This is an electronic reprint of the original article.
This reprint may differ from the original in pagination and typographic detail.

Valle Noronha, Julia; Niinimäki, Kirsi; Kujala, Sari

Notes on wearer–worn attachments: Learning to wear

Published in:
Clothing Cultures

DOI:
[10.1386/cc.5.2.225_1](https://doi.org/10.1386/cc.5.2.225_1)

Published: 01/01/2018

Document Version
Peer reviewed version

Please cite the original version:

Valle Noronha, J., Niinimäki, K., & Kujala, S. (2018). Notes on wearer–worn attachments: Learning to wear. *Clothing Cultures*, 5(2), 225-246. https://doi.org/10.1386/cc.5.2.225_1

This material is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

Clothing Cultures
Volume 5 Number 2

© 2018 Intellect Ltd Article. English language. doi: 10.1386/cc.5.2.225_1

JULIA VALLE-NORONHA, KIRSI NIINIMÄKI AND SARI KUJALA
Aalto University

Notes on wearer–worn attachments: Learning to wear

ABSTRACT

Previous literature in person–product attachment has identified factors in long-term relationships responsible for the strengthening of bonds between users and products, stimulating longevity in use. Interested in further understanding the matter in the realm of fashion, this study investigates how relationships between individuals and the clothes they wear evolve over time. It identifies motivators behind the increase and decrease in the overall quality of wearer–worn relationships in regard to four dimensions: comfort, frequency of use, visuality and versatility. In order to achieve this aim, an adaptation of the UX curve method is used. The method was employed with a group of ten participants, wearers of specific clothing production, namely experimental fashion, in contrast with commercial fashion pieces. The study findings contribute to the literature on person–product attachment and highlight ‘learning to wear’ as an engaging experience encouraging stronger relations with clothes. In the discussion, the article proposes future endeavours to understand wearing practices aiming at more engaging designs.

KEYWORDS

person–product attachment
UX curves
learning to wear
experimental fashion
wearing practices
design research
methods

Introduction

Recent political and economic shifts have led to a kind of anguish that is regarded unprecedented – that of disconnection between people and products (Baudrillard 1996; Pelbart 2011). In the field of design, Jonathan Chapman (2005) reflects on these disconnections and suggests they are the origin of one of the biggest issues faced today, that of early disposal of designed products. In agreement, Cameron Tonkinwise (2005) points out that one of the main problems with the ‘throwaway society’ lies not with how many things we consume, but rather how many things we take as perishable, leading to early disposal. Such things include clothing, accessories, electronics and even furniture. While not exclusive to clothing, this issue seems to be highly supported by the fashion concept in itself, which deals with clearly defined seasonal changes (Barthes 1990) and close connection to the passing of time through trends. ‘Contemporary fashion seems antithetical to the needs of sustainability’, state Palomo-Lovinski and Hahn (2014: 87), supported by the fact that, historically, it is precisely the constant desire for change that fuels fashion (Lipovetsky 2013: 69).

As Gabrieli et al. (2013) point out, the competitive edge of the fashion industry has moved towards quick response to consumers’ desires and fast alteration of trends, which determine consumer demands. Fast fashion has become the dominant business model in the fashion field. With accelerated cycles, affordable items enter shops as fast as every second week, keeping up consumers’ fashion interest and ‘need’ for constant change in appearance (Gabrieli et al. 2012). These trend-aware fashion pieces might even be available for short periods of time and in limited editions (Christopher et al. 2004; Frings 2002), which accelerates consumers’ curiosity. In this way companies invite consumers into a continuous trend-seeking ‘game’ and into seeking new emotional experiences through a fashion ‘hunt’ (Niinimäki 2018; Armstrong et al. 2015). Anguelov (2016: 135) talks about value simulation in fast fashion, described as ‘surprisingly low prices in unexpected in-store sales promotions’, which draws consumers into impulse purchases. All these elements lead to over-saturated fashion markets and overconsumption, leading in turn to an increase in clothing waste. Chapman (2005) points out that waste is a symptom of failed person–product relationships. As consumers’ relationships with clothing items are temporal, most products we own are meaningful for only a short time and can, therefore, be framed as disposables (Niinimäki 2011; Chapman 2005).

Why and how to revert this predicament has been the source of action for various researchers, as strengthening bonds between individuals and their clothes is seen by many as a strategy to tackle such issues. To contribute to these efforts, this study focuses on the relationships between wearers and clothes in a longer time frame. In order to lay the ground for the research, this article starts with a brief introduction to previous research on person–product attachment (Mugge et al. 2006) in the broader realm of design. It then discusses how this topic has been addressed by fashion studies and culminates in the field with which this work engages more closely, that of wardrobe studies (Klepp and Bjerck 2014). Methods of investigation in the literature are compared and discussed, in order to define how the method chosen for this study, user experience curves (UX curves), can enrich research on practices of wearing by acknowledging it is through space and time that relationships evolve. The Objectives section details the interests of the study and its

positioning. The work continues by detailing the methodology of the study and opening up the findings. In the Conclusions section we summarize the results and discuss endeavours, current and potential, in investigating how wearers and clothes relate.

From person-product to wearer-worn attachments

Previous studies have investigated the attachments between people and products from a spectrum of dimensions and points of view. Perceived as a clear design opportunity towards sustainability, research into designing for stronger person-product attachment has grown exponentially. Mugge et al.'s work (2005, 2006) was seminal in pointing out the relevance of people's relationships with designed objects beyond the acquisition phase. Mugge et al. (2005) focused on eco-design strategies whilst Mugge et al. (2006) on a university promotional backpack. Mugge et al. (2006) investigated a case study longitudinally over a period of six months and suggested person-product attachment as a means for people to hold on to their objects longer. To achieve this, the authors proposed strategies to enhance personal self-expression, designing open-endedness and the use of high-quality materials. The study also points out that while enjoyment is relevant in keeping strong person-product attachment in recent relationships, memory evolves as key in relationship sustainment over time. Despite awareness of the relevance time plays in the development of relationships, the short period covered is a clear limitation of the study.

Schifferstein and Zwartkruis-Pelgrim (2008) developed the above initiative further by covering longer relationships to domestic objects (lamp, car, clock and ornament) using retroactive questionnaires. By extending the time frame, the authors were able to explain how relationships with objects evolve over time. The study confirms the relevance of memory in building stronger attachments, but also identifies other determinants such as enjoyment, self-identification, life vision, utility, reliability and market value. Discussing these findings, Schifferstein and Zwartkruis-Pelgrim (2008) point to clothes as objects that strongly support self-identity and are prone to changes in trends. This suggests further investigation of this particular category of objects is warranted.

The works of Niinimäki (2011) and Niinimäki and Armstrong (2013) have proposed filling this gap. The former work investigates relationships with textiles and clothes through digital questionnaires in the Finnish context, covering the acquisition stage through to the use phase. In a broad inquiry into person-product attachment through two studies, the author points out that quality is a relevant factor in relationship sustainment and confirms the role of memory and emotional attachment in long-term engagements. Niinimäki and Armstrong (2013) dive deeper into the field of clothing and not only examine attachment attributes, but also differentiate the garments investigated. They ask if different types of garment could invite different attachments. The study shows that items used more frequently tend to sustain stronger relationships, such as t-shirts, sweatshirts and jeans. This finding implies that different types of clothes can invite different engagements, in connection with their use frequency and length of ownership.

The aforementioned studies (Mugge et al. 2005, 2006; Schifferstein and Zwartkruis-Pelgrim 2008; Niinimäki and Armstrong 2013) provide insights into fashion design and fruitful scopes of investigation. They highlight the

1. Despite lacking a consistent academic definition, 'experimental fashion' is referred to by many academics as a creative activity that involves experimental processes (CSM 2016; MICA 2016). Here, the main target of the production is testing processes and their outcomes, sometimes leaving the commercial focus aside.

importance of memory and self-expression in building stronger attachments, and also suggest fashion as a field for further studies, due to its particular characteristics such as a strong connection to seasons and its use as an expressive platform of personality. As can be seen from the above examples, research into how people and clothes relate faces complex variants. On the one hand, while short studies cannot account for what happens after years of ownership, or use, long relationships are challenging to investigate in longitudinal studies due to the amount of time needed. One of the alternative data collection approaches, that of closed or open-ended questionnaires, usually retrieves consolidated information at the moment the questionnaires were answered and do not account for the various nuances a relationship can take over the course of time. On the other hand, personal, cultural and interpersonal backgrounds take leading roles in how clothes are experienced and cared for (Fletcher 2016), dimensions that are difficult to capture in questionnaires.

The growing field of wardrobe studies (Klepp and Bjerck 2014; Skjold 2014, 2017) looks into individuals' wearing practices, often in longitudinal form. Klepp and Bjerck (2014) were seminal in suggesting the materially active wardrobe as a space for investigation that demands specific methods. Skjold (2014) contributes by looking into men's wearing practices and its discrepancies from fashion's collection images. Together, these studies point to methods for deepening understanding on the attachments between people and the clothes they wear. A recent publication by Fletcher and Klepp (2017) presents a collection of new methods that start sensing what the most suitable forms of investigating wearer-worn relationships are. Methods include wardrobe audit systems that look into a set of clothes owned by an individual (Fletcher and Klepp 2017: 170), participatory methods that collect personal reflections and insights into wearing practices (Fletcher and Klepp 2017: 177–81), among others. Thus, while studies into person-product attachment in fashion design are still nascent, research methods able to handle the complexity of clothes as personal worn items are emerging and hold promise. They may be put to test to more systematically build this new field of knowledge. The authors of this study thereby aim to contribute to this body of work, by proposing a retrospective method that reconstructs wearer-worn engagements in longitudinal form.

Objectives

One of the biggest problems faced by the fashion industry today is the early disposal of clothes often generated by weak person-product attachments (Niinimäki and Armstrong 2013). The development of research in fashion has generated answers (as well as questions) related to designing for longevity (Niinimäki 2011; Gwilt and Pal 2017). By providing designers with insights into how individuals sustain relationships longer with their garments, researchers can aid the industry in achieving more ecological production. The main question we thereby ask in this study concerns the factors that can help strengthen these attachments between wearers and clothes over time. The central topic of interest is experimental fashion,¹ a specific production (further described in the Methods section) that is compared with commercial fashion. What factors are responsible for an increase or decrease in the quality of their relationships in each case? What are the effects of these factors over time?

Earlier studies on person-product attachment, as previously mentioned, can be roughly divided into two approaches in regard to methods. On one

hand, in longitudinal studies (Mugge et al. 2006; Laitala et al. 2015), the investigation happens concomitantly with the phenomenon studied in the course of time. On the other hand, in retrospective approaches, the study asks questions about the stage of the phenomenon in that specific moment in time after they have taken place (Niinimäki and Armstrong 2013; Schiffestein and Zwartkruis-Pelgrim 2008). As our objective was to investigate the experience of wearing clothes over a long period of time regarding past engagements, the first option was not possible. The need to understand motivators of changes in perception and relation during a longer period led us to search for an alternative approach. The UX curve proposes a retrospective methodology to collect qualitative memories in long-term engagements from users (Kujala et al. 2011). Even though retrospective memories are often inaccurate, as one can hardly remember with great precision what happened years ago, most memorable experiences remain alive. The method benefits from the fact that these memorable experiences are frequently the ones that lead to product evaluations and overall perception (Kujala and Miron-Shatz 2013). Despite supplying us with less rich data than that collected in longitudinal studies, the UX curve allows covering a longer period of time without invading participants' privacy, two relevant issues in our object of study. Whilst previously the method has been broadly tested in human-computer interaction contexts (Kujala et al. 2011; Varsaluoma and Kentta 2012; Vissers et al. 2013), this pilot study aims at applying an adapted version of the approach to yet another object we interact with: our clothes. In this study, the focus is on the relationship with objects already owned by participants, most specifically experimental fashion in contrast with commercial fashion artefacts.

A group of ten participants was assessed with an adaptation of the method. By integrating open-ended interviews with the completion of UX curves, the study focuses on personal experiences instead of on generalization of such engagements. The experiences occurring between wearer and worn are taken here as complex and specific to individuals. Such complexity and particularity demand that the data be analysed independently rather than in a comparative method with generalizable findings. Similarities and differences between these two modes of designing and making can be identified by analysing the curves in regard to affordance of engagements, and this will be discussed in the Findings section. The aim of this study is thus to collect inputs that will be able to inform the design of clothes inviting stronger person-product attachments. In this article we will first present how the methods have been applied in the study, including the sampling of participants and detailing the adaptations proposed from the original UX curve method. The results observed during application of the method are then presented, followed by discussion. In the next section, we present our case and its configuration, context and the sample analysed.

Investigating wearing experiences through UX curves

The study was carried out with individuals that have owned particular pieces for the last five years. Despite difficulties that might be experienced by the participants in clearly recalling their wearing experience in that time frame, the choice reflected the nature of the objects, that is, their expected lifespan. In order to allow the reader a better understanding of the study, the production will be contextualized and explained in this section. Commercial clothes were also assessed in the study, but as it is the mainstream form of production

in the world today and familiar to all, we will refrain from detailing it further. We begin by outlining the clothes investigated in regard to their contexts and backgrounds. The participants and the methods of the study (from application to analysis) are introduced. Difficulties will also be identified, which will be examined further in the Discussion section.

Experimental fashion

As one of the product sources of this study, we look into one specific production in experimental fashion carried out by the first author of this article. Based in Belo Horizonte, Brazil, the women's wear designer develops experimental projects in reduced scales that range from 40 to 100 pieces per project. What characterizes the production as 'experimental' is mainly the process of creation and production, where the main driver behind the production is rather the exploration of methods than the merchantability of the finished pieces. Elaborated under creative pattern cutting methods (Almond 2010), the pieces are commercialized solely by the designer's studio under pre-scheduled times in a one-to-one service. The main processual difference between this and mainstream clothing design is that whilst in the latter the final pieces are sketched out and designed in advance, in the former the creative process lies in creating methods for the patterns that serve as a base for cutting the clothes. In other words, no sketches of the pieces are made; instead, a method for the pattern cutting is designed and the results can be understood as less controlled or nearly accidental (Valle-Noronha 2016). These methods deliberately hamper reproducibility, resulting in a production with a majority of unique pieces.

In this study we invited users who owned pieces produced between 2009 and 2011. They were asked to choose pieces they make use of and have them in mind when completing the curves and answering the questions on the reassessment forms. By establishing this time frame we were able to look at similar length wear-phases, thus achieving a more homogenous duration of relationships and avoiding varying ownership times.

Participant sampling and demographics

An open call was given via social media and emails (previously selected from the designer's mailing list) in April 2015 to individuals who owned pieces produced by the designer. The call invited them to take part in a study aiming at understanding how individuals relate to their clothes. Sixty-eight users responded to this open call and were contacted again via e-mail, where they were asked to fill in a brief questionnaire. Out of the initial respondents, 37 completed an online questionnaire providing personal information. A selection based on gender, location and piece ownership was made and resulted in a total of eighteen individuals. At that point, applicants were contacted individually and given further instructions about how the study would unfold. In June of the same year, twelve individuals agreed to participate. Two participants had difficulties in fully completing the task (due to lack of understanding or time) and were left out of the study.

As previously stated, the participants were selected mostly based on their location, to assure participation in the study in person. Two male responses were received, but all participants selected were women. The study focus on women's wear aimed at enhancing consistency between designer intentions and the responses from the users.

Participant	Age	Professional background	Commercial piece 'age'	Experimental piece 'age'
P1	64	Architect	5 years	5 years
P2	31	Journalist	3 years	5 years
P3	30	Graphic designer	3 years	4 years
P4	36	Fashion designer	5 years	5 years
P5	35	Journalist	5 years	4,5 years
P6	65	Architect	5.5 years	4.5 years
P7	34	Producer	4 years	5 years
P8	31	Photographer	3 years	4 years
P9	33	Psychologist	5 years	5 years
P10	32	Journalist	3 years	3.5 years

Table 1: Participants' demographics.

The final sampling was heterogeneous in terms of participant age but close to homogeneous in other aspects. Despite differing backgrounds they all represent well the clientele of experimental fashion, which, it must be noted, differs greatly from the average consumer in the context of Brazil. In our sample, all participants held at least a bachelor's degree, placing them among a rather narrow sample (around 14 per cent) of the Brazilian adult population (OECD 2017). In other aspects, such as number of years they have owned the pieces and proneness to experimenting with less mainstream clothing styles, the sample can be perceived as more homogenous.

Methods

This study was built on previous works (Kujala et al. 2011) and proposed an adaptation of the UX curve method to be applied in fashion design studies. To better fit our object of study, changes were made to the original method. The original UX curve dealt with designed objects, and thus some words in the questionnaires were substituted to better fit clothing items. The table below shows the original curves' topics used in the UX seminal study (Kujala et al. 2011) and the adaptations proposed in this study.

The suggested order for completion of the curves was also slightly changed. In this study we began with a general focus on the experience to later focus on specific aspects. In sequence, the dimensions observed were (1) comfort, (2) versatility, (3) visuality and (4) usage volume. In this order, each dimension implies or is closely connected to the next dimension, providing a

Original UX curves	Adapted curves
General user experience	Overall relation
Attractiveness	Visuality
Ease of use	Comfort
Utility	Versatility
Usage volume	Usage volume

Table 2: Original and adapted terms for UX curves.

Figure 1: A blank curves sample sheet filled in by a participant.

better flow in recall and motivation for sentence completion. A pilot study was previously tested with three peers in order to better craft the curves material and gain understanding on its ease of use, time taken to fully complete the curves and the overall viability. As a result, marks were added to the timeline to help users guide themselves through the curves (see Appendix 1) and the average time was estimated as 40 minutes per two sets of curves. An example of the final version of the sheets is presented below:

The study was carried out in May and June 2015 and took place in a meeting space in the designer's atelier, where a comfortable environment was prioritized in order to make the participant feel at ease to answer the questions in the most truthful way. The participant responded to two sets of curves, containing five curves each. Whilst participants were asked to think of a commercial garment that was relevant to them when drawing the first set of curves, the second set required that they focus on a piece of experimental fashion production. Both pieces should have been in their wardrobe for about five years. The participants were guided throughout the process. The meetings took from 28 to 47 minutes each and were audio-recorded. As a reward for taking part in the study, the participants received a piece of contemporary jewellery. In order to strengthen validity of the curves, the users were re-assessed six months later and requested to fill in a brief digital sentence-completion questionnaire about the experimental pieces they chose for completing the curves (see Appendix 2). The time-distance between the first study and this questionnaire aimed at acquiring answers that were not influenced by the discussions we had previously, during completion of the UX curves. The request to

Figure 2: Comfort curves for experimental clothes.

Figure 3: Comfort curves for commercial clothes.

complete two sets of UX curves aimed to allow comparison between the two modes of making garments. All meeting audio-recordings and statements on curves were transcribed and translated into English in order to allow the data to be more easily discussed and checked for validity amongst the authors of this article.

Interpreting the data

Interpreting the information collected prioritized understanding each participant individually through open coding to later compare results and implement theory-based coding. The interpretation of the collected data took place in three steps, some of which occurred concomitantly. First, the hand-drawn curves were transformed into digital curves using Microsoft Excel to facilitate the overlapping and observation of curves. The vertical axis was assigned a 0–5 scale to better align the hand-drawn curves with its digital version. With digitalization done, the curves were grouped according to dimension (see Figures 2 and 3, where the comfort curve is represented), user, clothing type or overall direction (increasing or decreasing). Secondly, the transcripts from the curve

completion meetings were examined. At that stage, concepts emerged for each participant and were compared to create common categories. In the end, thirteen categories of factors were created, which are further detailed in the next section. The coding process was performed with the support of Atlas software, which facilitated accounting for codes' groundedness, tracing back to quotes and having a clearer overview of the coding. Individuals relate very personally to their pieces, which means clear patterns do not appear in cross-comparison. The difficulty to find patterns in the curves was overcome by considering the reasonings behind the increase or decrease of the quality of each dimension, as these were more fruitful for understanding the relation to the owned pieces. The analysis thus focused more on the reasons for changes in relationships with garments than on the visibility of the curves, which alone informed little without the contents behind the directions each line took in the curves.

Findings

Each participant completed a total of twenty curves, in an average time of 36 minutes. Despite each meeting being led in a strictly similar way, the responses were very personal and reflected each participant's nature: their interests in, concerns with and ways of experiencing the pieces they wear, as well as personal willingness to share information. At first glance, it was clear that perception of the pieces varies over time, together with the personality of the wearers. Five out of ten participants highlighted the fact that a personality change has influenced the perception or use of the pieces. In relation to the experimental pieces, it was also mentioned three times that as participants grew older, the pieces seemed to better reflect their personality and values.

The coding resulted in thirteen factors responsible for changes, either increasing or decreasing, in wearers' relations to visibility, comfort, versatility, frequency of use and overall relationship. From this coding it was clear that the number of reasonings behind the decrease in relations was much smaller than those related to increase. This might be due to both how people relate to decreases in relationships with objects but also to how the exercise was led. A smaller amount of factors mentioned in relation to commercial clothes in comparison to those in relation to experimental clothes was perceived, which might be due to the fact that the curves on commercial clothes were done first. As a new exercise, participants were perhaps not yet at ease with the method. At a second attempt, the participants may have felt more comfortable filling in the curves, thus providing further information in the second round. When filling in the second set of curves, then, participants would be able to focus on remembering the experiences and impressions they had with the pieces and did not have to worry about how to proceed with the completion of the task. This has affected the final results, in which further analysis could be conducted on the experimental clothes in comparison to the commercial ones.

The tables below present the thirteen factors, divided into two sets. The first set shows the factors responsible for a decrease in relations, whilst the second shows the reasons behind an increase in relations. For example, the desire to extend use has been mentioned by one participant as a reason behind the decrease in the frequency of use (see Table 3). The times the factors were mentioned were counted per participant and not per mention.

In the following two subsections, the affecting factors are discussed with supporting quotes excerpted from the written explanation on the curves sheets and from the transcribed dialogues. They are divided into factors impairing and improving the relationships.

Relations and affecting factors	Number of mentions	
	Experimental	Commercial
Comfort		
Fit	1	1
Low practicality	1	–
Wear (old or worn out)	–	1
Weight gain or loss	1	–
Overall relationship		
Low practicality	1	–
Wear (old or worn out)	–	2
Weight gain or loss	2	–
Frequency of use		
Low practicality	1	–
Season	1	–
Wear (old or worn out)	1	2
Weight gain or loss	2	–
Desire to prolong lifespan	–	1
Visuality		
Efforts into learning to wear	–	1
Wear (old or worn out)	–	4
Weight gain or loss	1	–
Versatility		
Wear (old or worn out)	1	1

Table 3: Factors mentioned by participants as impairing the relationship with the pieces.

Factors impairing wearer-worn relationships

When we analyse the factors that influenced the decrease in relationship as a whole, it is visible that each type of production is affected by clearly distinguishing factors. In regard to experimental clothes, weight gain or loss was the most often cited factor, being mentioned six times. In contrast, for commercial clothes, the same factor was not mentioned at all. Instead, clothes looking old or worn out were mentioned ten times by participants as causing a decrease in relationship, affecting especially the visuality of commercial pieces. The same factor appeared only twice for experimental clothes. The quotes below illustrate this change in relationship due to the visually perceptible ageing of clothes:

After wearing out it became less versatile because then I wouldn't wear it for any occasion. My mother would say, 'Aw, are you going out with these trousers like that!?' (P3)

I think as it becomes old [...] It is still comfortable but I get a little bothered [with a hole in the shoulder], so physically it is still comfortable, but psychologically it is not. (P8)

Relations and affecting factors	Number of mentions	
	Experimental	Commercial
Comfort		
Comfort	3	–
Design	6	4
Frequency of use	–	1
Material quality	2	2
Learning to wear	3	2
Overall relationship		
Comfort	3	1
Design	2	1
External perception	–	1
Frequency of use	1	3
Learning to wear	4	2
Material quality	–	1
Memory	3	2
Newness	2	1
Weight loss	1	–
Garment versatility	1	1
Frequency of use		
Comfort	–	1
Garment versatility	1	–
Visuality		
Comfort	1	–
Design	5	4
Frequency of use	–	2
Learning to wear	4	2
Memory	1	1
Versatility		
Comfort	1	–
Design	1	3
Learning to wear	7	4
Material quality	1	1

Table 4: Factors mentioned by participants as improving the relationship with the pieces.

As seen in the quotations above, the worn-out look of the pieces discussed affected not only how they were perceived visually by the participants, but also other aspects such as comfort and versatility.

The second factor most affecting the relationships with experimental clothes in a negative way was a lack of practicality, being mentioned three

times. What motivated these difficulties were delicate embroideries or fabric, which demanded handwash and deep cleavage restricting movements while caring for a toddler. This lack of practicality did not negatively affect how wearers perceived the clothes visually or in regard to their versatility, but it did impact their feeling of comfort. Though this does reflect contemporary life-styles, in which clothes that demand care are used less and less, it does raise the question of what space is left for artisanal processes in clothes-making and if there are ways for technology to support the coexistence of practicality and artisanal craftsmanship. The finding also suggests that a more active stage of fitting clothing samples could enhance designs for more comfortable and practical wearing experiences.

Factors improving wearer-worn relationships

The factors impacting an increase in relationship showed a more complex interplay. The design of the pieces, which includes colour, shape and fit, seemed to play an important part, especially in the acquisition phase, being mentioned as affecting the comfort and aesthetic enjoyment of the garments for both commercial (with fourteen mentions) and experimental clothes (with twelve mentions). Despite acting positively at the beginning of relationships, visual pleasantness takes a different role in the longer run. Visuality curves were more stable for experimental clothes than for commercial clothes, in which a clear decrease is perceived over time. Quality and trend factors are thus possible determinants of this difference, which brings us back to the results on factors responsible for decreases in relationship in commercial clothes: quality and worn-out look. It can be thus understood that a higher quality in garments can sustain not only the use phase longer but also a more enduring pleasantness regarding how the pieces look.

The fact that the average of the overall relation with experimental clothes presented such varying curves has caught our attention. The most drastic variations were associated to weight gain and loss (2), frequency of use (2), seasons (2) and, especially, due to a need to 'better understand the piece', framed as learning to wear (4) (further discussed below). In addition, as the curves had, in general, a higher starting point for experimental than for commercial clothes, it is possible that there were higher expectations at the beginning, adding to the variation of the curves. Despite these variations in both increase and decrease in the overall relationship, other factors such as visibility and comfort were reported as mostly increasing. For commercial clothes, on the other hand, relationships started as more neutral, which might indicate lower expectations of the piece, and experienced rapid increase in the first year. This was mainly associated with the frequency of use (3) and understanding what to match with the piece (2). In the later years, a decrease was reported, mostly due to how the piece 'aged' or how worn out it looked.

What was clearly highlighted in the increase in both commercial and experimental clothes' experiences was a relationship development through engaging efforts. This includes becoming more intimate with the piece over time and developing or finding new forms of use or combinations. This factor was mentioned ten times in regard to commercial clothes and eighteen times with experimental clothes. We framed this factor as 'learning to wear', where experience over time is able to alter how individuals and garments relate.

The expression emerged from the re-assessment forms, where one user commented that, for her, the piece represented 'learning new movements together with the garment'. The word learning here is not used in a hierarchical way; instead, it refers to the development of relationships or engagements, in which both wearer and worn play active roles. The engagements are understood as processes that take place over the course of time as individuals get to know their garments better, as they experiment and engage with the pieces. Some quotes that illustrate this phenomenon follow below:

I have forgotten it for some time in the wardrobe and then I started wearing it again. Today I wear it more than I used to two years ago. I have found a new way of wearing it, with a belt, which renewed it. I think I have changed as well; I started buying more linen pieces (especially dresses) and started considering this fabric as more casual. (P5)

Well, actually I think it even grew better because it has these [straps] for tying and then I think I got to know better how to use it, with time. I think at the beginning I found it difficult, I found it a little strange until I found a way I liked better. So I think it increased. (P2)

It is exactly the opposite of other pieces I bought many years ago and still have the tags on. Because for some reason when I bought them I found something amazing, but they are still there [in the wardrobe without being worn] for years. And this one was exactly the opposite. Maybe it could cause some strangeness, it IS beautiful, but will I wear it? But as time went by I started wearing it more and more. (P8)

As can be seen in the above examples, learning to wear goes beyond understanding how to combine the piece with other pieces in the wardrobe. Ultimately, it also means a stage of constant transformations with the piece, where new perceptions and understanding about the self, the piece and personal style can reconfigure both the wearer and the worn. In this sense, the piece receives constant updates, not being noted as a trend, and supports the wearer in developing further a personal style. Apart from the positive learning outcomes from the engagements, the participants have also added 'side effects' of the learning-to-wear experiences, such as a change in attitude, as exemplified in the quote by Participant 5 above. Another point to note is that as participants develop a relationship of engagement and learning with the clothes, they may have a stronger feeling of connection and intimacy with these pieces.

Participants' comments can be verified on the curves below for both commercial and experimental pieces, where the ascending trend curves illustrate the average of comfort and versatility. The curves below present durability, changeability and endurance in learning to wear as factors that have led to positive engagements between wearer and worn. The scales on the curves vary from -5 to +5, where -5 means a very negative experience and +5 a very positive experience in each of the factors investigated.

As shown in Figures 2 and 3 above, an overall increase in comfort with time could also be perceived for both commercial and experimental clothes. An exception to this was one participant who experienced weight gain and loss, which affected the perception of comfort over the last two years of use. Participants associated comfort with various aspects, referring to visual, physical and psychological forms of comfort. Some examples are feeling visually

Figure 4: Versatility curves for experimental clothes.

Figure 5: Versatility curves for commercial clothes.

comfortable with the piece, feeling at ease, the next-to-skin comfort a material brings, amongst others. Associations of comfort with versatility of the pieces also connect to the idea of learning to wear, where it acts as a motivator for the increase in psychological and visual comfort (see Figures 4 and 5).

In comparison to other methods used to investigate person-product attachments, such as questionnaires, the data collected in this study showed more depth and detailed description of the engagements. On the one hand, a more nuanced perspective on how individuals and clothes meet was possible, encompassing the complex ecologies of wearing. On the other, the method generates more complexity in the collected data and its analysis.

Discussion and conclusions

The main interest of this study was to investigate individuals' long-term engagements with clothes in regard to comfort, visuality and versatility. The findings presented thirteen factors that influence person-product relationships, either strengthening or weakening. Whilst some of the findings accord with previous studies (Schifferstein and Zwartkruis-Pelgrim 2008; Mugge et

al. 2006; Niinimäki 2011), such as the relevance of visibility and memory in different phases of use, 'learning to wear' was found as another factor that can contribute to the development of strong person-product relationships. Initial efforts to overcome early difficulties in wearing were mentioned as a factor that strengthened person-product attachment through a 'learning phase'. This factor is directly connected to active engagements in overcoming initial wearing difficulties, more often present in non-commercial pieces due to the experimental processes in pattern cutting, material choice and exploration of form. This finding aligns with Kujala et al.'s (2011) study on mobile phone usability, where learning to use emerges as a relevant factor in the positive development of person-product relationships. Despite the dramatic difference between clothes and mobile phone engagements, both studies point to the importance of investigating learning phases in engagements with designed objects. They also indicate a more active role of both user and object, which enter a stage of influencing mutual becomings once the use phase begins.

Concerning the learning phase, connections can also be made to studies on frictional relationships with designed objects. What we perceived was that during the phase of mutual learning and understanding, the relationship was not always positive, but often rather shifting between pleasing and frictional events. Other projects examining design in more 'meaningful' objects have shown that such frictional relationships can lead to more effective results in regard to ecological awareness and building of meaningful relations (Laschke et al. 2015). Laschke et al.'s (2015) study proposes an energy extension cable that reacts to energy use in an annoying way, demanding reflexion and action from its users. The frictional relationship is strongly based on a more responsive and questioning engagement between users and objects, allowing the user/wearer to get to know the object in question better and strengthen connections with it through reflexive action (Laschke et al. 2015). This finding leads us to question if frictional design applied to fashion could drive clothing experience towards a more reflective level of attachment. Considering the finding that relationships were often impaired by worn-out appearances, especially in relation to commercial clothes, we can state that investing in design with longer lasting qualities is needed and can support longevity in use. This could be done through designs that can age, incorporating expression of use in a positive way.

Notwithstanding the particularities of each wearing experience, it seemed clear from the results of this study that different modes of making (commercial and experimental) invite different experiences with the clothes. This difference could be supported by not only the piece itself but also its background, including production mode, information given and buying experience. But while on the designer's side the modes of making are clearly differing, on the wearer's side the differences become more blurred as they encompass a broader myriad of social and cultural aspects (Kaiser 1990). Thus, despite this difference being clear in this study, the small sample analysed here offers more suggestions for deeper and more intense investigations than definitive conclusions. In what ways different modes of making stimulate different experiences in wearing is a question we ask and propose as a driver for further studies, as well as expansion to other modes of making garments, such as artisanal, home-made, high fashion and others. This would add diversity of consumer profiles, broadening the understanding on the matter.

Possibilities to enhance the application of the method were perceived in this study. A point of relevance found while dealing with the data was that the most valuable and informative material was found in the conversational

1. aspect of the interview. Since the objects discussed had such a variety of
 2. stories and experiences attached, these conversations provided resourceful
 3. information. As a result, the curves played an illustrative part that relied on the
 4. complementary data supplied by the other data sets (meeting transcriptions
 5. and reassessment forms). In that sense, as a case analysed independently,
 6. the contents found in the curves would fail to provide answers to the ques-
 7. tions addressed in the study. In addition, in assessing the data, two aspects
 8. were noted as clear limitations to the study: the extended length of owner-
 9. ship and the research setting chosen to carry out the interviews. As much
 10. is lost in memory with time, it is likely that many subtleties that took place
 11. in the long five-year period of use were not brought into the discussion. On
 12. the other hand, participants relied on stronger and more eventful memories.
 13. Though a clear limitation to the study, our interest in making a contribution
 14. to filling the gap in the research, currently mainly populated with investiga-
 15. tions on short durations, has supported us in carrying the study forward. We
 16. believe these findings can suggest new approaches to assessing the person-
 17. product attachment phenomenon and gaining a better understanding of the
 18. complex practices of wearing. Closely connected to understanding dressing as
 19. a practice, the research setting prevented deeper dives into participants' wear-
 20. ing routines. A suggestion would be to carry out the interviews as a ward-
 21. robe investigation that would take place in the participant's home, where they
 22. could also involve other pieces in their wardrobes to justify their statements.

23. Studies that look into the relationship between individuals and clothes,
 24. such as wearing experience and fashion practice research, are still at an early
 25. stage of development. For that reason, methodologies that fit the needs of the
 26. emerging field are still being crafted. With this study we intend to encour-
 27. age further exploration for more suitable ways of investigating wearing prac-
 28. tices. The time demanded by this study has made it difficult to cover a broader
 29. sample of participants in a short time frame, thus leaving us with a rather
 30. restricted sample. In response, two possibilities could be developed in differ-
 31. ent directions. In order to broaden the sample, digital UX curves (Varsaluoma
 32. and Kentta 2012) could be applied. Alternatively, in order to increase depth,
 33. an ethnographic study could be conducted without the presence of the
 34. researcher, where users could fill in a UX curve diary over a longer period
 35. of time as auto-ethnography concerning their daily choices of clothes. These
 36. adaptations could be helpful in advancing the research field.

37. The findings presented in this article aim at adding voices to the stud-
 38. ies in person-product attachment in the field of fashion by reckoning the
 39. different modes of making garments. It does not advocate one specific mode
 40. of making, but rather evokes the plurality of productions in fashion design.
 41. Added to academic endeavours, the study proposes that fashion practition-
 42. ers be more aware of the effects to which each creative and productive step
 43. can lead. It raises questions such as '[w]ould adaptable garments prevent a
 44. decrease in relationship or use frequency due to weight changes?' and '[c]
 45. an designers explore service as a communication tool for a more effective
 46. learning-to-wear phase?'. It is believed this study can inform practitioners of
 47. constructive design projects by bestowing them methods for collecting rich
 48. and resourceful information. It can also promote enhancing achievability of
 49. designers' intents, through the analysis of the data collected. Once objects are
 50. 'out in the world', it is extremely difficult to predict or guarantee correspond-
 51. ence between designers' intentions and how users' effectively perceive the
 52. objects (Albrechtslund 2007). The findings can provide guidelines for fashion

design practice, allowing the development of new products that will more easily deliver the creator's values and intents by broadening the understanding of the complexity of the relations once the products leave the designer's studio.

ACKNOWLEDGEMENTS

We would like to thank CNPq (2015), Aalto ARTS Scholarship (2015) and Aalto University for supporting this research.

Appendix 1: UX curve sample sheet.

Sua relação com o objeto | Your relationship towards the object

Lembre-se do momento em que iniciou o uso do objeto/produto e desenhe uma curva descrevendo como sua relação com ele mudou desde o primeiro momento até hoje. | Please, recall the moment when you started to use the object and draw a curve describing how your relationship has changed from the first time until today.

Descreva as razões para as mudanças em sua relação | Describe the reasons for changes in your relationship

Appendix 2: Reassessment questionnaire.

[Edit this form](#)

Complete a frase | Complete the sentence

Complete as frases abaixo com o que vier a sua mente!

Complete the sentences below with the first thing that comes to your mind!

***Required**

Nome | Name: *

Sobre peças de roupa em geral | About clothes in general

Responda a pergunta abaixo pensando em peças de roupa em geral.

Answer to the question below considering clothing in general

Uma peça de roupa relevante / significativa para mim é ...

A relevant / meaningful piece of garment for me is...

A respeito da peça juliavalle, sobre a qual fizemos o estudo | Regarding the juliavalle piece we have previously studied

Responda as perguntas abaixo pensando na peça de roupa sobre a qual fizemos as curvas de experiência em julho/2015.

Para mim, esta peça de roupa representa...

For me, this piece of clothing represents...

Quando uso esta peça sinto ...

When I wear this piece I feel...

No tempo que passo com esta peça ...

During the time I spend with the piece...

Esta peça me faz pensar em ...

This piece makes me think of...

Acredito que esta peça promove mudanças em ...

I believe that this piece promotes changes in ...

Submit

Never submit passwords through Google Forms.

Powered by

This content is neither created nor endorsed by Google.
[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

REFERENCES

1. Albrechtslund, A. (2007), 'Ethics and technology design', *Ethics and Information Technology*, 9:1, pp. 63–72.
- 2.
- 3.
4. Almond, K. (2010), 'Insufficient allure: The luxurious art and cost of creative pattern cutting', *International Journal of Fashion Design, Technology and Education*, 3:1, pp. 15–24.
- 5.
- 6.
7. Anguelov, N. (2016), *The Dirty Side of the Garment Industry: Fast Fashion and Its Negative Impact on Environment and Society*, London: Taylor & Francis.
- 8.
9. Armstrong, C., Niinimäki, K., Kujala, S., Karell, E. and Lang, C. (2015), 'Sustainable product-service systems for clothing: Exploring consumer perceptions of consumption alternatives in Finland', *Journal of Cleaner Production*, 97, pp. 30–39.
- 10.
- 11.
- 12.
13. Barthes, R. (1990), *The Fashion System*, Berkeley, CA, Los Angeles, CA and London: University of California Press.
- 14.
15. Baudrillard, J. (1996), *The System of Objects*, London: Verso.
16. Chapman, J. (2005), *Emotionally Durable Design: Objects, Experiences and Empathy*, London: Earthscan.
- 17.
18. Christopher, M., Lowson, R. and Peck, H. (2004), 'Creating agile supply chains in the fashion industry', *International Journal of Retail and Distribution Management*, 32:8, pp. 367–76.
- 19.
- 20.
21. Connor-Crabb, A., Miller, K. and Chapman, J. (2016), 'Design strategies for the eternal reoccurrence of the new', *Fashion Practice*, 8:1, pp. 22–43.
- 22.
23. CSM (2016), 'Central Saint Martins website', <http://www.arts.ac.uk/csm/courses/short-courses/fashion-design/experimental-fashion-design-online/>.
- 24.
25. Accessed 23 November 2017.
- 26.
27. Fletcher, K. (2016), *Craft of Use: Post Growth-Fashion*, New York: Routledge.
- 28.
29. Fletcher, K. and Klepp, I. (eds) (2017), *Opening up the Wardrobe: A Methods Book*, Oslo: Novus Forlag.
- 30.
31. Frings, G. (2002), *Fashion from Concept to Consumer*, 7th ed., Englewood Cliffs, NJ: Prentice Hall.
- 32.
33. Gabrieli, V., Baghi, I. and Codeluppi, V. (2013), 'Consumption practices of fast fashion products: A consumer-based approach', *Journal of Fashion Marketing and Management*, 17:2, pp. 206–24.
- 34.
35. Gwilt, A. and Pal, R. (2017), 'Conditional garment design for longevity', in *PLATE Conference 2017 Proceedings*, 8–10 November, Delft: IOS Press, pp. 149–53.
- 36.
37. Kaiser, S. (1990), *The Social Psychology of Clothing. Symbolic Appearances in Context*, New York: Macmillan.
- 38.
39. Klepp, I. and Bjerck, M. (2014), 'A methodological approach to the materiality of clothing: Wardrobe studies', *International Journal of Social Research Methodology*, 17:4, pp. 373–86.
- 40.
- 41.
42. Kujala, S. and Miron-Shatz, T. (2013), 'Emotions, experiences and usability in real-life mobile phone use', in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 27 April–3 May, Paris: ACM, pp. 1061–70.
- 43.
- 44.
- 45.
46. Kujala, S., Roto, V., Väänänen-Vainio-Mattila, K., Karapanos E. and Sinnelä, A. (2011), 'UX curve : A method for evaluating long-term user experience', *Interacting with Computers*, 23:5, pp. 473–83.
- 47.
- 48.
49. Laitala, K., Boks, C. and Klepp, I. G. (2015), 'Making clothing last : A design approach for reducing the environmental impacts', *International Journal of Design*, 9:2, pp. 93–107.
- 50.
- 51.
- 52.

1. Laschke, M., Diefenback, S. and Hassenzahl, M. (2015), “‘Annoying, but in a nice way’: An inquiry into the experience of frictional feedback”, *International Journal of Design*, 9:2, pp. 129–40.
- 2.
3. Lipovetsky, G. (2013), *O Império do Efêmero. A moda e seu destino nas sociedades modernas*, São Paulo: Companhia de Bolso.
4. MICA (2016), ‘Maryland Institute College of Art website’, https://www.mica.edu/Programs_of_Study/Undergraduate_Programs/Fiber/Experimental_Fashion_Studio_Concentration.html. Accessed 23 November 2017.
5. Mugge, R., Schifferstein, H. and Schoormans, J. P. L. (2006), ‘A longitudinal study of product attachment and its determinants’, *Advances in Consumer Research*, 7, pp. 641–47.
6. Mugge, R., Schoormans, J. P. L. and Schifferstein, H. N. J. (2005), ‘Design strategies to postpone consumers’ product replacement: The value of a strong person-product relationship’, *The Design Journal*, 8:2, pp. 168–76.
7. Niinimäki, K. (2011), ‘From disposable to sustainable. The complex interplay between design and consumption of textiles and clothing’, doctoral dissertation, Helsinki: Aalto University.
8. ——— (2018), ‘Knowing better, but behaving emotionally: Strong emotional undertones in fast fashion consumption’, in C. Becker-Leifhold and M. Heuer (eds), *Eco Friendly and Fair: Fast Fashion and Consumer Behavior*, Sheffield: Greenleaf, pp. 49–57.
9. Niinimäki, K. and Armstrong, C. (2013), ‘From pleasure in use to preservation of meaningful memories: A closer look at the sustainability of clothing via longevity and attachment’, *International Journal of Fashion Design, Technology and Education*, 6:3, pp. 190–99.
10. OECD (2017), *Education at a Glance 2017: OECD Indicators*, Paris: OECD Publishing.
11. Palomo-Lovinski, N. and Hahn, K. (2014), ‘Fashion design industry impressions of current sustainable practices’, *Fashion Practice*, 4:1, pp. 87–106.
12. Pelbart, P. P. (2011), *Vida Capital. Ensaios de Biopolítica*, São Paulo: Iluminuras.
13. Schifferstein, H. N. J. and Zwartkruis-Pelgrim, E. P. H. (2008), ‘Consumer-product attachment: Measurement and design implications’, *International Journal of Design*, 2:3, pp. 1–13.
14. Skjold, E. (2014), *The Daily Selection*, Kolding, Denmark: Designskolen Kolding.
15. ——— (2017), ‘Adorned in dreams: Reversing the gaze: From the look of fashion to the lens of the wardrobe’, *Clothing Cultures*, 4:1, pp. 13–28.
16. Tonkinwise, C. (2005), ‘Is design finished? Dematerialisation and changing things’, *Design Philosophy Papers*, 2:3, pp. 177–95.
17. Valle-Noronha, J. (2016), ‘Dress (v.): Encorporeamento de movimentos através da modelagem criativa’, in *12º Colóquio de Moda – 9ª Edição Internacional. 3º Congresso Brasileiro de Iniciação Científica em Design e Moda*, 11–14 September, João Pessoa, Brazil: UNIPÊ.
18. Varsaluoma, J. and Kentta, V. (2012), ‘DrawUX: Web based research tool for long term user experience evaluation’, in *Proceedings of the 7th Nordic Conference on Human- Computer Interaction: Making Sense Through Design*, 14–17 October, Copenhagen: ACM, pp. 769–70.
19. Vissers, J., De Bot, L. and Zaman, B. (2013), ‘MemoLine: Evaluating long-term UX with children’, in *Proceedings of the 12th International Conference on Interaction Design and Children*, 24–27 June, New York: ACM, pp. 285–88.
- 20.
- 21.
- 22.
- 23.
- 24.
- 25.
- 26.
- 27.
- 28.
- 29.
- 30.
- 31.
- 32.
- 33.
- 34.
- 35.
- 36.
- 37.
- 38.
- 39.
- 40.
- 41.
- 42.
- 43.
- 44.
- 45.
- 46.
- 47.
- 48.
- 49.
- 50.
- 51.
- 52.

SUGGESTED CITATION

Valle-Noronha, J., Niinimäki, K. and Kujala, S. (2018), 'Notes on wearer-worn attachments: Learning to wear', *Clothing Cultures*, 5:2, pp. 225–246, doi: 10.1386/cc.5.2.225_1

CONTRIBUTOR DETAILS

Julia Valle-Noronha is a doctoral candidate at the Department of Design, Aalto University. She holds an MA in visual arts and a professional background in fashion design. As a designer-researcher, her work explores wearer-worn relationships and alternative approaches to commercial fashion via practice-based inquiries.

Contact: Department of Design, School of Arts, Design and Architecture, Aalto University, P.O. Box 31000, FI-00076 Aalto, Finland.

E-mail: julia.valle@aalto.fi

<https://orcid.org/0000-0001-9284-2069>

Kirsi Niinimäki is associate professor in fashion research at Aalto University. Her research focuses on holistic understanding of sustainable fashion and textile fields and connections between design, manufacturing, business models and consumption. At Aalto, Niinimäki runs the Fashion/Textile Futures research group.

Contact: Department of Design, School of Arts, Design and Architecture, Aalto University, P.O. Box 31000, FI-00076 Aalto, Finland.

E-mail: kirsi.niinimaki@aalto.fi

<https://orcid.org/0000-0002-9759-7098>

Sari Kujala is a research fellow at the Department of Computer Science, Aalto University, Finland. Her background is in psychology and cognitive science. In addition, she has received Ph.D. in human-computer interaction. Her research interests focus on user-centred design, user involvement, long-term user experience and eHealth.

Contact: Department of Computer Science, School of Science, Aalto University, P.O. Box 15400, FI-00076 Aalto, Finland.

E-mail: sari.kujala@aalto.fi

<https://orcid.org/0000-0001-5586-3725>

Julia Valle-Noronha, Kirsi Niinimäki and Sari Kujala have asserted their right under the Copyright, Designs and Patents Act, 1988, to be identified as the authors of this work in the format that was submitted to Intellect Ltd.