my own design process, first and foremost aiming to clarify the role of material knowledge as the base for the values that guide me in designing. The findings of this thesis indicate that designing woven textiles includes various and diverse phases in which sensitivity for material experience can be of valuable guidance — in other words, inspiration or reasonings for design decisions can be found in the material itself, not searched from somewhere externally. This work contributes knowledge by accentuating these essential details of material knowledge required in textile design. The findings of this thesis can function as a tool for my future practice as well as guidance for other practitioners working closely with material.


Oppinnytetyyni on suunnitteluprosessiani kohdistuva tutkimus, jossa pyrin selvittämään materiaali, tiedot ja kokemukset roolita suunnittelua ohjaavien arvojen perusteena. Oppinnytetyyni tulokset osoittavat, että kudottujen tekstien suunnittelussa on rinnon vaikutus, joissa herkkyy materiaalikokemukselle osoittaa arvoja eri avoimmassa ja myöhemmän tekijänä – inspiraatiota tai perustelu suunnittelupäätökselle voi löytää itse materiaalista, eikä ulkopuolisia tekijöistä. Oppinnytetyyni tulokset voivat toimia työkaluna tulevaisuuden työskentelyssä, inspiroida seuraavia tietä materiaali, tutkimuksen parissa sekä ohjeistaa muita materiaalin kanssa liitettäviä tekijöitä.
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1.1 FRAMING / BACKGROUND

When it comes to environmental aspects, connotations regarding textile industry are mostly negative. Now when the world seems to be on the edge of plunging into chaos, I question my purpose of being in this field. Thoughts of doubt and discomfort have troubled me throughout the years of studying textiles and made me hesitant towards my practice. Why would I want to work in an industry based on more and more rapidly changing pointless trends and exploitation of resources? Luckily, this is not the whole truth, as especially more independently working individuals and businesses can make better choices. The issues are also acknowledged in the industry and there are initiatives to make a change.

In the summer 2022 I got an opportunity to be part of a research project by Aalto University’s Department of Bioproducts and Biosystems, called FinnFiberColor, which developed and researched the production of novel, man-made cellulose-based textile fibres. My part in the FinnFiberColor project was to study the users’ experience of textiles, meaning the sensorial properties as well as the associative dimensions of textiles, to understand the added value of novel textile materials from the users’ perspective. No material is truly sustainable or environmentally friendly, as the topic is complex and manyfold, but I do believe that certain design methods can function as tools to enhance sustainability. Including for example the aforementioned users’ perspectives to the design process takes design one step closer to answering the complex questions of sustainability, as it targets the topics of meaning and value which I find crucially important to consider in sustainable design.

The topic of my thesis derived from this research project and its research aims combined with my previous studies in textile design, I want my work to “make sense”, both for me and my environment, and I believe that this aspiration can be explored more thoroughly through questions regarding meaning and value; value for me comes from understanding the meaning, and meaning to me is composed of the story, background, and the other details that create the whole entity. To me, textiles represent this kind of mesh of details that create associative meanings whilst still being physical material that we touch. Textiles refer to a myriad of materials, a way of structuring and composing, they are a form of expression as well as a part of our everyday life.

In this thesis I want to study the characteristics that are in the very nature of textile, understand and appreciate them, and let them guide me in my design process. Referring to literature findings as well as my own design process, I approach textiles from the perspective I find most important, the material itself. Focusing more deeply into how I interact with textile material I explore the ways in which the material experience can guide me in designing woven fabrics.
2.1 OBJECTIVES
Rather than a project with a clear research question proceeding straightforward from start to finish, I want to think my thesis as an enquiry or expedition into meaning and value. My objective is to focus on my personal design process and study the detailed components of which my knowledge on textile design is composed and how it results in woven textile designs. To gain insight about these topics, I investigate relevant topics in literature and create woven samples, whilst reflecting on the whole process with the help of diary entries. I aim to capture the components that guide the creation of the textile samples to better understand my own thinking during a design process and construct a map illustrating these elements. The process of creating these textiles is in the focus of the study, thus I use practice-led research methods when investigating the process. With my thesis and by understanding my personal design process I want to clarify and define my values and find meaning and confidence in working as a designer.

2.2 STRUCTURE
Fundamentally, my thesis is composed of multiple miscellaneous strains of thoughts flowing from one to another and intertwining, resulting in woven textile samples. The thesis consists of a written part and a production and is presented in three main chapters. The three parts of this thesis are presented in an order where one follows the other, but despite this my thesis is a dialogue between the literature research and the production process, and only together they create the whole meaning.

The literary findings relevant to the topic are presented in two chapters, both investigating the various perspectives on textile (design) experience. Seeking hand, touching eye focuses on the phenomenology of perception, the senses and the sensorial properties of textile. With the themes discussed in this chapter, I outline the ways in which senses affect the way we experience the surrounding world and explain what this means in the context of textile design. In On designing I discuss the thinking associated with textile design and the role of material in the design process, and lay the groundwork for my own approach in textile design.

The chapter Woven thoughts presents the research methods used in this thesis, a design process description, and the main findings of the investigation into my practice. With the help of a design process map of the web-like process, this chapter maps out the role of material experience during a design process of woven textiles. The design process description as well as the mapping of the design process are divided into three stages, material, structure, and sample, to better outline different ways in which material experience guides the design process. An archive of the selected textile samples created during the process is presented at the end of the process chapter. The thesis concludes with final thoughts in the chapter Discussions.

2.4 FINNFIBERCOLOR
FinnFiberColor ('From cellulose to new Finnish man-made cellulose fibres and sustainably coloured textiles') was a research project taking place in 2021-2023, led by the Department of Bioproducts and Biosystems at Aalto University, and co-funded by Business Finland and the project partners. The project partners included Metsä Spring, Fortum, Stora Enso, UPM-Kymmene, Kemira, ANDRITZ and the Finnish textile companies Omeule, Sidoste, Tam-Silk and Jokipiin Pellava. FinnFiberColor was one of the first projects in the ExpandFibre Ecosystem. The aim of the research project was to develop novel cellulose-based textile fibres and find solutions to the challenges these textile fibre technologies will face when integrated into the textile production chain. The project was built around the whole textile value chain, covering all the segments from raw material and spinning technology to textile application. My task was included in the work package 4, which covered the analysis, quality assessment and user experience of the new products.

To study the user experience of the new textile materials, meaning the sensorial properties of textiles as well as the associations linked to them, I organised four workshops for users of textiles. For the workshops I knitted material samples from cotton, viscose, modal, linen and lyocell for the workshop participants to have actual samples to assess. The idea was to first explore only the samples without any additional information about the material, and later to assess the same samples but now with a short description about the material's production methods. The participants were to tell their opinions and thoughts regarding the samples in both parts of the workshop. The
data from the participants was documented with two fill-out forms, on which the participants defined their agreement or disagreement about a statement regarding each sample. In addition to the forms, a set of semi-structured interview questions was conducted during both parts of the workshop. The discussion-interviews were documented with field notes and voice recording.

The results of the enquiry emphasise the complexity and especially the subjectivity of textiles; aesthetic properties of textiles are often interpreted similarly but are also linked to the meanings of material, which are often associations, subjective perceptions, or even learned opinions. This implies the storytelling power of textiles as well as the importance of meaning creation. When it comes to textiles and textile production, everything is ambiguous, but some sort of association or understanding is always transmitted. From the textile industry’s point of view, this is important to note when developing new materials. Users need adequate information and stories to guide their decision making, but there is a fine line between providing information and creating meanings, and greenwashing.

Researching the themes included in material experience while preparing for the workshops made me focus on material experience in a way I had not previously thought of. As a textile designer, I work closely with material, but these topics and theories I found out about while conducting the background research for the workshops was new kind of knowledge for me. Additionally, the results of my enquiry enforced my understanding of the importance of the experiences materials can create. Though the tacit knowledge about textiles has accumulated in me as I have studied and worked with the material, it is something I have not consciously paid attention to that much. I believe that there is a lot of unconscious material related knowledge somewhere in me, and if I consciously paid attention to it, I would be able to discover something important in my practice. Thus, in my thesis, inspired by the enquiry made for FinnFiberColor, I shift the focus from user experience to “designer experience” to explore my own relationship with textile, as a textile designer.
“The human capacity to engage with the world in ways that shape the material environment must have its foundation in the embodied characteristics of the species: the particular arrangement and orientation of senses, especially sight and touch, the motor capacity of fingers, hands and limbs, and, perhaps most importantly, the capacity of mind that imagines, anticipates and communicates.”

(Dant 2005, 136)

What brings me joy are all the little details I spot in my everyday life, were they colour combinations, odd sounds, light reflections, anything. I often want to look closer either literally or figuratively, the latter meaning that I’m eager to learn more about whatever it is that caught my attention. When the focus of my attention has been an experience relating to senses, an interesting light phenomenon for example, theories of physics or biology do somewhat answer to my questions but do not sufficiently explain the whole experience, Neuroscientific concepts tend to dominate the theories explaining sensorial experiences whilst disregarding the cultural significance of senses as well as the fact that sensorial experiences are characterised by meaningful ambiguity. Phenomenology, on the other hand, understands the world how it exists for us, and the fundamental familiarity of the world as we live in it, before we start to talk about it, and especially before we start to scientifically analyse it (Merleau-Ponty, 1946). Perceiving the surroundings, objects, and materials we encounter in everyday life by seeing, touching, hearing, smelling, and tasting is pervasive and inherent in us humans, and understanding the experience perceived with senses requires extensive scrutiny.
2.1 SENSE OF AFFECTION AND UNDERSTANDING

I find it interesting that of all our five senses, sight has become so predominant. Even in my textile studies, I have learned to discuss the looks of the textiles as much, if not more, as the hand of them. This does have something to do with our biology and our sense of vision being highly developed, but it is also cultural. Vision is associated with reason and intelligence, we “see” when we understand, Ocularcentrism, meaning the bias of vision suppressing other senses, dominates in the Western cultures though we humans interact with the surrounding world with all our senses (Chandler & Munday, 2020). Especially the bodily sense of touch tends to be less noticed even though, or because, it is grounded in our existence. For example, you don’t constantly pay attention to your feet touching the ground or the clothes on your body, even though this physical contact is always there between you and the surrounding world. Sensations obtained by touch are rarely considered as anything unless when it comes to the extremes of touch, such as discomfort and pain. The importance of touch is recognized in our language; by saying that we are “touched” or “I feel you” we refer to important and intimate emotions and relationships we have with each other. The significance of touch is like hiding in plain sight.

Because of the obvious nature of touch, it is easy to take it for granted, underrate, or even ignore the importance of it. In her book Classen (2012) writes about the cultural history of touch and how touch has been linked to lesser-civilized, secondary, and the feminine, and suppressed by “high” culture, vision and intelligence. To see is to think, and touching is crude. As one example, the author writes how the behaviour towards exhibits on display in museums changed in the late 19th century, as museum curators became concerned about the preservation of their art. The museum visitors had to learn to behave deferentially towards the artworks and touch was no more a valid mode of appreciation; rather, touching was understood to damage the pieces. (Classen, 2012, pp. 143-145) This notion of admiring art only by looking has followed to recent days, and valuable objects should still not be touched. I think this goes the other way around, too. Objects one needs to touch, use, and include in their life are not art, nor valuable, nor as worthy of intelligent admiration. Think about everyday textiles, bed sheets and underwear, for example: we spend a great deal of our time being in a physical contact with them, they are easily purchased, used, and discarded, often without given a slightest thought.

I find this way of thinking a little twisted, as haptic inspection is a link between us and the surroundings and informs us more than we are learned to appreciate. As Pallasmaa (2012) puts it, “The eye is the organ of distance and separation, whereas touch is the sense of nearness, intimacy and affection” (Pallasmaa, 2012, p. 50). Mere visual impressions cannot always tell everything about the surroundings or an object, thus we need to touch; the urge to touch is an urge to understand. Touching something with own hands makes it part of reality due to the direct physical contact as well as the physical feedback we obtain when touching. To touch, the human body must always be in direct contact with an object. Touch can be called as the “proximal” sense, referring to this intimate way how touch functions. (Wolfe et al. 2015, p. 399) Touch can be thought of as active touch, when you are the one touching, and passive touch meaning being touched, though in reality these two can never be fully separated. This interactive sense is what links us to the world and with what we gain knowledge and proof of the surroundings. (Carbon & Jakesch, 2013, p. 2)

Touch happens via skin, which is the biggest organ of the body as well as the biggest sense organ. (Wolfe et al. 2015, p. 400). In human skin there are multiple different types of tactile receptors, called mechanoreceptors, which react to different types of stimulation. Certain mechanoreceptors react to small and quick stimulus, other types of

Above Figure 4. Haptic exploratory procedures, from top left to right. Pressure: harshness, softness; lateral motion: texture; static contact: temperature; unsupported holding: weight; enclosure: global shape and volume; following contours: global shape and exact shape. (Lederman & Klatky, 1987)
receptors detect change in stimulus, and others to static pressure. The way skin senses touch is not the same all over the body. Especially the palm side of the hand and the fingertips are extremely sensitive in assessing texture, surface slippage, and flutter. (Hämäläinen & Kekoni 2006, pp. 169-170) Because of the different types of mechanoreceptors, acquiring information by touching requires different types of movement and physical contact, such as pressure to sense hardness and softness, static contact to sense temperature, and holding to sense weight, amongst other types of stimulation. These haptic exploratory procedures are necessary to acquire information about object properties. (Lederman & Klatzky, 1987)

Thus touching is not just touching, but a diverse set of ways to become acquainted with the surroundings.

4) With the aforementioned haptic procedures (amongst other means) we humans interact with materials and objects. It is the interaction between the material and the perceiver as well as the perceiver’s subjective interpretation which create the experience and understanding of a material. Carbon and Jakesch (2013) provide a detailed framework to explain typical phenomena of haptic aesthetics, meaning the process of tactile perception. The authors define the term haptic aesthetics as “the capacity of (materials and objects) to please our haptic system” (Carbon & Jakesch, 2013, p. 2). Their model is structured to correspond to the perceiver’s increasingly complex and elaborate internal process on the haptic aesthetics. Haptic aesthetic processing starts with an unspecified object and the context in which it is investigated. The object is explored using low-level perceptual analyses, such as procedures mentioned earlier (Lederman & Klatzky, 1987), after which the process continues with more elaborate procedures aiming at receiving coherent information about the object’s haptic qualities as well as the evaluation of cognitive and emotional aspects, meaning for example utilisation and aesthetics. (Fig. 5) (Carbon & Jakesch, 2013, p. 4)

2.2 DETAILED EXPERIENCE

Where Carbon and Jakesch (2013) explain the levels of the process of haptic inspection, Zuo, Hope and Jones’s (2014) four-dimension framework defines the multifaceted perception of haptic materials and textures (Fig. 6). The first two dimensions of this framework refer to the aesthetic experience of touch, focusing on geometrical configuration as well as physical and chemical attributes of a material surface. (Zuo, Hope & Jones 2014, p. 31) Hekkert and Karana’s (2014) three level framework presents a similar concept but discusses the entire material experience and not only the tactile side of it (Fig. 7). The authors expand the aesthetic experience to refer to the pleasure attained from any kind of sensory perception and explain aesthetic pleasure with the evolutionary benefit of us liking to touch or look at certain things. The sensory system is developed for us to understand the surroundings, to navigate around, to identify objects, to make sense of everything. (Hekkert & Karana 2014, p. 6) I see that the aesthetic experience is only the initial encounter with an object, where intuitive judgement is based on easily and rapidly made interpretations of the object’s properties. For example, it’s easy to like something instantly for its visual appearance, but truly acquainting oneself with the object begins only later.

The following dimensions of both frameworks recognise how the material and tactile experience is also affected by the individual’s perspective and the larger context, and not only dependant on the material aspects. In addition to reactions to the aesthetics properties, objects also evoke emotion. Touching or otherwise encountering with a material or texture elicits affective and hedonic feelings relating to for example comfort and beauty (Zuo et al., 2014, p. 31). It is often the evaluation or interpretation of an object, not the object itself, that elicits emotion. As people have different concerns, opinions and past experiences, they evaluate and interpret situations very differently, thus the emotions to materials differ amongst individuals. (Hekkert & Karana 2014, p. 7)

In addition to the emotional dimension, both frameworks also refer to the associative dimension of material experience. This means anything that is associated with the subject’s imagination when touching a material, relating to for example past experiences or resemblance to other materials (Zuo et al., 2014, p. 31). Hekkert and Karana (2014) expand the meaning to refer to the universal or context-depending attributes, labels and qualities assigned to products and materials. Meaning of a
material is not an intrinsic character but arises in interaction and context, thus for example social patterns and cultural expressions can affect it. Materials also become associated with particular characteristics and meanings when used frequently in a certain context. (Hekkert & Karana 2014, pp. 8-10).

As the very nature of touch as an experience is holistic, for me, choppering and cutting into pieces slightly disturbs the coherence. Still on the other hand, with the help of the presented frameworks and their way of categorising the experience into segments, the multidimensionality of material experience starts to unfold. It is physical as well as it is emotional, it requires our bodies to move as well as our minds to make connections. Fundamentally, everything around us is material, and a great deal of our culture is built on materiality. And importantly, material is not just stuff but holds a great affective power. Evocatively, but in a subtle and non-discursive manner, “the material world actively choreographs our movements, renders our social selves, [and] grasps our emotive responses” (Harvey et al., 2014, p. 133). Now, at the latest, I must remind you that I am discussing these material related theories from the perspective of textile, as textile is a material which fits perfectly in the forementioned description. Though it is a quality of other materials as well, especially textile surrounds us as literally as something can, it is an instrument of social representation, it holds memories and meanings. Textile is everywhere, but often subtly and not in the centre of attention. The forementioned frameworks and theories from cultural concept of touch to the detailed analysis of touch as an act, offer me a concrete and interesting frame of guidance of how look at textile as material in the context of textile design.

2.3 TEXTILE = TEXTURE

Textile is tactile in its nature, and the textile industry has its own language to discuss the fabric hand. Fabric hand means the subjective assessment obtained by touching a fabric (Behery, 2005, p. 1). It is a complex sensation consisting of a summation of stimuli evoked by the fabric, thus it is highly subjective in its nature. The industry has found some consensus on the sensations that make up hand, the terminology used to describe them as well as the techniques used in the assessment (Behery, 2005, p. 11). The subjective assessment of fabric hand does not meet all the hard criteria of the textile industry, thus objective measures are also used. Some mechanical properties of textiles correlate with hand, and can be evaluated objectively (Behery, 2005, p. 18). These attributes are for example flexibility, compressibility and density (ASTM International 2003). I see that assessing fabric hand with the help of separate attributes can guide in understanding and especially in verbalising the nuances of the tactile experience, but the experience of fabric hand is more than a sum of its parts. Touch is an elusive sense and because factors such as time, place, season and personal taste also affect the evaluation, it is challenging to remain objective.

An important character to address when discussing the sensory experience of textiles is texture, as texture effects are ultimately what textile is composed of (Albers 1970, p. 15). Texture often refers to how an object “looks on the outside and feels on the surface” (Sener & Pedgley, 2021, p. 69). Viewing

Figure 7. Dimensions of materials experience. Aesthetic experience is more material dependent, whereas emotional experience and experience of meaning are more perceiver dependant. Adapted from Hekkert and Karana (2014).
senses, separately or simultaneously. Therefore, it is complicated to define the nature of texture and texture perception.

In the context of textiles, texture is often perceptible by both touch and eye. Though in this thesis I aim to focus on the tactile experience of textiles, I understand that the relationship between vision and touch is inevitable, and rarely truly separable. In a philosophical sense, vision is not only passive, but similar to touch, as one needs to willingly and physically move their eyes to look at and see things separate from the whole outlook (Merleau-Ponty, 1945, p. 70). Vision and touch merge also more practically as vision plays a big role in creating a tactile experience. In addition to recognising shapes, objects and parts of objects, the human eye is remarkably skilled at recognising materials. Despite the shape of the object, the eye can recognize a material from the surface properties. Visual cues provide information about haptic characteristics and only by looking at a material, one can estimate how it feels and behaves. (Wolfe et al., 2015, pp. 115-116) For example, one can quite intuitively tell the tactile difference between different textile materials only by looking at them (Fig. 8 and 9). To my understanding, this interplay between the senses when experiencing texture argues for the holistic nature of textiles.

For me, there is something honest and pristine in understanding textile through the concepts of fabric hand and texture. It almost takes me back to the first encounters with yarn and emples my head of learned conventions of how textile should be like, Albers (1970) writes about the importance of unpredisposed attitude when approaching a material and how too much knowledge can narrow the bravness of experimentadion (Albers, 1970, p. 38). Having studied textiles for a while I have built my knowledge on them and most certainly have my own personal way of approaching textile design, but concentrating on the inherent qualities of textile materials might help in discovering something new. Studying textiles as multisensorial texture, recognising the context where it is experienced and understanding the ways it is perceived might result in something new and meaningful. Acknowledging these aspects in textile design requires considering the sensorial, cognitional and emotional properties of material in every stage and from every angle.

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Figures 8 and 9. Close ups of samples made during this thesis process.
"If the body had been easier to understand, nobody would have thought that we had a mind." (Rorty, 1979, p. 239)

When working in the FinnFiberColor research project, I had an opportunity to learn more about fibre and yarn production, which are the first steps in the textile process, and which again involve multiple steps and processes. The knowledge employed and the perspective from which materials are viewed in these first steps of textile production differs from mine so much that it is hard to understand them being both part of the same process. The beginning of the process with its chemistry and engineering demands for a totally different point of view. It’s technical, factual, number-based, standardised. It is almost the opposite than the other end of the chain, where textile meets the user and becomes saturated with meanings, feelings and emotions. Textile designers’ realm is situated somewhere in the middle, both exactly on its own expertise spot as well as being involved throughout the whole process – textile designer’s skill set includes acknowledging the standardised and technical but trusting the intuitive and emotional. In this chapter I discuss the role of a textile designer and the thinking that it requires.
3.1 IT’S A MESH

Due to its vast and versatile material options, structures and techniques, textile as a medium enables exploring expressive possibilities in incredible ways, making it an exquisite medium for art. Still, throughout the history, textiles have been excluded from the realm of high art. Gardner Troy (2006) attributes this to the association of textiles with women's work in the domestic environment, and later with industrialisation and mass production. (Gardner Troy, 2006, p. 15) Additionally, the fact that textiles are a necessity in our everyday life must affect the way the field and the medium is perceived. Despite the extraordinary amounts of work any kind of textile requires, it seems to me that the field is seen quite mundane and taken for granted; few know, or even care, how fabric is made. Textiles are a necessity, but easily discarded and replaced. Are they too close to us, and because of that seen as mundane? Overall, it comes to the ambiguity of textile as a medium and the varied techniques and skills textile design employs that have been disadvantageous for understanding the significance of the field, either as a medium for art and expression, or as the complicated industry providing necessary products for everyday life.

Textile production is a long and complex chain of procedures employing knowledge from various fields. It involves fields such as chemistry, engineering, business, and of course, design. Interdisciplinarity is in the very nature of textiles, and one phase couldn’t exist without another. Understandably, when presenting the structure of the textile production process, all the steps are mentioned. It is needed as every procedure between fibre production and consumer has its place in the process (Fig. 10). Being a textile designer who weaves, I am interested in having a closer look at the textile design activities of the process. Studd (2002) proposes a framework of the textile design process and includes in its phases such as planning and researching for the design brief, concept development, design creation, and producing and editing samples for the final collection (Studd, 2002, p. 42). The scope of this framework is justifiable as it considers the diversity of textile design activity as a process, but my interest is to dive even deeper and concentrate in weaving. In the process graphs describing the textile production process the activity of weaving is often noted simply by ‘weaving’, not specifying the factors that need to be considered and design decisions that need to be made during the process of creating woven fabrics. Weaving does not just magically happen but is a process in itself.

The need to focus on one phase of the textile creation process does not mean that the other steps can be dismissed. As an example, it puzzled me during the FinnFiberColor research project to realise how little the fibre engineers knew about fabrics. But it most certainly goes the other way around, too. Yarn is the starting point of my work, and I only know some random details about what happens to yarn before it reaches me. If the understanding of the other fields involved in the process is only fragments, as its worst this kind of knowledge specialisation can mean losing the understanding of the whole (Albers, 1970, p. 5). On the other hand, practical application of knowledge does not require understanding of the whole scientific theory. For example, though textile designers do not know the scientific explanation behind the processes, they often comprehend the effects of the applications of the other fields; what I know about textile dyes is how to obtain the colour I have in mind, not the chemical process of how the colour happens. This ‘lack’ of understanding the underlying knowledge is not a disadvantage but enables an experimental approach and practical application of knowledge domains (Philpott & Kane, 2016, p. 241), which are essential skills for a designer. I find this malleable position of textile designer fascinating; it requires hovering over the whole textile production process and collecting these knowledge fragments, then applying the collected knowledge in the design work, which
The key aspects which define textile thinking can be found in Anni Albers’s texts discussing textile in relation to arts and crafts (Albers, 1970). Philpott and Kane (2016) give an overview on textile thinking, which fundamentally “builds upon philosophical thinking that is founded on textile behaviours and metaphors” (Philpott & Kane 2016, p. 247). The authors also refer to Barnett’s (1999) pioneering writing of textile thinking where Barnett discusses Serre’s sack thinking and Deleuze’s theories on modes of thinking that are pliable, expansive, and capable of folding over, into and onto itself. Philpott and Kane (2016) write how “conceptual folding is a search for the re-contextualisation of meaning rather than for unequivocal truth” (Philpott & Kane, 2016, p. 246). Igoe (2021) in turn writes about approaching design from textileity, and describes textile approach as “textile like – a network, expansive, applicable.” (Igoe, 2021, p. 2). The author argues how this textile approach to making makes the matrix approach to knowledge making means fluidity and transsubjectivity regarding the components of design process, meaning the context, the designer, the outcome and the whole process itself. Igoe (2021) suggests that the matrixial approach enables an interactive connection between the designer and the outcome and offers an alternative model for “oversimplified and convergent” models of design (Igoe, 2021, p. 2).

These theories (or I would like to call them perspectives) describe the nature of design as it is to me as an experience. Unlike the mechanistic language of the (design) research field, textile thinking allows the design process to be soft and emotional. Textile thinking leaves room for intuition and tacit knowledge, which happen faster than analysis, sometimes too fast for a verbal analysis, and accepts this difficulty of articulating the knowledge. Albers (1970) writes how the challenge of verbalizing the process of creation and design does not stem from a lack of intelligence but rather signifies an intelligence that expresses itself through different channels (Albers, 1970). Tacit knowledge related to textiles feels hidden in the body, hidden in the fingertips, and is formed by doing, and especially by touching. It is a crucial component of the design process. Acknowledging this feels like an abstraction for the process to be what it really is like: sometimes tangled, sometimes clear and logical, constantly alternating between objective and subjective thinking.

3.3 LOOKING FOR A REASON

I struggle with the concept of inspiration, which, being a designer, does not make my practice easy. What is inspiration, what does it mean to be creative? At least in my opinion, these words tend to be used vaguely to describe many kinds of activities from ways of thinking to self-expression. As its most anxiety-causing definition, inspiration refers
to some otherworldly spark which is caused by an internal desire of creation, and which passes through the practitioner and materializes into something that’s never seen before. Inspiration is personal, and it is what sets a practitioner apart from others. This is a romanticised way of understanding inspiration, and I, who recognises anxiety and reluctance in themselves rather than desire and passion when talking about creating, should approach this topic differently. In a more practical sense, inspiration is just "something" that helps the practitioner in directing their creative aspirations (Korolainen, 2022, p. 23), and anything can be or become a source for inspiration.

Sources of inspiration both define the context, trigger imagination, and inform and guide the creation of a design. Almost all design happens by transforming, combining and adapting elements of already existing material, was it other designs, images, objects, or phenomena, (Ekert & Stacey, 2000, pp. 524-525) Discussing about the importance of recognising the relationships between sources of inspiration, the creator and the design outcomes, Korolainen (2022) explains the connections and influences everything has on everything with intertextuality, a term often referring to literary but applicable to other contexts as well. The author argues how everything is in dialogue, and these connections affect both the creation and the understanding of the outcome. Nothing exists independently in a vacuum but takes part in the web-like discussion. (Korolainen, 2022, p. 87) Regarded from this perspective, inspiration doesn’t seem so intimidating anymore; it does not just appear from somewhere, but the meaning of the word is expanded to refer to reason, and a reason to create and a reason for the outcome to exist is what I look for.

I recognise similarities in Anni Albers’s view on good design as in my objectives for this thesis. Albers (1970) writes how rather than imposing form on material, the designer should democratically cooperate with the material. The more the form derives from the material itself and excludes the designer’s individual objectives, the more balanced and timeless the form will become. “The good designer is the anonymous one”, the author writes and praises the design of a light bulb as an example. (Albers, 1970, pp. 6-7) Often in my design work I have had a story to tell, and textile has been the medium for me to tell the story. Approaching textile design with Albers’s words in mind, the textile material itself can be seen as being full of suggestions and stories to tell. Designer shouldn’t dictate but appreciate and understand the yarn and the material, and it shouldn’t be forced to be much different than what it is. Because of the versatile nature of textile and textile structures, I doubt that one specific and superior way of creating a material exists, but the design process is rather a discussion, where the material has at least as big of a say as the designer. Regarding material from this perspective, as one of the creators of the process, eases my mind and thoughts regarding inspiration.

To me, acknowledging the crucial, even collective role the textile material has throughout the design process tells about the power the material possesses. But as a final product, the role of textile overturns from cooperative to co-dependent, as textiles are often liminal and gain presence only when applied to another design, such as clothes or upholstery. The interdependent relationship between application of textile and designed object concretely reminds of Derrida’s theories of folding and unfolding; as Igoe (2021) ponders, a dress becomes a dress by folding, cutting and sewing textile, where changing the textile, the cut as well as the designer all affect each other (Igoe, 2021, p. 172). Thus, textile rarely is just textile, but a component of something else, or a starting point of something else. Because of this, the end use of the textiles needs to be considered during the design process. In my thesis I am in a way rebelling against this characteristic fact of textile design: as my goal is to work and explore together with the material I have, I won’t be focusing on the end use of the textiles. My aim is to design textiles whose reason to exist arises from the design itself, not from requirements set by anyone or anything else.
I acknowledge that I have tasked myself with a contradictory assignment: to articulate and make sense out of my design process, still simultaneously accepting and appreciating the complexity and ambiguity of it. I must admit that I am slightly hesitant to convert my practice into explicit words. My thesis is about my “designer experience”, and words and theories are not always enough to describe experiences or reality as it is, as it is encountered. My thoughts align better with French philosopher Maurice Merleau-Ponty and his arguments about science: science is a derivative form of knowledge, one level up higher in intellectual abstraction than our experience of the world. (Merleau-Ponty, 1945, p. 102). Applying this attitude, I question if it is possible to extract and explain the design process from the whole phenomenological experience. Replying to myself I argue that I am not trying to explain the process, I am trying to understand it. By noting these what’s and why’s between the elements constructing the process I can stand more comfortably behind it. In this chapter I first present the research methods used, after which I shift the focus to my own design practice by presenting some key observations made during the process of designing the woven samples. The process chapter won’t go through any specific design process behind an individual sample but introduces and discusses about the selected findings made during the entire process. The findings are also presented in a mind map illustration to better explain the web-like nature of the process. Lastly, this chapter presents the concluding thoughts and discussions.
4.1 METHODS

In order to respond to my research aims, of which one is to understand my own design practice, I follow a practice-led design research approach, grounded in textile thinking and material experience frameworks presented in previous chapters. Practice-led research is an umbrella term used to refer to a research approach where the relationship between the researcher-practitioner, the artistic process, and the production is in the focus of the study (Mäkelä & Nimkulrat, 2018, p. 2). As the term “practice-led” implies, the thesis is led and guided by the process of the practice (Mäkelä & Routarinne, 2006, p. 15). Mäkelä and Routarinne (2006) write how research in art and design is interpretational and pluralistic, meaning that instead of a weakness, resilience of the used method and finding multiple solutions are considered as an asset (Mäkelä & Routarinne, 2006, p. 16).

For my thesis this means that in the beginning of the process, I defined the starting point and the direction where to continue, and let the process take the lead without assuming to find any predefined results.

Despite the fact that the tacit knowledge is embodied in the practitioner, by attentive reflection on the very activity the practitioner can understand and accumulate the knowledge, Schön (1991) structures reflective practice on knowing-in-action and reflection-in-action. Knowing-in-action refers to the tacit, non-verbal knowledge and skills employed in practice; the knowing which is in our action. Reflection-in-action refers to the thinking, acknowledging, and reflecting of the action itself (Schön 1991, pp. 49-52). According to Schön (1991), reflection-in-action often arises from the unique and unexpected details of the situation and focuses on the understanding of these peculiarities. Every situation of the activity requires reframing and adapting, which involves applying the existing knowledge from previous experiences. (Schön, 1991, p. 129) Rather than theory construction, I understand reflection on own practice as enabling verbalising non-verbal action, which can help in understanding the practice, and in the end, help in learning about it.

In a practice-led research, documentation functions as a crucial research tool for capturing reflection. Documentation for example assists in communicating the reflective experiences of the creative process and illustrates the practitioner’s knowledge gained through the making of artefacts (Mäkelä & Nimkulrat, 2018, p. 3). Revealing how Schön’s (1991) two steps of reflection concretely occur in a creative process, Mäkelä and Nimkulrat (2018) present two modes of documentation: documentation of and for making an artefact. Documentation of making artefacts is executed during the process to collect information about the process itself, and documentation for making artefacts captures the reflection and analysis of the documented experiences, often taking place after the process. (Mäkelä & Nimkulrat, 2018, pp. 12-14) In this thesis, the whole process from researching to weaving and making is documented by diary notes, which reflect the learnings from both the writing and production parts. Throughout the thesis I draw thoughts and reflections from those diary notes (Fig. 12) and write them into the body of text itself. In the following part of this thesis, I elaborate and reflect even more on the design process.
4.2 PROCESS

4.2.1 Material

As stated previously, textile industry and sustainability are a difficult combination. As I have articulated in the previous chapters, sustainability for me is the values and reasonings on which everything is based on. But as textile is physical material, it is needed to discuss sustainability from a material point of view, too. There are good and bad aspects in every material, and purely environmentally friendly materials do not exist; producing anything uses resources and energy, some materials require more water, others more chemicals, and so forth (Salolainen, 2022, p. 37).

With this I reason the use of recycled materials as a lesser of the evils. The resources are already used to produce the material and using that is making sure that the resources are not wasted for nothing. This inevitably makes the design process more material driven; the available materials are what they are, not what the designer chooses. For me, this only makes the design process more interesting, as it re-structures the process to really start from the material but does not diminish the need for designing.

My process started by sourcing material, focusing to find unwanted and leftover material. With the help of Aalto University’s weaving studio master Tiina Salvo, I collected some of the lesser used, old, and almost finished cones of yarn from the university’s yarn storage (Fig. 13). In the end, there were multiple cones of yarn to choose from, and from that selection I intuitively picked the yarns for me to use. Additionally to the yarns sourced from my school, I purchased two surplus cones from my friends. By doing this I ended up with a relatively random yarn selection, which made me curious to start exploring. I have studied woven fabrics for several years and I for sure have found my favourite materials which I trust and often end up using. Sometimes this long-term relationship with certain yarns feels restrictive and disables me from being experimental, but now with this selection of yarns, that I had not selected based on my preferences, I was pushed out from my comfort zone.

As my design process begun with given yarn, I started by getting to know them. First thing to check with a new material was to see if it had any information about which material it was made from. For example, the yarns containing wool, silk or linen made me feel comfortable and positive to use them, especially if they were from a manufacturer whose yarns I had previously used. Cones which did not have material information on them made me a little suspicious towards them. What if they are synthetic? I can’t like them, then. This biased attitude is a little funny, and even though I recognise this behaviour I still tend to favour certain materials over others based on some learned conventions.

Above
Figure 13. Some of the yarns found in the yarn storage of Aalto University. From these I chose the ones I would be using.

Below
Figure 14. My yarn box in the weaving studio.
Strange silk
- Not sure if really silk, though
- Tiina says it’s strange, makes me want to experiment with it
- Gorgeous shine, oddly limp but rough at the same time
- To be honest feels horrible to the touch

Silk-linen-viscose blend
- The cone looks like an old and used towel
- Silk and linen are lovely materials
- The fineness makes it seem easy to approach, looks soft and down to earth
- Not liking it for the looks, but more for the material composition

Cashwool
- I’ve used this before, so this is an “old friend”
- Lovely, pleasant, soft, so nice
- From previous knowledge, I know how it behaves: as its best in satin with longer floats, will shrink a little with steam

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Figures 15, 16 and 17. Introducing three of the yarns that I used and my thoughts about them.

Above
Figure 18. Samples of the yarns I used. Every row’s first sample is a sample for the optical mixing of colours when using multiple colourful yarns at once.
Some other characteristics I pay attention to include the weight, thickness, how it feels to touch, or when run through the fingers, its surface texture, and colour. Of these characteristics, thickness is what guides and determines the most in which ways the yarn could be used. Otherwise, it’s more about the overall impression of liking or not liking the yarn; the yarn either fits into the idea I have in mind, or gives me one, or doesn’t. This assessment of yarn feels subjective, but emotional and personal reasons affect the decision making as well. Assessment of the yarn feels like interpreting, or imagining the possibilities, almost like guessing. In my mind I take the material to the next structural level, structure, evaluate materials properties and imagine how they could be turned into a structural system. The yarn gives a strong suggestion, but it needs to be tested in use to really see how it behaves in a structure.

4.2.2 Structure
As stated previously, textiles are materials that employ multiple knowledge fields. Textiles also employ multiple different material properties, as textiles are material “systems” that encompass within themselves the properties of polymers, fibres, and yarns. All together these elements form one piece of textile, which again has its own properties. (Tandler, 2016, p. 64) Material thinking and material knowledge in textile design includes knowledge about mainly yarns, but also fibres and polymers, but additionally and most importantly, knowledge about the woven structures combined with the aforementioned elements of yarns. In a woven structure, the properties of the used materials are combined, but not merged; woven material is a whole constructed from separate parts which retain their individual characteristics. A woven structure is more like an assembled structure or system, and weaving is a method applied to produce this textile system. (Tandler, 2016, p. 91)

This means that designing woven fabrics requires understanding yarn properties from the perspective of woven fabric’s properties. It includes knowing the basic idea of a woven structure as well as understanding the properties of the material of the yarn. As I learned to design by letting the materials guide me, I started by selecting the yarns first, and the weave structures according to the yarns. Depending on the yarn and the impression it gave me, I began with a structure. With experience, a textile designer becomes more and more knowledgeable and can pre-see how the various combinations are going to succeed. I have grown to like using satin structures, so I often started with a satin. Despite I was fairly confident how the structure would turn out, it was necessary to weave a sample with the yarn and the desired weave structure to really see what kind of a fabric material is created. As for example, thickness of the yarn and warp density affect the resulting structure. Particularly when working on a small structure, tiny details for example in the length of the weft float are crucial and small changes can make a huge difference, which can only be found out by testing. Especially the samples I wanted to weave with the industrial loom needed to be tested multiple times.

As I mainly worked on a jacquard loom, the possibilities for the weave designs were almost endless. A jacquard loom enables designing large and complex patterns, as it does not have shafts but individual heddles corresponding to each individual warp yarn. Jacquard technique combined with the relatively dense warp automatically guides the designing towards larger patterns and well-faced structures, rather than smaller structural designs. I still didn’t want to create tapestry-like designs based on visual patterns. I wanted to reduce the visuality of the samples and focus on the structures in themselves, I drew inspiration from the rectangular, repetitive, grid-based visuality of weaving files. For me the basic idea of weave structure, repeating one unit to form an entity,
is fascinating, and thus I wanted to create textile samples which play with these repeated and logical systems, but result in draping and malleable fabrics. For me this approach fell true to the nature of textile.

Often when working on the designs, I found myself sitting still and staring at a wall, trying to count or figure out a weave structure in my head. It felt like mental sketching, very detached from the material, yet somehow very tactual. This was interesting to note, as often “working with material” is considered to mean working with one’s hands, concretely touching the material, but when it comes to jacquard, it is more like a cognitive challenge. One could say that working with jacquards does not allow enough room for intuitive experimentation with the material, like a dobby loom does, but for me, these two are just different methods neither one better than the other. I assume it depends on the wanted end result as well as on the preferences of the practitioner if a lobby or a jacquard loom is a more suitable choice. In my thesis the point was not to study weaving as a craft, or as a sketching method, but to study weaving in general.
4.2.3 Sample

To properly analyse how I examine a sample, I recorded a video of it (Fig. 25). From the video I was able to recognise multiple different hand movements and exploratory procedures (Fig. 26 on pp. 51-52). The wideness in the range of movements was an interesting surprise for me, but it was also interesting to note that these kind of hand gestures seem quite specific for this kind of purpose only. One rarely touches a fabric in a similar manner in real life, as when examining a sample. In everyday life, textiles rest statically on the skin, or they are rubbed on the skin to dry it, or one sits on them, for example. Unless one is examining a textile, no one touches fabric in an exploratory manner. I consider this to mean that this examining touch needs to recognise characteristics that are recognisable by other means of touch as well; the fingertips need to know how a fabric feels when it covers the whole body. In other words, the examining touch evaluates the experience of when the fabric is touched differently.

Another thing, to me more obvious, is that the examining touch also evaluates the hand and the structure of the fabric. This is more technical and relates to properties such as the length of the yarn floats or the density of the structure. Finetuning these technical aspects can take a few rounds of testing and evaluating, especially if the final piece is to be woven on an industrial loom. Additionally to the technical properties, the evaluation includes also intuitive assessment regarding the pleasantness of the sample. If the fabric is intended to have a specific end use, the “okayness” of the sample is easier to determine, as well as it is easier to dislike samples that lack the wanted qualities. I did not have any specific end use for the samples, thus I evaluated the overall impression. The samples I found the most successful and pleasant were the ones with I managed to surprise myself, meaning that they turned out positively different than I intended. Another realisation I made was that an interesting texture does not automatically mean that it is abundantly detailed and filled with contrasts, but that an interesting texture can be mesmerising purely because of its simplicity and plainness.
<table>
<thead>
<tr>
<th>EPLORATORY PROCEDURES</th>
<th>ATTRIBUTES TO ASSESS</th>
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<tr>
<td>Lightly stroking the surface of the sample with the palm</td>
<td>Overall surface texture and contour</td>
</tr>
<tr>
<td>Stroking and simultaneously pressing the sample</td>
<td>Extensibility and the overall hand</td>
</tr>
<tr>
<td>Caressing the surface with the fingertips</td>
<td>Surface structure in more detail, to scan for differences in surface contour and surface friction</td>
</tr>
<tr>
<td>Placing hands on the sample for a while</td>
<td>Thermal character and compressibility</td>
</tr>
<tr>
<td>Holding with both hands, between the fingers and the palm</td>
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<tr>
<td>Running the sample through the fingers</td>
<td>Differences in density and surface contour</td>
</tr>
<tr>
<td>Rubbing a detail on the surface with the tip of the index finger</td>
<td>Surface texture of a detail</td>
</tr>
<tr>
<td>Running the tip of the index finger linearly on the surface of the sample</td>
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<tr>
<td>Carefully scratching a detail on the surface with a fingernail</td>
<td>Density of the weave structure</td>
</tr>
<tr>
<td>Dangling the sample between the fingers</td>
<td>Resilience, drape, and overall hand</td>
</tr>
<tr>
<td>Folding, moving, picking up and putting down the sample</td>
<td>Resilience, flexibility, and overall movement</td>
</tr>
<tr>
<td>Holding the sample and enclosing it with both hands</td>
<td>Density, volume, compressibility</td>
</tr>
</tbody>
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Figure 25. Stills from a video recording of assessing a textile sample.

Above
Figure 26. Exploratory procedures and corresponding attributes. Hand procedures partly based on Lederman and Klatsky (1987), and fabric hand attributes partly based on standard terminology relating to textiles by ASTM International (2003).
Design process map

This map illustrates the detailed process of weaving and the touch points where material guides the decision making. The map is created based on multiple woven design processes, thus it does not present an individual design case. The process is divided in three stages: material, structure, and sample, and presents both material qualities as well as sensorial exploratory procedures used when interacting with the design. In its complexity this map is still a simplified sketch of the process, an illustration, as sensorial experiences are challenging to verbalise.
4.2.4 Design process summary

To structure and outline the design process of woven fabrics, it is divided into three levels: material, structure and sample (Fig. 10). In this case, material means yarn, structure implies to woven structure, and sample is the final piece of woven fabric. On each level, there are different ways of communicating and interacting with the material. On the first level, the focus is on the material characteristics and my impressions on them; how do they feel to the touch, but also what do I think about them, what do they tell me. On the second level, the material characteristics need to be understood in the context of woven structures; the structure is a system combining the properties of the yarn, material and fibre, but how this system is constructed affects the overall quality of the structure. On the third level there is the fabric sample, and to understand the sample, various exploratory hand procedures are needed. Evaluation of the sample is done to assess if the sample has or lacks the wanted technical characteristics as well as to obtain an objective impression on the sample. The design process also includes going back and forth between these levels, as decisions made on one level affect the other ones as well.

4.3 SAMPLE ARCHIVE

On the following pages I present some selected samples that I created during this thesis process. As the pieces are samples of my investigation, and more like idea samples than pieces of a collection, they are named after the date they were finished. There is also a short description of the sample to briefly open my thoughts and reasonings behind them. The design process map (pp. 50-51) is created based on the findings made while designing these samples.
Sample no. 280423.

*Cotton warp, wool and silk-linen-viscose blend weft*

In this sample I wanted to give the stage to the yarns: the shiny cotton warp and the rougher silk-linen-viscose blend. Warp and weft yarn floats create an uneven chequerboard pattern, where the yarn floats can freely move. Woven on an industrial jacquard loom.

Sample no. 120423.

*Cotton warp, wool weft*

In this sample, warp-faced satin structure and weft floats create differences to the surface texture: the harder satin is interrupted with soft wool yarn floats. Again, the effect becomes more three dimensional after steam finishing.
Sample no. 030323.

Cotton warp, wool weft.

For this sample I used relatively thin yarns, but the double cloth structure and dense satin makes the hand feel thick and heavy. Additionally, using thin yarns allows the more delicate gradient effect to the simple grid pattern that forms the base of the pattern design.

Sample no. 060223.

Cotton warp, wool and silk weft.

To emphasise the texture of the thicker silk yarn, I wove stripes of triple cloth with both the silk and the wool, alternating with stripes of simple satin with only the thinner wool.
Sample no. 240423.

*Cotton warp, wool weft.*

I wanted to keep this design simple and textured, so I wove a small chequerboard pattern of structures with shorter and longer yarn floats. Finishing by steaming shrinks the wool a little bit, allowing the longer yarn floats to tighten, causing a puckering effect.

Sample no. 220223.

*Cotton warp, cotton and wool weft.*

To again play around with the effects of combining two materials that behave differently, in this design the other layer of the double cloth is woven with cotton, and the other with wool. After steaming, the layer with wool shrinks, wrinkling the cotton layer.
Sample no 230323.

Cotton warp, wool blend and silk weft.

As I found the almost slippery heaviness of the silk yarn at the same time luxurious and unpleasant, I wanted to create a sample representing these characteristics. In this design, the silk yarn mostly floats on the surface, and is stitched to the back cloth in bundles. After weaving, floats are cut to create almost like a rya effect.

Sample no 170323.

Cotton warp, wool weft.

In this design I used only wool as the weft, as I wanted to create three dimensional effects by only using one material, but different structures. A tighter structure forms the “background” of the design, whereas a looser double cloth structure creates the bulging pattern.
Sample no. 010423.

Cotton warp, silk-linen-viscose blend and wool weft.

One of the yarns I found in the yarn storage had a subtle furry texture, which inspired me to create this furry sample. The warp and weft yarns float in a grid-based structure, and when the floats are cut, the twill of the back cloth is revealed.

Sample no. 250323.

Cotton warp, wool and cotton weft.

In this design, the wool brings softness and the cotton creates sturdiness. I wanted to emphasise the different materials visually, but the rhythm of the grid and differences in the materials also feel fun to the finger when stroking the sample.
In this thesis I tasked myself with exploring the ways in which material experience guides textile design. What I think is very distinctive for my personality, I began the task by plunging into literature to verbalise and organise the viewpoints that construct the framework of this thesis. This formed a reliable ground on which to base the production part of my thesis. Thus, to complement the literature research, I set out to draft and arrange the key elements of the process of weaving by creating woven samples and reflecting on the process, focusing on how material experience guides the process. I found this viewpoint important, as to my knowledge, this step in the textile production process is often acknowledged only briefly. Additionally, discussion about the detailed sensoriality of textiles and its role in the process tends to creep onto the side of science, nanometres and polymers, ignoring the subtleties of designer’s tacit knowledge. By leaving out the scientific approach and focusing on the phenomenological experience, I believe this thesis managed to discuss the topic from an interesting point of view.

With the mapping of the design process of the woven samples I believe I achieved, at least to some extent, in demystifying the process of designing woven textiles. In other words, I was able to map out the touch points in which sensitivity to material guides the decision-making. I managed to define and show the different actions included in the process of weaving in more detail compared for example to Studd’s (2002) model of the textile design process. My design process mapping is an example of Igoe’s (2021) idea of material knowledge making, showing the interconnectedness of different stages of the process, the designer and the material. The division into material, structure, and sample is only one way to arrange the material experience related actions and relations, but overall, I consider my thesis to be a good starting point for understanding the multidimensionality of material experience and how implicit and explicit material knowledge fuse in the work of a textile designer.

The material experience frameworks (Karana & Hekkert, 2008; Zuo et al., 2014) I used to construct the theoretical groundwork of the thesis focus on the users’ material experience. These theories suggest that material experience is essential in shaping the user experience, and (product) designers should actively focus on that. Textile being an extremely tactile material, this definitely applies to textile design as well. Viewing my work from the user experience perspective, this thesis indicates that in textile design the three different structural levels offer at least these three opportunities to focus on material experience to enhance the experience of the user. However, how the designer’s experience relates to user experience is a topic of a different research. My thesis focused on my personal material experience
when designing, and the same findings cannot be applied directly to users. Nevertheless, my design process mapping can offer insights and possible viewpoints from which to start a more thorough investigation.

Overall, personally, I am happy about my thesis journey, but as with everything, there is room for discussion. Right from the beginning of this thesis process I wanted to allow myself and the process to have enough flexibility. For me this meant that I did not want to restrict the process by setting too tight goals too early; the idea was to explore and possibly land somewhere. The freedom obtained from not having a specific goal to reach had a negative side effect of the project lacking a clear structure, which again caused me to stray here and there. A more confident structure could have helped with the thoughts of uncertainty, which arose from moments of not knowing where to take the project next. But I argue that changes to these would have turned this project into another project, as I wanted to maintain the kind of postirical touch to this thesis, and not forcefully interpret the process and my practice in a too explicit and logical manner.

The almost infinite possibilities of weaving as a method of material construction combined with the theme of material experience caused my attention to shift from focusing on the process to the designs themselves, meaning that from time to time, I felt pressure to create something materially and tactually innovative. I had to remind myself that my aim was to invent anything new, or not even to create interesting textures different from each other, but to concentrate on how I create anything at all. Retaining this thought supported me during the moments of doubt, as it ensured me to keep my role more observant, rather than creative, taking off pressure from designing. Still, the simultaneous roles of being both the researcher and the object of research were at times challenging.

The loose structure of the thesis project also made me uncertain how to finalise everything. Instead of feeling over and done with the project, I’m continuing to ideate other ways to interpret the theme of my thesis. Maybe a proper collection of woven fabrics could have been a more cohesive and logical outcome? Or should I have used fewer materials when designing the samples to really delve into the subject? Or allow myself to use any material possible? But as one of my goals for this thesis was to find confidence in designing, and ultimately define myself as a designer, I consider it to be a good thing to conclude this thesis project with an aspiration to continue. These slight feelings of dissatisfaction when finishing a project should be seen as a boost for further practice, and not as a sign of underachievement. Personally, this is one of the most important findings of my thesis.


