

Pauline van Dongen

Pauline van Dongen (1986, Amsterdam) is a fashion designer specialised in wearable technology. Through her design studio (founded in 2010) she focuses on developing alternatives for fashion by exploring how technology (i.e. electronics and digital materials) can add new value and meaning to clothing and can enhance the way we experience the world around us. Her studio received international recognition with projects such as the Solar Shirt, Phototrope and Issho. Pauline also received several nominations for her work: she was selected by Forbes for their list of 'Top 50 Women in Tech Europe' (2018) and as 'MIT Innovator under 35 Europe' (2017).

Pauline is currently in the final stage of her PhD research that is part of the broader NWO- funded project 'Crafting Wearables' (2013-2018). For her dissertation, she combines design research with the philosophy of postphenomenology to reframe the understanding of technology. The aim of her research is to better inform the practice of designing wearable technologies and their role in the daily context of fashion.

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Link: <http://apria.artez.nl/in-touch-with-the-now/>

IN TOUCH WITH THE NOW: Stimulating Mindfulness through a Smart Denim Jacket

Introduction

In our 'always-on' society (Olshannikova et al.), mindfulness is the new luxury. As a result of our constant interactions with mobile technology, we are continuously distracted from our physical reality and bodies and pulled into a world of quantified data and digital information flows. This common-felt lack of connection to the body in the here and now explains the current and increasingly growing popularity of yoga, mindfulness, and meditation (see, for example, Pickert). Such 'datafication' of human life (Lupton; [Leder](#)) also manifests itself in the design and application of smart fashion.¹

¹ Following Michelle Addington and Daniel Schodek's definition of smart materials, we define 'smart fashion' here as garments that possess the internal capacity to respond to their environment and activate themselves directly, in real-time, and in concrete and predictable ways (Addington and Schodek 9).

During our PhD research, we have both noted that there is a tendency for everyday applications of smart fashion to focus predominantly on measuring and obtaining information from our bodies (Toussaint; van Dongen *A Designer's Material Aesthetics*). Smart fashion such as the Hexoskin Smart Shirt or OM Signal Bra allows wearers to monitor their bodies by displaying biometric data. Ironically, many smart fashion designs thus uphold the promise that data and self-tracking can make us more mindful of our bodies, while they in fact distract and disconnect us from our embodied subjectivity.

Despite smart fashion opening up possibilities for greater attention to the lived experiential body, most designers seem to integrate technology into fashion merely to maximize physical performance, efficiency, and productivity. As an alternative to this focus on self-enhancement and data visualization, designer Pauline van Dongen and her team designed a smart denim jacket called 'Issho' (van Dongen *Issho*). The design intention behind Issho was to deliberately turn away from making a garment that acts as a simple intermediary between body and screen. Instead of encouraging people to attend to data that merely quantify physical experiences, van Dongen and team explored the possibility of stimulating wearers to be more mindful of their body and environment. To be 'mindful' here means to focus one's awareness on the present moment and to consciously experience one's embodied presence in the here and now. For the purpose of our argument, we thus disconnect the notion of mindfulness from its manifold therapeutic, spiritual, or meditative associations in order to narrow it down to a more mundane and down-to-earth state of *embodied* awareness.



Figure 1 Pauline van Dongen, 'Issho', 2017. Photograph by Sharon Jane D.

Problem statement

The smart denim jacket Issho [Figure 1] has been designed to encourage a more mindful relation between the wearer, the garment, and their environment. This article explores how Issho may encourage wearers to be more mindful of their embodied presence in the here and now. In order to answer this question, we first describe the material qualities and design process of Issho. Second, we discuss the set-up and findings of several user tests with this smart jacket. We then analyse the interview data collected on wearer experiences with the help of the postphenomenological notions of mediation and material aesthetics. Postphenomenology studies the relations between human beings and artifacts, combining philosophical analysis with empirical investigation (Verbeek, *What Things Do* 190). It does not approach artifacts as merely functional and instrumental objects but as mediators of human experiences and practices. In other words, postphenomenology helps not just to speak of smart fashion designs in terms of functions and signs but also to understand them in terms of mediation (Ibid.). This article will conclude with a reflection on how Issho, as an example of smart fashion, mediates wearers' experiences of their bodies in relation to their immediate surroundings.

Design process of Issho

Our emphasis on the role of materiality and embodiment in understanding the experiences and practices of people wearing Issho prompts us to first describe the material-oriented approach that characterizes the design process. Denim is a sturdy, common, and protective fabric that invites the wearer to move and be active. It is characterized by its durability and graceful aging: through fading, it embodies the traces of time and wear. In addition, denim’s widespread and universal popularity made the design team recognize its potential for designing everyday sensorial experiences. One of their translations of mindfulness centred around the idea of touch, namely of being ‘in touch’ with one’s body and environment, and the importance of touch for our emotional well-being. Being so physically close to the body, clothing could play a role in enhancing haptic perception and heightening body awareness. Moreover, denim itself could be made touch sensitive by weaving conductive yarns into the fabric. Issho thus allows the technology to form a soft, tactile, and fluid interface between the body of the wearer and the direct environment. The qualities of denim inspired the team to create a design that stimulates a kind of ‘friendship’ between the wearer and the garment. Like a close friend, the jacket becomes an active mediator in the social dynamic between wearers and their environment, while at times also reminding wearers to take a moment for themselves.

The conductive yarns, woven into the weft of the fabric, rise from the surface to create a subtle tactility and a pattern of golden stripes. Placed on the shoulders and next to the large (and only) front pocket, these striped areas are sensitive to touch [Figures 2 and 3]. The microcontroller embedded in the jacket registers physical interactions, such as an embrace or a pat on the shoulder, between the wearer and others. The jacket also registers smartphone use by sensing the gesture of taking a smartphone in and out of the front pocket. After a certain amount of social interactions, Issho gives wearers the sensation of a gentle caress on the upper back, inviting wearers to shift their attention to their body in the here and now. The haptic feedback is created by four vibration motors that are programmed to simulate a stroking gesture [Figure 4].



Figure 2 Denim with conductive yarns woven in a striped pattern



Figure 3 Denim with conductive yarns woven in a striped pattern



Figure 4 Design sketch of 'Issho' (Berentzen)

Study

To collect data on actual wearer experiences of Issho, a small user test was set up and conducted by Isabel Berentzen in the context of van Dongen's design studio (Berentzen). The study involved four participants² who were asked to wear the jacket for three consecutive days. These participants were unaware of how the jacket operates and did not know the location of the integrated technologies. Afterwards, each of them used diaries to report on how many hours a day they wore the jacket and how frequently the jacket gave feedback. Additionally, the four test subjects were interviewed to gather in-depth data on their experience of wearing the jacket, focussing particularly on how they perceived the vibrational feedback. In this data set, we found several interesting remarks that can be understood and further analysed with the help of postphenomenological theory, particularly the notions of mediation and material aesthetics.

Postphenomenology

A postphenomenological approach to smart fashion is valuable for two reasons. First, postphenomenology helps to highlight that responsive garments not only change what the wearer experiences (the object of experience itself) but also affect how that experience comes about (Toussaint 46). In our interaction with material artefacts, our relation to and existence in the world takes shape. Following this perspective, design (including smart fashion) involves not just designing

² These four test users (3 female, 1 male; aged 25-26) have not been anonymized because they consented to their first names being included in all research output.

things but also designing human-world relations (Ihde *Technology and Lifeworld*; Verbeek *What Things Do*). A sturdy denim jacket that records, senses, and reacts to touch not only shapes how wearers experience their own body but also affects the way they act, move, and behave in relation to their surroundings.

In addition, we find a particularly useful element of postphenomenological thinking in Verbeek's suggestion to broaden our understanding of aesthetics to a 'material aesthetics' (Verbeek, *What Things Do* 209). This "sensorial conception of aesthetics" includes (the predominantly visual understanding of) style and beauty, while emphasizing the ways in which the material qualities of an artefact mutually inform our behaviour and perceptions (Verbeek, *What Things Do* 211). The prevailing understanding of fashion is to focus on visual aspects of garments and what they represent (Bruggeman 13), while the integration of technology in fashion usually elicits mainly functional and aesthetic explanations (Seymour). Material aesthetics places a semiotic and functional understanding of smart fashion in a completely new perspective because it helps reveal the material influence of artefacts on shaping relations between humans and the world (van Dongen *A Designer's Material Aesthetics*). The user test we did with Issho, for example, indicates that this denim jacket invites outdoor and physical activities, such as cycling, not because of its visual properties but because of its warm, loose, and robust materiality. We will now further analyse the findings of the user tests with Issho by connecting the postphenomenological notions of mediation and material aesthetics to wearers' experiences of this smart jacket.

Analysis of wearers' experiences

Encouraging body-awareness

The data from the user study were recorded and carefully transcribed, but considering the relatively small data set, there was no need for coding. Applying an empirical phenomenological approach (Moustakas), we combine the participants' descriptions of their experiences with our interpretation of the meaning of these. The first theme that stood out in the interview data was body-awareness. Two wearers described how the sensations exuded by the jacket drew their attention to their body and posture. By provoking an unusual and surprising physical sensation, Issho makes its presence felt and reminds wearers to stay in touch with themselves (Eco 192). Several wearers also noted how the material qualities of Issho—including the denim and the haptic sensations it evokes—stimulated them to relax their shoulders and back. We interpret these experiences as indicative of how the material aesthetics of Issho (i.e. the touch of denim in combination with the haptic feedback that the smart technology provides) invites wearers to become more aware of their bodies and of any physical signs of stress. By reminding wearers of their bodily states and physical interactions, Issho amplifies the wearer's body awareness and promotes a kind of "self-conscious self-surveillance" (Balsamo 216). As such, the jacket's haptic feedback has the potential to positively affect the wearers' state of mind, causing them to feel more mindful, relaxed, or comfortable.

Encouraging awareness of the immediate surroundings

The second type of experience that several wearers of Issho mentioned concerned a heightened awareness of their own actions, behaviour, and relation to their immediate surroundings. One respondent explains that the jacket "confronted" her with what she was doing (Karlijn). Another respondent described how she often cycles the familiar route to and from work as if on automatic pilot. The vibration of Issho interrupted this routine behaviour, stimulating her to be more attentive to the world around her. She noted: "And I actually quite enjoyed that because normally I am not paying any attention at all to the things happening around me while I am on my way" (Barbara). In postphenomenological terms, this implies that the relationship between the wearer and the world

is *technologically* mediated by Issho (Ihde 57; original emphasis). The jacket not only changes what this wearer experienced (the object of experience itself) but also affects how she behaves and relates to the world around here.

Material aesthetics and emotional durability

The third and final type of experiences that the user tests with Issho highlighted is how wearers experienced the design's material capacities and the ways in which the jacket affected their emotional state. Wearers experienced the material qualities of Issho as having a "comfortable fit" (Barbara, Karlijn) and liked the "rugged texture" created by the golden yarns (Sam). They described the fabric as "warm" (Angela, Barbara) and "windproof" (Angela) and interpreted the vibration of the jacket as a "short massage" (Angela). Due to these qualities, the jacket is easily integrated into daily activities and allows wearers to develop their own personal interpretation of and relation with the garment. One wearer described her experiences as "fun" because the jacket "sort of automatically made her happy when it started to vibrate" (Karlijn). Another wearer pointed to how she particularly enjoyed the self-activated haptic feedback Issho provides: "I like the fact that it does not matter whether I or someone else wears the jacket (...) the jacket is something in itself and works independently" (Barbara). These comments indicate that smart fashion designs such as Issho can be experienced as having an "apparent autonomy" or extraordinary power (Verbeek, *What Things Do* 127). The jacket is able to respond and vibrate of its own accord and acts in ways beyond the control of the wearer (Toussaint 98; see also Toussaint and Smelik 94).

The findings of the user tests with Issho show that wearers connect the material aesthetics and self-acting capacities of the jacket not just to their sensorial experiences but also to the level of feelings and emotions. Issho has the ability to reinforce or improve the emotional state of the wearer, which means it can emphasize positive emotions but may also evoke unpleasant or undesirable ones. This raises questions about the potential of designing smart fashion for emotional attachment, including human values such as friendship and happiness. It also signals that "smart textiles and smart clothing developments are very exciting, if not without some concerns" (Cranny-Francis 170).



Figure 5 Pauline van Dongen, 'Issho', 2017. Photograph by Sharon Jane D.

Conclusion

In conclusion, we can say that the relationships mediated by the jacket are diverse and that Issho affected the embodied experience of each of the wearers in different ways. The specific meaning, functionality, and role that they ascribe to the jacket depended on their subjective interpretation and practical dealings with the jacket in an everyday context. However, what all wearer experiences have in common is that Issho somehow transformed the ways in which they related to their own bodies, their clothes, and/or their surroundings. Whether Issho can effectively give the wearer a sense of mindfulness and self-awareness is only partially determined by its material aesthetics, yet has everything to do with the embedded, situated, and embodied ways in which it is experienced (De Preester 343-44).

We realize that this study has its limitations, given the small number of participants and the fact that they are automatically more aware of their relationship to the garments because of their involvement in the test. Still, the relatively small data set already generated a wealth of insights. Our study revealed that wearers valued the qualitative experiences (for example, heightened body-awareness) that Issho mediated, which hints at the opportunity for smart fashion to encourage more mindful and embodied human-technology relations. This further indicates that there is an opportunity to move beyond the quantified and functional approach to smart fashion. Issho represents a more embodied design approach that embraces smart fashion for its potential to stimulate a more qualitative and moment-by-moment awareness of our bodily sensations and environment.

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