

# The body stocking: Design aesthetics and functionality as a means for sustainable fashion and textiles

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**Abstract** This paper is based on a pilot study of six parents' preferences for baby clothing and their experience of value. We investigate ways in which design aesthetics, material and the senses have an impact on high use frequency aiming to understand longevity as a parameter for sustainability in textiles and clothing. We take as a starting point that longevity has a significant impact on furthering sustainability in textiles and clothing since it can be a driver on many levels, e.g. new business models, decisions made in the design phase and/or changes in use and consumption. The study applies variations of the Repertory Grid technique and Wardrobe Studies to frame a tangible dialogue enabling the parents to elaborate on personal preferences of design aesthetics and materials in baby clothing. In the analysis we use the body stocking as a common reference point for learning about reasons for high use frequency. In addition, it is exemplified how personal taste, preferences for aesthetics and experience of wellbeing may have an impact on high use frequency. Finally, the paper points to further elaboration by suggesting a (tentative) matrix structure to better understand the parameters in designing sustainable textiles and garments focusing on longevity.

**Keywords** *Aesthetic preferences, Longevity, High use frequency, Sustainability, Textile & clothing design*

## Introduction

In this paper we investigate ways in which design aesthetics, material and the senses have an impact on high use frequency aiming to understand longevity as a parameter for sustainability in textiles and clothing. The fashion and textile industry is one of the most polluting and resource demanding industries in the world. Production of textiles and clothing demands vast amounts of energy, water and chemicals and it leads to the emission of high quantities of CO<sub>2</sub> and wastewater. Concurrently a growing world population leads to increasing the global production and consumption of textiles and clothing (Armstrong et al., 2014; Nordisk Ministerråd, 2015; The Business of Fashion, 2016).

In the Nordic countries more than half of the clothing is neither reused nor recycled. Instead it ends as landfill or in the incineration plant. To top it all off, large amounts of the clothes and textiles are new or hardly ever used when discarded (Nordisk Ministerråd, 2015). Interestingly, this is not exclusively to the Nordic countries, it is a global tendency accounted for and discussed in several research papers, reports and websites (Niinimäki and Armstrong, 2013; WRAP, 2015; Treehugger, 2012) This calls for radical changes in all stages of garment lifetime from design through production and treatment to recycling or disposal.

According to the European Union's Ecodesign

Directive it is proved that 80% of household and electronic devices' impact on the environment is due to decisions made in the design phase. These decisions are categorized as components, construction and energy effectiveness (Juul, 2012). In the 2015 Nordic Council of Ministers' plan of action for sustainable fashion and textiles this is compared to textiles and clothing and it is argued, but now accounted for, that choice of materials (= components), form giving (= construction) and functionality (= energy effectiveness) are parameters, which have a high impact on sustainability in this particular field (Nordisk Ministerråd, 2015). Also the consumers play a role for the environmental impact of textiles and clothing and the importance of changes in user behavior is widely acknowledged. These changes include but are not limited to less consumption, decrease of wear and an orientation towards consumption of better and more durable textiles (Nordisk Ministerråd, 2015).

Also new business models play an important role for sustainability. A recent example is circular business models (Botsman and Rogers, 2011). Presently, at Design School Kolding we collaborate with Vigma A/S, which is building on a circular business model offering a subscription service to eco-certified baby clothing (Vigma). Babies grow with such a speed meaning that they rarely wear out the garments. Therefore, the company aims to increase the longevity of the garments by circulating it between the subscribers. It is worth to emphasize that the present

study is not a study of the business model or Vigga's service in particular. It is more general in the sense that we set out to investigate ways in which design aesthetics, material and the senses have an impact on high use frequency aiming to understand longevity as a parameter for sustainability in textiles and clothing. In order to investigate this we planned a pilot study, exploring six parents' experience of value and preferences for baby clothing. In the next section we position our work within the body of theory on sustainable fashion and textiles taking a particular interest in literature concerned with longevity of clothing as a parameter for sustainability. Subsequently we introduce our research approach combining tangible means with semi-structured interviews. The analysis investigates ways in which the parents experience value of their baby clothing. Our aim is to understand ways in which longevity, understood as high use frequency, can be connected to choice of materials, form giving and functionality in order to outline a (tentative) framework for working with longevity already in the design phase.

### Related work

Recently in the field of fashion and textile design a growing awareness towards sustainability has resulted in a significant increase in research (for an overview, see for example Fletcher and Grose, 2012; Fletcher and Tham, 2015; Gardetti and Torres, 2013). The Finnish researcher Kirsi Niinimäki emphasizes the importance of investigating new business thinking in the textile and clothing industry to create a change from the current, where the economic and industrial systems are interlinked with fast changing trends and high speed production (Niinimäki, 2015). Similarly, Kate Fletcher and Linda Grose (2012) suggest looking at what fashion-sustainability can offer in order to change the paradigm of fast fashion towards a more sustainable fashion paradigm by seeing sustainability as an opportunity to design and not as an obstacle.

Recently, Niinimäki has conducted questionnaire surveys to study short- and long-term use of clothes in order to explore the reasons for maintaining use and prevent an early disposal of clothes (Niinimäki, 2013). She also contributed to the research within sustainable fashion and textiles by studying product relationships and disposal of clothes. Further, Niinimäki and Koskinen (2011) argue, that a satisfying use experience can be achieved when meeting the user's expectations for quality, functionality as well as aesthetical dimensions especially when wanting to obtain long-term use (ibid., 2011 p. 182). They suggest an empathic approach to the design process by focusing on value creation (e.g. user emotions, identity construction, aesthetic needs and personal memories) to merge the user's different levels of attachment (Ibid., 2011). From a sustainable perspective, it is important to extend the functional use time of garments to save textile and energy resources and create less waste and pollution. Notable to our study of baby clothing, Niinimäki and Armstrong (2013) argue that good functionality and aesthetic aspects relating to beauty (e.g. design, style, color, and material choices) are elements creating satisfaction with clothing items that lead to use for a longer time.

Hence to foster a deep emotional satisfaction in clothing both functional and aesthetic experiences must be embraced as an active for value creation.

Niinimäki (2014) argues that the experience of clothes is much broader than only visual perception as the garment is always experienced in relation to a bodily interaction. In extension she has studied emotional experience and aesthetic dimensions of clothing in order to align aesthetic attributes with sustainable values. As values of emotional character seems to appeal more to the consumer rather than rational parameters, there is a potential to investigate these values in order to achieve a more sustainable use behavior (Goworek et al., 2013 p. 378). Niinimäki expresses it in this way:

*"We must find new radical ways to create a win-win situation for both consumers and manufacturers – for all stakeholders – and for sustainable development. We need more knowledge about consumers and the consumption side to create a sustainable transformation process inside the fashion industry and business that leads to sustainable consumption practices"* (Niinimäki, 2015 p. 3).

We agree with Niinimäki that more research about consumers and the consumption side is needed. Furthermore, we propose that insights drawn from questionnaires and traditional interviews may be supported and elaborated on by a qualitative study adopting an engaging and involving research approach. In this study we therefore propose to supplement the questionnaire surveys studying selected users' daily use and aesthetic preferences for baby clothing.

### Research approach

Since the aim of this study is to get in-depth knowledge about the parents' preferences for and everyday use of baby clothing, we decided to include a variety of textile materials and garments as tangible dialogue tools in a series of semi-structured interviews. We did this with the intention to give the participants a direct access to verbalizing and expressing personal experiences and preferences.

Methodologically we decided to frame the interviews using a combined version of the Repertory Grid technique and a Wardrobe Study. The Repertory Grid technique originates in psychotherapy. It intends to establish a dialogue based on 'hands-on' investigation and comparison of a selection of elements. In fashion and textile design, these elements may be a selection of textiles and/or garments deemed relevant for the purpose of the particular study. Characteristic for the Repertory Grid technique is the use of triads, that is, discussing three elements at the time asking "How are two elements alike as opposed to the third?" (For an introduction see: Fransella et al., 2004). The technique opens for discussion on common ground, and helps the participant to express sensuous experiences and tacit knowledge of touch. A Wardrobe Study is a methodological approach to get insight in the participants' daily use practice of clothing. It is based on a focused study of the participants' wardrobe

asking specific questions about e.g. favorite items or the opposite. This allows for an analysis of everyday use, how the garments are perceived in relation to each other and preferences for the personal wardrobe. (For an introduction see: Klepp and Bjerck, 2012).

In recent years these approaches have been explored and further developed within the field of fashion and textile design research (Bang, 2013; Riisberg et al., 2015; Skjold, 2014). Both approaches encourage the participants to elaborate and reveal personal stories and values connected to the subject. However, in our research we didn't come across examples that directly combine the Repertory Grid technique with Wardrobe Studies. Our reason for combining the approaches was to invite to a dialogue that embraces and exemplify both sensuous experiences (the Repertory grid) and everyday use (the Wardrobe Study). Our intention is to encourage the participants to ladder and elaborate from impressions of quality, look, touch, shape, fit, details, comfort, usability and use frequency, to personal use experiences. In the analysis we use this combined approach to explore longevity of baby clothing on the three levels introduced above, namely the material, the form giving, and the functionality.

### Tangible dialogue tools

The semi-structured interview allows for subjects that may arise during the conversation. Our interview is divided into three parts. Part one and two is based on the Repertory Grid technique: 1) Tactile and visual perception of textile triads and 2) Visual perception of garment triads. Part three is based on a Wardrobe Study approach: 3) Review of high, medium and low use frequency of garments in the baby wardrobe. Each part of the interview leads to the next gradually encouraging and enabling the participants to include and elaborate on personal preferences of baby clothing.

### Textile triads

In this section we describe the textile triads. They were used in part one and two of the interview about tactile and visual investigation of fabrics for baby clothing. We decided to bring three triads of textiles to the interviews not knowing if the participants would have the time to do one, two or three rounds of investigation. The criteria for choosing the textiles



Figure 1. Textile triads 1, 2, and 3.

were that they were suited for baby clothing and represented nine different types of textiles (tactile as well as visual). To represent different styles, the textiles vary in surface structure, color, mélange, stripes, graphic and naive print. We decided to let a few stand out e.g. the color black. The textiles are knitted or woven in different construction techniques. Five textiles are with a pattern and four are without. All textiles are cut in a proper size for handling, each one measuring 30\*30 cm. Each triad of textiles is placed in a polyester bag that differ from the textiles. The bags measure 35\*50 cm.

The first part of the interview is occupied with tactile and visual perception, that is the grip, the surface structure, and the visual appearance of the fabric. The participant was first asked to describe the three textiles in the bag and subsequently imagining using the textiles for baby clothing. Open questions led the participants to describe the grip and surface by relating to other experiences, qualities, and things, that give an impression of the emotional value, that they experience by the textiles. Following this description of each piece of fabric we asked each participant to investigate the fabrics in the bag by hand using the Repertory Grid technique to pair two textiles, which according to her have one or more common characteristics, and explain how the third textile differ from the others. This part of the

Table 1. Textile triads 1, 2, and 3.

Triad 1		Material
1a	Firm pique with stripes (two colors) (mint green and grey).	Cotton knit.
1b	Sweat fabric (two sided) (dark and light grey).	Polyester knit.
1c	Corduroy with print (paws in five colors).	Woven cotton.
Triad 2		Material
2a	Interlock, small pattern (two colors) (light blue and beige).	Cotton knit.
2b	Single jersey (plain colored) (black).	Cotton/lycra knit.
2c	Thin linen with print (stars) (dark blue background with white stars).	Woven cotton.
Triad 3		Material
3a	Thin pique (ochre and cream mélange).	Cotton knit.
3b	Striped rib (two colors) (orange and mélange grey).	Cotton knit.
3c	Velour stretch (plain color) (black).	Cotton/polyester knit.



Figure 2. Interview part one: Repertory Grid, tactile and visual perception of fabric.

interview enabled the participant to further articulate and express emotional value. After the tactile investigation we asked the participants to repeat the exercise using visual perception. As it turned out the timeframe allowed each participant to investigate two of the three bags by the sense of touch as well as visually.

### Baby clothing triads

To direct the discussion from tactile and visual sensation of fabric to shape and details we chose to include baby clothes in the dialogue. The clothes are divided into three categories: girls' clothes, boys' clothes and unisex clothes. Each category is a triad with three pieces of clothes. To secure a variation of qualities one garment is from the Vigga service, one garment is from a middle price range brand, and the third garment is from a more exclusive brand. All brand tags are removed to secure that the focus is on the clothes. The nine pieces of garments are selected in order to represent different visual aesthetic qualities in details, colors and form.



Figure 3. Baby clothing triads: girl clothes, boy clothes, and unisex clothes.

The second part of the interview encourages a conversation about form and details of baby clothes. Each participant explores two triads of clothes, the unisex triad and the gender specific triad, following the same procedure as described above.

Table 2. Baby clothing triads: girl clothes, boy clothes, and unisex clothes.

Girl clothes		Material
1	Long sleeved body stocking with placement print (pigment print). Ruffles at the sleeve head.	Cotton, single jersey knit (Ruffles in voile)
2	Spencer dress with small scale print and a bow.	Cotton, corduroy
3	Body stocking and dress in one. Pleats on front and button on one shoulder.	Cotton, single jersey knit and woven satin
Boy clothes		Material
1	Hooded rompers with large scale pigment print, and diagonal zipper from neck opening to right foot.	Cotton, sweat fabric
2	Long sleeved body stocking with stripes, shirt collar, buttons, and a denim pocket.	Cotton, single jersey and denim detail
3	Rompers with stripes and envelope neck top.	Cotton, single jersey
Unisex clothes		Material
1	Fully fashioned knitted blouse with mother of pearl buttons.	Wool, finer knit with rib details
2	Long sleeved body stocking with turtleneck.	Cotton, full rib
3	Rompers with feet, small collar, and diagonal opening with press studs from neck opening to right foot.	Cotton, ribbing pattern



Figure 4. Interview part two: Repertory Grid, form and detail.

### Wardrobe study

The third and final part of the interview is concerned with the daily selection and use of baby clothing. The participants were asked to select three to five pieces of clothes that the baby wears often, three to five pieces that are worn occasionally, and three to five pieces that are rarely or never used.

### Data

In this pilot study we interviewed six mothers of children age three to seven months, on maternity leave in order to learn about experiences, preferences, considerations, daily use and acquisition of baby clothing. The aim was to conduct the interviews in the participants' home close to the baby wardrobe. Two participants declined this and the interviews took place in a meeting room instead. The interviews lasted between 45 minutes and one hour. All interviews were audio recorded and transcribed. During the interview we took still images of the examination of fabrics and garments and of the wardrobes. All participants signed a document allowing us to use the data for research purposes. Occasionally the participants mention brand names and specific convenience stores. Since this is not the focus of the paper, we have omitted names from the transcriptions and replaced them with "X-Company" or "X-Store".

### Perspectives on use practice

This study explores ways in which design aesthetics, material and the senses have an impact on high use

frequency aiming to understand longevity as a parameter for sustainability in textiles and clothing. We begin the analysis exemplifying how the participants' personal taste and preferences for aesthetics may have an impact on high use frequency even though they claim that baby clothing is mainly about wellbeing and usability. Secondly, all mothers without exception emphasized the body stocking as an inevitable and basic piece of garment in the baby wardrobe. Therefore, we continue the analysis using the body stocking as a common reference point for learning about the participants' reasons for high use frequency of baby clothing. Finally, we look briefly into the participants' awareness towards sustainability and its impact on preferences and high use frequency.

### Aesthetic preferences

During the interview the participants used the textile materials and the garments in the triads to describe sensuous experiences and relate them to baby clothing. All participants elaborated on the spontaneous description and gave examples of their own preferences. Finalizing the interview with a visit in the children's wardrobes allowed the parents to further exemplify and elaborate on their preferences for and choices of baby clothing. Especially two participants emphasized in the beginning of the interview that baby clothing is about comfort and wellbeing and that design aesthetics is not that important.

*A-A: For me it is important that he can move freely and that it [the clothes] feels nice against the skin. [...] Before he was born I imagined that I would care more about his clothes [aesthetically]. But now it's more important that it feels nice to wear, and that it is practical. Otherwise it doesn't matter if it is bought in a certain store or not. I don't care.*

*A-M: I really don't care about the look. I'm a much more practical person, also when it comes to myself. You know, it should be nice to wear and practical. Go well with the weather and so. And when that is said, I mean, when you have something, you know, when I have something that looks good I will combine it.*

There is no doubt that comfort and usability is important for these mothers. Both of them emphasize this as their main preferences for choosing the baby

Figure 5. Interview part three: Wardrobe Study, functionality and use.



clothes. However, A-M also mentions that she cares about the appearance of her son. Later in both interviews both mothers reveal strong aesthetic preferences.

A-A: *I must admit that I'm not up for wild prints – like the ones from X-Company. I'm more fond of douche, classic and neutral colors. [...] I like stripes. Color combinations. And I really like douche colors. The sailor-look. I don't like it when it's too vivid.*

A-M: *Well, we have a lot with animals. Animals and plain, that's what we have. [...] I love to go with the children patterns. [...] We need animals. Colorful...*

Looking into the transcription from the interviews it becomes clear that taste and aesthetic preferences play a more significant role in the baby wardrobe than the mothers express at first. Both mothers have strong personal preferences for the look, which in the end influence the use frequency of the baby clothing. However, we also recognize the importance of the children's wellbeing and practicality in daily use.

### *The body stocking*

All mothers in this study emphasize the body stocking as an inevitable and basic piece of garment in their baby wardrobe. We can see from the Wardrobe Studies that what is referred to and discussed as a basic garment in the Repertory Grid triads also represent high use frequency. We use this part of the analysis to exemplify ways in which design aesthetics and the experience of wellbeing and usability influence the choice of basic garments.

Basically a body stocking is defined as a top and a pair of underpants combined into one piece of garment. It opens and closes in the bottom by the use of press studs. The fabric is usually a thin jersey knitted in cotton or wool or a combination hereof. It can be plain colored, striped, printed, knitted in a certain technique etc. – but always stretchable. In our definition the bottom part of a body stocking is similar to underpants. The top part of a body stocking can be without sleeves like an undershirt and with short or long sleeves like a t-shirt. The top can have all kinds of trimmings and details such as collar, butterfly, frills, ruffles, pockets, buttons, tie-strings etc.

All mothers without exception emphasize that the body stocking contributes to comfort and wellbeing, since it prevents naked skin around the stomach and the lumbar area. This keeps the children warm and the garment stays in place when the baby rolls over or try to move in other ways. The stretchy fabric also allows the child to move freely. Furthermore, the opening/closing system in the bottom is highly functional since this makes it easy to change the diaper without having to undress the child completely. However, talking about their children's body stockings the participants express a variety of aesthetic preferences such as: large scale patterns, small scale patterns, trimmings, retro patterns, certain color ranges, certain colors, stripes, knitting techniques and materials. In general, they don't like grown-up details such as collars and pockets.

N-A prefers to have plenty of neutral body stockings: *"Because you change the baby all the time"*. In her opinion a neutral body stocking can appear in many different colors as long as it is plain and she tells us that aesthetically she prefers a certain range of dusty colors such as curry, powder, grey and cream and that chalky white is not among them. Later she tells us that she also favors a specific body stocking from X-Company, which is made of pointelle fabric. The pointelle technique creates a stretchy knit fabric in stockinette with a pattern of holes forming the design of the fabric. One of the statements R-A makes while describing the body stocking in our unisex probe kit is that: *"We definitely have plenty of these and we use them a lot"*. However, she also expresses that recently she begun to prefer blouse and trousers because her son started to eat porridge, so she changes a lot at the moment.

A-A emphasizes the color white for aesthetic reasons. In her opinion white goes with everything: *"We have a lot of white body stockings, which can be combined with different types of trousers such as jeans and striped tights etc."*. This is in contrast to A-M. She finds white body stockings very impractical because it is very difficult to clean white fabric properly when there are dry (colored) leftovers from eating on it. Furthermore, A-M often washes white garments with colored garments, because she is aware of energy use and she wishes to wash only when the washing machine is fully loaded. In her opinion this quickly turns the bright white fabric into a greyish and not so aesthetically attractive color.

It is also worth mentioning that body stockings often play a role as clothes for festivities. A-A has a body stocking with a bow tie: *"He looks very nice in that"*. She also considers using it for his baptism: *"It can be a shirt or that body stocking with a bow tie"*. Likewise, A-M shows a body stocking, which has a shirt as its upper part: *"That was a way to dress him up. I also thought it was really nice. I didn't use the top button near his throat though. Then it was still comfortable for him – also because it was a body stocking. It prevented him from having a naked stomach. [...] We used it for some weddings and his baptism"*.

The analysis of the body stocking exemplifies that depending on the grown-ups' personal preferences for aesthetics a complexity of different parameters imply high use frequency. However, we argue that this analysis indicates that high use frequency is connected to a combined whole of experiencing a favorite garment more than one single characteristic or parameter. To become a favorite garment is highly dependent on aesthetic preferences, experiences of wellbeing and usability.

### *Awareness towards sustainability*

In the final example we are interested in preferences for sustainability and ways in which these connect with aesthetics, wellbeing and usability, which we have identified as parameters for high use frequency in baby clothing. We did not ask directly about sustainability in the interviews. We wanted the

participants to mention it if and when they felt to in order to understand ways in which sustainable awareness influences in the baby wardrobe.

It turned out that all participants mentioned sustainability as an important aspect in their caretaking of the children. Sustainability is one of the key parameters in the Vigga service, which has a GOTS certification (Global Organic Textile Standard) ensuring that 95% of the fabric consists of certified organic fibers (GOTS). This standard is often referred to as the highest standard within sustainable textiles. Four of six participants are (or was until recently) Vigga subscribers. They emphasize that awareness towards sustainability was a strong reason for subscription. Especially one subscriber is very idealistic about sustainability. Two subscribers and two non-subscribers express that they frequently buy certified Oeko-tex clothing (especially body stockings and rompers) in Danish convenience stores, which are very large players on the garment market. The OEKO-TEX® Standard 100 is a common known certification of clothing signaling sustainable awareness. It is about human ecology, which *“deals with the impact of textiles and their chemical ingredients on the health and wellbeing of humans”* (OEKO-TEX®). However, with one exception all the participants are pragmatic about sustainability in relation to baby clothing. N-A expresses it very clearly: *“Somehow sustainability is kind of funny – you really want to act sustainable and at the same time you don’t want to compromise. You can say the same about organic food. If it tasted bad no one would buy it. You expect that it [the clothes] is nice and have a high quality, and then it is even better if it is organic and sustainable. But in the end, if the first two parameters are missing, it fails”*.

None of the participants express a direct interest in the specific content of the certification standards. They seem to refer more broadly to sustainable awareness when they tell us about the Vigga subscription and the Oeko-tex certification. A-A touches upon it, without clearly expressing it, when she explains that she likes second hand baby clothing because the chemicals are washed out, and thus it is healthier to wear. However, design aesthetics also have an impact on the choice as expressed by N-A: *“Now, take this body stocking, and others I have at home, from the X-store. They are Oeko-tex certified and made of 100% wool, machine washable at 40 degrees and machine dryable, which is practical. And the cream color is nice. And I think it is comfortable for her to wear this wool”*. In this example N-A combines sustainability with look, comfort and practicality.

### Concluding remarks

In this study we set out to explore preferences for baby clothing in order to investigate high use frequency as a parameter for sustainability of baby clothing. We did it inviting the participants to explore a selection of fabrics and garments expressing their experiences and preferences using a variation of the Repertory Grid technique followed by an opportunity to elaborate and exemplify through a Wardrobe Study focusing on use frequency. To our knowledge this is

the first study that combines the Repertory Grid technique and Wardrobe Studies in the same interview. It is therefore worth to discuss if the combined approach was useful and contributed to the in-depth insight in preferences for baby clothing. A pilot study is not enough to draw firm conclusions on this matter but we argue that there are indications showing the potential of combining the approaches. Firstly, we can see in the transcriptions that the participants use the Repertory Grid as a starting point to elaborate verbally on (maybe tacit) sensuous experiences and that they are able to relate to and discuss personal preferences for baby clothing in general. Subsequently they use the Wardrobe Study to exemplify and further elaborate on specific preferences and use.

In the analysis we have exemplified use practice of baby clothing from three different perspectives. First we exemplified and argued for a connection between aesthetic preferences, the experience of wellbeing and usability. Secondly we looked across the series of interviews investigating and discussing different parents’ use of the same type of clothing, namely the body stocking. The examples show that even when it is about a basic ‘must-have’ garment, which is often worn close to the skin underneath other garments (for practical reasons), aesthetic preferences play a significant role for high use frequency. The examples show how much impact personal aesthetic preferences have even when it is emphasized that wellbeing and usability are the most important parameters. Finally, we discussed the parents’ awareness towards sustainability in relation to baby clothing. We exemplify that sustainability is definitely of interest when it is about the children, but it is also demonstrated how pragmatic this interest is; the choice of sustainability is constantly valued against aesthetics, wellbeing and practicality. And in general: if the parents experience that aesthetics and wellbeing does not fulfill their criteria and preferences then eco-labeling and sustainability doesn’t really matter.

Concluding the paper, the analysis indicates that the parents’ personal preferences for baby clothing is always connected to a combined whole of aesthetic preferences, experience of wellbeing and usability. Additionally, in the introduction we described the importance of acknowledging the sustainable impact made by choices in the design phase (the Ecodesign Directive and the Nordic Council’s interpretation into materials, form giving and functionality in relation to fashion and textiles). We propose to combine these parameters into a matrix structure, which can be used in the design process (Figure 6).

We suggest that the matrix have Materials, Form Giving and Functionality on the horizontal axe. This represents the parameters that are crucial to consider aiming to reach a high degree of sustainability already in the design phase. On the vertical axe is Aesthetics, Wellbeing and Usability, which we have identified as use parameters that may lead to a high use frequency and thereby contribute to sustainability in the (preferably prolonged) use phase. Furthermore, we suggest that Aesthetics is clearly connected to the

		Materials	Form giving	Functionality
<b>Aesthetics</b>	Parent relevant	Touch, Look	Shape, Details	Details that supports use
<b>Wellbeing</b>	Child relevant	Softness, Warmth	Fit	Comfortable to wear
<b>Usability</b>	Garment relevant	Contextual choice of materials	Cut that supports use	Daily use, Wash

Figure 6. A tentative matrix structure aimed at making choices for sustainable garment design.

parents' aesthetic preferences, whereas Wellbeing is a matter of the child's comfort. Usability has to do with the garment itself. For a start we have used the analysis to fill in the categories in the matrix with examples of possible entrance points for design of baby clothing. The idea is to further explore the matrix as an adaptable approach to secure a combined whole in designing for sustainable clothing. However, more research is needed in order to further develop and substantiate it.

Referring to companies like Vigga working with and developing business models for sustainability, the pilot study shows how aesthetics, wellbeing and usability influence the participants' choices of baby clothing and use frequency. Therefore, we argue that this tentative matrix is a contribution to further development of design for sustainability and development of sustainable business models.

#### Future work

As always when working with emotional value and a low number of participants we expected the study to be dominated by personal and individual stand points. We are highly aware that a more thorough user study is needed in order to substantiate the results in this paper. Likewise, we may benefit from a stronger focus on the subscription service itself in future work. For future work there are also some important biases worth to consider. First of all, the mothers are speaking as 'the parents' and on behalf of their children. Thus, it is most likely that the interviews are heavily influenced by the mothers' personal taste and thus we definitely miss an important part of the picture. Secondly, we interviewed parents from the middle class meaning that they have the economic freedom to choose what they find best for their children according to their own ideas of a good baby life. Thirdly, working with baby clothing, we faced the challenges that children up to two years grow with such a speed meaning that they will rarely wear out the garments. We decided to focus on use at one family. We still need to explore the use chain in details even though the mothers mentioned ways in which they circulated the clothes. Finally, it is worth to remark, that none of them mention high use frequency as an issue in their daily use of baby clothing or refer to it as a way to act sustainable.

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