

# THE VALUE OF DESIGN RESEARCH

## HOW ASSOCIATIVE MATERIAL CHARACTERISTICS CREATE TEXTILE REFLECTION

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DESIGN CONFERENCE

APRIL 22-24 2015

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### ABSTRACT

*Product design, and especially relevant for this study textiles design, is concerned with designing not only the product itself, but just as much the material, which forms the product. It is further highly relevant that designers relate their materials and product to an existing context and environment that corresponds to meanings and experiences.*

*For design education it is therefore essential to discuss the diversity of material attributes that has to be considered in textile design, but also the creative process of actually designing the materials in order to obtain the desired properties and meanings. As educators of future designers we are concerned with teaching students, how to develop and use materials for 'future design' in a way that embrace multiple properties, including aesthetic, technical, functional and sustainable concerns. In this study we are specifically concerned with associative meanings when it comes to design of new materials and how they affect the final materials. Here students were told to translate and interpret abstract key phrases into textile materials or compositions. The educational aims of the assignment were primarily to encourage the students to explore materials and to reflect on, how personal associations can be embodied in [textile] materials.*

*The discussion and results of the study stressed the coherence and differences of textile techniques used to express the given keywords and how the assignment has influenced the students' material practice.*

*Keywords: material attributes, translation of material meanings, material practice, design education*

### 1 INTRODUCTION

In the work with and the appreciation of materials, two material performance dimensions should be considered on equal terms, namely materials' physical and social worlds. Physical and social worlds are rooted in fundamental epistemological beliefs and are often used to describe how the natural sciences and social sciences understand the world (Kant, 1781; Searle, 1995; Shove et al., 2012; Vannini, 2009).

A material's physical world corresponds to its physical performance established and discussed by means of quantitatively and technical measures such as mechanical, chemical and physical material properties. A materials social world corresponds to the human meanings and experiences evoked through a social interaction with the material (Dant, 2008; Schifferstein and Hekkert, 2008) and

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relates to a range of qualitatively and user-experience-based material attributes such as sensorial, associative and emotional material characteristics (Karana et al., 2009; van Kesteren et al., 2007).

In this study this duality used to describe material performance is acknowledged, but it is further attempted to strengthen the links making it easier to translate different means used to characterize materials performance. Thus it is proposed to regard the discrete duality rather as a continuous scale that progresses from technical properties to emotional properties linked by sensorial and associative material attributes. This is based on an argued difference depth in the cognition and mental interference with the material. While technical properties are by definition supposed to be objective and decontextualized, experiential qualities are subjective and highly context specific.

The continuous progression and the relation between the kinds of material attributes have been outlined in figure 1.

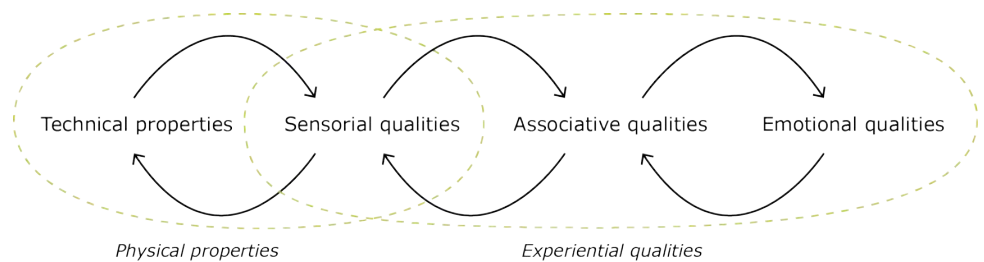


Figure 1 – the relation and links between physical properties and experiential qualities

The figure illuminates two things.

One is that the different kinds of material attributes are related. The physical composition of a material and how it has been processed influence how we sense the materials, e.g. by means of its touch, its smell and its visual appearance. The sensorial perception then again creates associations to previous experiences with references to e.g. similar sensorial stimuli, while associative meanings can create and evoke emotions that can be difficult for people to comprehend and articulate.

The other is that sensorial attributes are the key means to link two otherwise separate worlds of materials understanding. In some studies sensorial attributes are being referred to as aesthetic or sensoaesthetic attributes (e.g. Johnson et al., 2003; Miodownik, 2007) and can be regarded as a gate between the physical and the social material world. Sensorial attributes are strongly connected to the physical composition of the material and studies that seek to quantify sensorial experience exist (Laughlin and Howes, 2014). However sensorial attributes also correspond to a human aspect, as the associations experience with the materials.

Acknowledging materials' and products' non-technical properties in the material selection process have previously been discussed by e.g. Karana (2009), Ashby and Johnson (2010), van Kesteren (2008), Desmet (2008), Pedgley et al. (In press) and Bang (2010). In these studies, associative and emotional properties are primarily identified and discussed with basis on already existing materials. Participants are restricted by the processes already-existing materials and products have undergone and only properties known to the participants are

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articulated. The approach provides structures, taxonomies and tools to articulate material properties, but the process is *analytical* and deductive rather than *reflective* and inductive, and offers an artificial representation of, how materials are approached by designers in creative processes.

Product design, and textile design in particular, is founded on a high degree of hands-on practice and a creative approach selecting and designing materials. However literature that discusses the subject from this rather limited. Some examples are *Code - 12 Styles 60 Small Domestic Appliances* (1996), a publication that with emphasis on twelve different styles (e.g. eco and military) provide examples of sixty domestic appliances and Albers' (2000) essay on tactile sensibility written as early as 1965. In the present textile curriculum this approach is also applied e.g. in translating visual trend catalogues to textiles, in a folklore project, where students find inspiration in traditional crafts to create new textiles and garments and in a concept development course, where students design textiles with inspiration in analyses of existing textiles.

However, this obviously still indicates a knowledge gap and from a research (and educational) point of view it is relevant to study the underlying mechanisms of working creatively using associative textile properties towards the design of a textile material. Thus, we find it appropriate to ask the research question "How can reflection and articulation of material meanings in the [textile] design education be supported?"

In this study we do this by imitating the development process often applied in textile design, where a specific emotional or associate experience fund the basis for a physical textile. This means that we, in comparison to the before mentioned material exploration tools, have turned the process around and explore, how physical materials can be developed based on associative inputs. The purpose of this approach is thus to activate and enhance reflection in materials development.

With basis in the stated research questions, an exercise in a materials course for undergrad fashion and textile students has been introduced. Instead of focusing on already manufactured textiles, the point of departure was the associations the students got when interpreting phrases from a poem. Based on that students had to explore textile materials and techniques in order to translate and simulate their individual emotions and associations.

## 2 STUDY

The study is based on a practice- and active-learning based assignment in a three-week introductory material course at Design School Kolding for first year fashion and textile students conducted in the spring, 2014. Each student was given the assignment to translate five key phrases from a poem into five different textiles or textile compositions embracing the atmosphere of the key phrases based on their subjective associations. The five key phrases was distributed randomly to the students from a selection of eleven key phrases from the book 'Det værste og det bedste' [The Worst and the Best] of the Danish poet, Søren Ulrik Thomsen (Thomsen, 2008). The key phrases, translated into English, were drizzle, peeled elder, the molten mattress, freshly baked rye bread, crystals, Suzi Quatro is playing at a harbour festival, run-over hedgehog, high-ceilinged teahouse in Budapest, the diary is full of appointments,

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Gothersgade's dirty traffic<sup>1</sup> and cobbles. Written in Copenhagen some key phrases have clear contextual and cultural associations, while others are more abstract.

From the assignment, 40 material samples from 8 students were collected. Some key phrases had been interpreted by six textile samples, while some only linked to a single sample. In the further analysis only key phrases with three or more textiles have been included. These were *Suzi Quatro is playing at a harbour festival*, *freshly baked rye bread*, *the molten mattress and peeled elder* (three samples), *high-ceilinged teahouse in Budapest* and *the diary is full of appointments* (four samples) and *drizzle* (six samples). Some students had accompanied their samples with keywords that have served to describe underlying associations to facilitate the translation process from associations to sensorial qualities and further to the textiles and techniques applied.

### 3 ANALYSIS AND RESULTS

The analysis of the study is based on similarities and differences depicted in the physical textile material samples. These stress sensorial qualities such as colour and tactility as well as the technical means and raw materials used to obtain the sensorial experiences. The analysis has further integrated descriptions of the material samples by students in presentations of their project on the last day of the course. From the presentations it was possible to get an idea of the level of verbal reflection in the assignment. All observations and results are not covered in this study, but the general tendencies have been covered. To illustrate the analytical approach, two examples of the translation of associative meanings to physical materials are given here.

#### 3.1 KEY PHRASE: DRIZZLE

The key phrase *drizzle* was translated into six textile samples. These are shown in figure 2. One student (lower right sample) used the keywords 'gap', 'fall', 'airiness', 'light', 'irritating', 'unpleasant', 'sneezing' to illustrate her interpretation of the key phrase and as inspiration for her translation process. The keywords have been clustered in three categories that relate to lightness, movement and negative implications of drizzle. In general the colour use is light and pale and in the samples that work with colour differences, the contrast is small. The materials used for the samples have low densities and are transparent or semi-transparent. The materials' visual appearances are alike, but the used textile raw materials and technique are all different. The textile techniques used will shortly be presented here (with reference to the letters in each picture in figure 2).

- a) One sample is a woollen woven textile that has been coated with felting-reserve and then felted, while the other sample is a plain polyester weave that has small heat-treated dots imitating raindrops.
- b) Two cotton and one silk weaves have been burned out creating transparency and motion. All textiles are undyed and demonstrate lightness.
- c) Dark tulle fabric has been shredded in vertical strings.

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<sup>1</sup> Street in the center of Copenhagen

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- d) Different kinds of light textiles have been dyed with dark dyes exploring fineness and detailing of the dyes used.
- e) Three layers of different semi-transparent fabrics have been used as a composite. The layers of textiles create spatiality.
- f) Woven fabric has been shredded vertically in a bow.

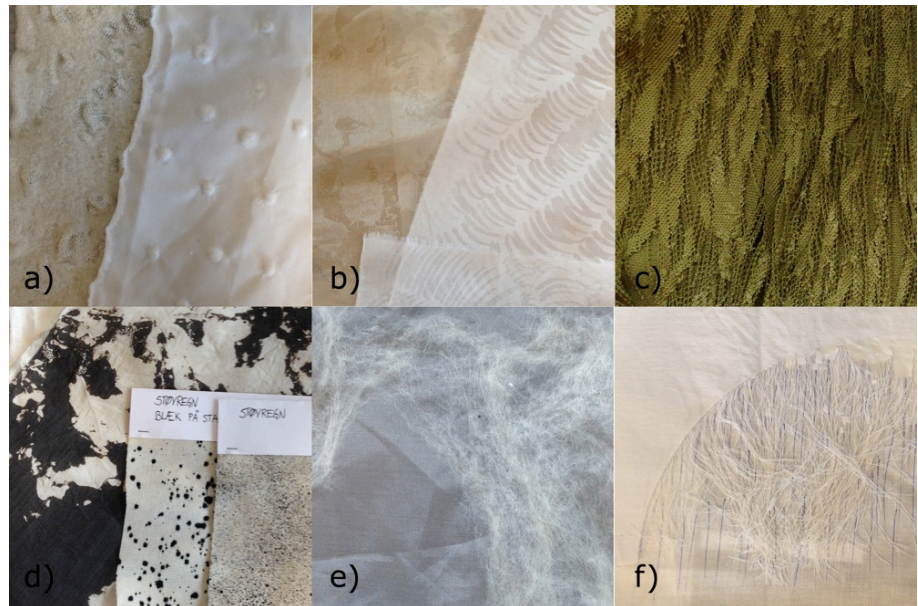


Figure 2 – Examples of six different interpretations of the key phrase 'drizzle'

### 3.2 KEY PHRASE: THE RUN-OVER HEDGEHOG

The key phrase *run-over hedgehog* was translated into three textile samples. These are shown in figure 3. In all three samples compositions of several textiles have been used to construct dense and spatial textile with multiple expressions. All samples have interpreted the key phrase more literally and have tried to imitate the look of a run-over hedgehog.

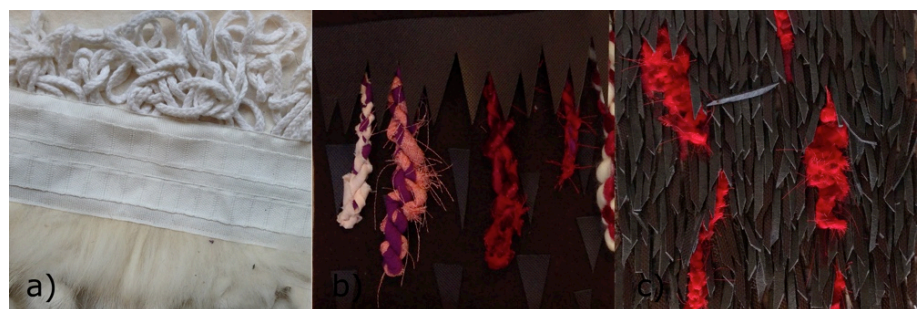


Figure 3 - Examples of three different interpretations of the key phrase 'the run-over hedgehog'

In the mid and right hand samples (picture b and c in figure 3) shreds or spikes of a brown synthetic leather fabric have been used in combination with twisted or crocheted red textile strips that create longer tongues as means. The shreds and spikes imitate hedgehog quills and the red tongues imitate blood and intestines. In the material sample to the left, only bright colours have been used, which makes the sample appear 'pure'. The sample contains three different raw materials with different materiality and expression. The student

who made the sample, described the choice and composition of materials as “*fur illustrating the external and vulnerable part of the animal, the lines as the internal and life-essential part of the animal, while the band symbolized both the boundary between the external and internal as well as road on which the hedgehog was run over. (...) Being run-over, the animal's external parts had become visible*”.

### 3.3 OVERALL TRENDS

The two examples of translations from key phrases to physical material samples have served to illustrate some of the multifarious approaches to the assignment. The examples have identified some similarities, but also recognize some differences. In the following section additional characteristics identified through analysis of the remaining four key phrases will be discussed shortly. As associations are translated to physical materials through sensorial attributes, it is the use of sensorial attributes that will be stressed.

In figure 4, the three key phrases ‘the molten mattress’, ‘newly baked rye-bread’ and ‘Suzi Quatro is playing at a harbour festival’ is shown.

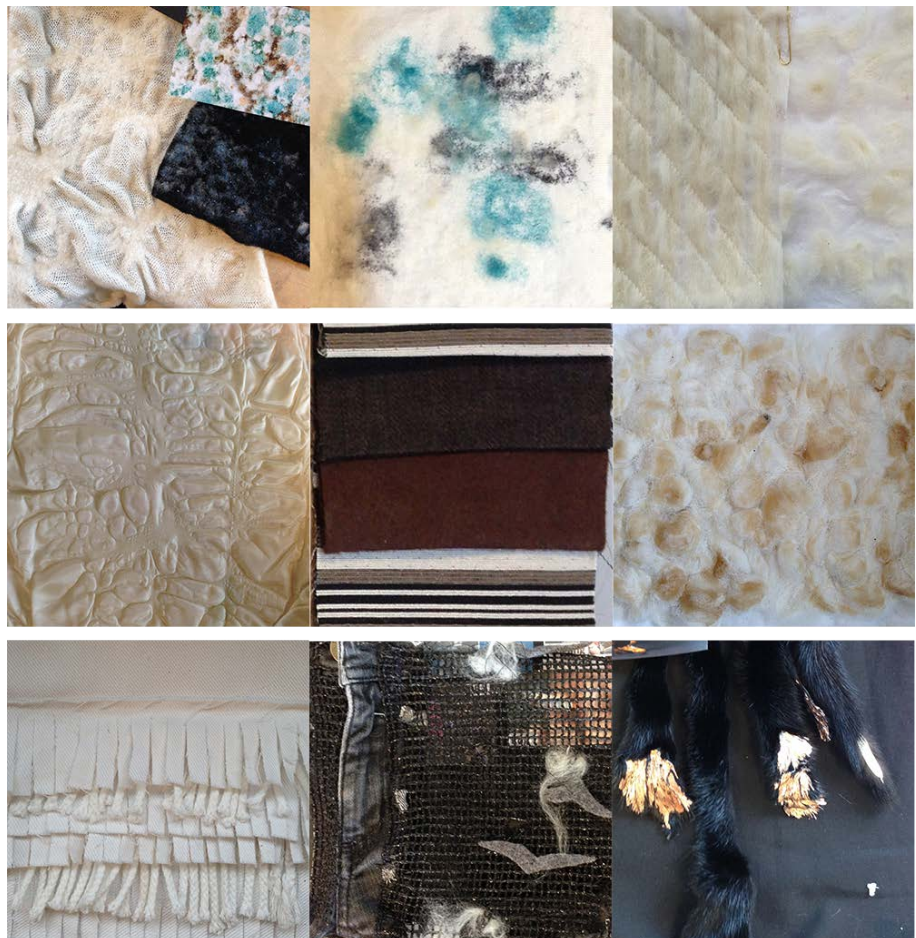


Figure 4 – Examples of interpretations of the three key phrases: ‘the molten mattress’ (top), ‘newly baked rye-bread’ (middle) and ‘Suzi Quatro is playing at a harbour festival’ (bottom).

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Visual attributes appear strong in the samples. The colour palettes used in the samples are in many cases similar and you do not doubt which one of the key phrases the samples originate from. Students have put emphasis on tactile attributes and explored how different materials and techniques intrigue the tactility of the samples. Molten mattresses are hairy, new-baked rye breads are bubbly and airy, while the samples on Suzi Quatro (...) combine many different materials. The tactility has nevertheless been obtained through different means.

For all key phrases the translation has been achieved with comparatively simple raw materials and techniques, as associations have stressed small details. It is however apparent that the level of abstraction of translations is different and partly depends on the level of contextual and cultural familiarity.

## 4 DISCUSSION AND CONCLUSION

Unfortunately the setup of the study did not allow students to take part of the analysis and discussion after the assignment had finished. The assignment worked with the individual student's ability to translate associative meaning to physical materials. Here the ability to reflect could have been further enhanced, if the students had discussed each other's work in plenum. The considerably large differences in how students have translated the same key phrases show that their associations vary or their translation processes are subjective. Being asked *why?* and *how?* this could have strengthened students ability to reflect on their processes and argue for their choices.

With this said the samples still show a lot of similarities. The aim of the assignment was not to stress that all students should interpret associations identically, but that students should become aware of the broad range of ways to translate similar associations. Being able to do that, the ability to create textiles based on e.g. specific intangible requirements from customers improves.

In education the curriculum should progress. This introductory assignment in developing materials based on associative meanings can support and promote students' future work and enhance reflection and artistry in the materials practice in design education. By making students accustomed to consider, reflect and articulate – in language as well as in materials – associative meanings of the product and materials they use, they will find it easier to understand and materialise ideas.

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