

THE PROTOTYPE AS MEDIATOR OF EMBODIED EXPERIENCE IN FASHION DESIGN

Tore Kristensen
*Copenhagen Business School
Copenhagen, Denmark*

Ulla Ræbild
*Designskolen Kolding
Kolding, Denmark*

Abstract: *For many people fashion design is associated with shows and aesthetic appearances of a somewhat superficial nature. However, fashion design is much more. This paper sets out from a work in progress which uses theory on embodied knowledge to understand how fashion design processes take place. It is based on photographic material obtained in design studios during prototype development. The prototype is considered a core fashion design competence. Yet, companies increasingly cut costs by reducing or omitting prototype development. We intend to show, how the garment prototype acts as an important mediator of embodied experience between designer and user. That is, by use of a cognitive approach, we explore how mediation is enabled to occur through the recurrent patterns of sensorimotor actions that surround the garment prototype development. Tentative findings indicate, that eliminating the prototype could cause loss of important knowledge and lead to poorer design.*

Keywords: *Fashion Design Methodology, Garment Prototyping, Embodied Cognition, Design Mediation, Tacit Knowledge, Design Skills, Sensorimotor Experience, Image Schemata*

INTRODUCTION

The work of a fashion designer is often regarded solely as a magic or artistic phenomenon. In this article we want to show that the work of a fashion designer, although much less documented, is also subject to certain rules and procedures.

Fashion design is a multi-billion-dollar industry, and understanding the basics is important both for design and for business. The fashion designs often demonstrate particular artistic elements such as gestalt principles, certain exaggerations (Ramachandran and Hirstein 1999). Other studies show (Gabrielsen, Kristensen and Zaichkowsky 2010) that ordinary consumers are able to identify such elements and prefer them to more ordinary designs. Also branding elements, narratives in addition to interesting designs, even in simple everyday products seem to make them willing to pay a higher price (Gabrielsen, Kristensen and Zaichkowsky 2011). Thus, the basic

understanding of how design processes work and how fashion design is created seems important to map and explain.

This exploratory paper sets out from an ongoing project which uses theory on embodied knowledge to understand the method ‘toolbox’ that fashion designers engage with in their work processes. The aim is thus to align knowledge from cognitive science (author 1) with knowledge from fashion design practice (author 2) in order to arrive at new insights that contributes to both fields. Our chosen focus lies on the garment prototype, as prototype development is considered a core competence within fashion design (Sinha 2002). That is, prototype and sample making represent a significant ability to communicate vision and create innovation (ibid:8).

Yet, the fast fashion paradigm that has grown to be dominant over the past 20 years (see e.g. Fletcher & Grose 2012; Gardetti & Torres 2013; Fletcher & Tham 2015) has affected garment design practices across the industry in pursuit of cutting costs. With a general outsourcing of production and ever faster speed to market, leaving out prototype development has become one way to do this. As a consequence, garments are frequently designed as two-dimensional flat and standardised shapes on computers (Ræbild 2015). This is a procedure that diminishes the opportunity for the designer to physically engage with body, material, shape and movement. Consequently, important knowledge might be lost which could have implications for industry and consumers both as long-term user satisfaction in garments is noted to depend on sensorial qualities (Clark 2008), including the sensation of fit (Watson & Yan 2013).

We intend to show how the garment prototype acts as a mediating object through which embodied experience is transmitted between designer and user. Thereby we broadly adopt the viewpoint that: ‘The mediating object carries messages across space and time (or both) between people who are not co-present’ (Dant 1999:153), and more specifically lean on the Production – Consumption – Mediation paradigm that refers to ‘the study of design and the channels through which this occurs’ (Lees-Maffei 2009:21). Thus, we explore how, exactly, mediation is enabled to occur through the actions that surround the garment prototype development.

Background

Fashion design practice takes place in design studios where fashion designers work using particular tools like work tables, mannequins, scissors and sewing machines. The tools provide some dimension and measurement to capture the human body. Still, a considerable part of understanding the human body relies on the designer and his/her ability to make the clothes underline the beauty and harmony of the human body when it is in motion. Adding creative elements are based on the imagination and experience of the designer. Evidently, a designer may try or ask people to try the designs in various stages to see how it works. Certain design studios develop a name and a reputation for

being particularly good. Often this is used for marketing purposes to brand the studios, and it also means that the studios are able to recruit talents and develop a particular style. Such practice and style may be describes as relying on cognitive models of various kinds. There are rarely formal recipes, but they occur too in connection with tools and specific operating procedures.

Cognitive science has flourished in recent years and given many new insights into human knowledge. Cognitive models are typically seen as routines and a practical way of creating procedures and solving problems in the context of the human body in action. The mind is "embodied" Lakoff (1987) so to speak and this relates to the idea of "tacit knowledge" (Polanyi 1958) and usually involves a learning by doing approach.

We have here centred the investigation around the concept of the *image schemata* (Lakoff, 1987) defined as 'stable recurring patterns of sensorimotor experience by which we engage a world' (Johnson & Rohrer 2007:10 – 11). We do so in order to further understand whether, and possibly how, the fashion designer systematically engages in, and makes use of, sensorimotor experiences during the prototype development.

Methodology

The paper is based on photographic material recorded during actual design processes. The material derives from an empirical study on fashion design method practice in Denmark and the UK (Ræbild 2015). It includes observations of what working designers actually do, as opposed to interviews where people mainly talk about what they do (Brinkmann & Tanggaard 2010:33), which might not be the same. Thereby unarticulated or tacit knowledge can be uncovered. The data included here (table 1) are stills excerpted from video recorded observations (Pink 2007) produced in-situ at the design studios of three Danish small to medium-sized fashion companies. The focus in the recordings lie on designer actions (Jones 1992), i.e. *how* the designers conduct their practice as they develop garment designs for seasonal collections (Renfrew & Renfrew 2009). The photographic excerpts included in this paper are exemplary for actions related to prototyping processes, as observed within the three design studios.

Cases	Period	Observation recorded by video
Participant 1 Cph. DK (a)	April/May 2012	550 min
Participant 2 Cph. DK (b)	October- December 2012	570 min
Participant 3 Cph. DK (c)	May-June 2013	400 min

Table 1

PROTOTYPING GARMENTS

In this section we will show work mode examples related to prototype development processes. The commonality lies in the apparent image schemas, i.e. the recurrent patterns of sensorimotor experiences that enable the prototype to materialize. This shows in how the designers engage their bodies in the process in systematic ways, whereby they transmit their own embodied experiences to the product mediated by the prototype. As exemplified here, typical processes hinge on initial shape development, followed by modes of testing and assessment in different stages of completion with regard to fit, material, details and style expression.

Example 1

The designer (c) is developing a pattern shape at a table. The images below show how she consecutively addresses the design sketch; the flat pattern in process; and the pattern shape on her body.



Fig. 1(c)
First the sketch is studied (fig.1).



Fig. 2 (c)
Then work is carried out on the flat pattern construction (fig.2).



Fig. 3 (c)
Lastly the pattern shape and measurements are evaluated by the designer against her own body and corrections are made (fig.3).

In this respect a systematic practice of triangulating between design sketch, pattern shape and own body emerges.

This designer activity can be seen as a recurrent pattern of sensorimotor experience involving the following modes: *Analysing flat design sketch – Interpretation and transference of flat sketch to flat pattern elements on table – pattern shape tested against own body – correlation with drawing – revision of flat pattern elements.*

Example 2

The example is about the use of mirror. The designers wear prototypes and move around while mirroring themselves, making adjustments to the design in the process.



Fig. 4 (a)

Fig. 4 shows the designer wearing a toile in front of a mirror. The mirror is used as a means to adjust shape as it enables the designer to obtain two-dimensional information, provided by the mirror image, and three-dimensional information, provided by the experience of wearing the toile, simultaneously. This evaluation process involves a combined use of perspectives, which can be addressed as, respectively, an embodied egocentric perspective and a disembodied allocentric perspective (Tversky & Hard 2008). The double perspective experience emerges in the data as a frequently used practice, which may indicate that it is essential for the decision making process.



Fig. 5(c)

In fig. 5 the designer evaluates a prototype toile while discussing the garment with her colleague. She uses the double perspective as seen above (fig. 4), but to add to the complexity, the viewpoint of the colleague is included in the joint evaluation process. This is a practice that aligns with the notion of distributed cognition, which, according to Hutchins (2000:1) ‘...looks for a broader class of cognitive events and does not expect all such events to be encompassed by the skin or skull of an individual’. The colleague’s perspective affords not only the mirror image, but also the direct experience of the garment as worn by the designer, and thereby two versions of the disembodied allocentric perspective.

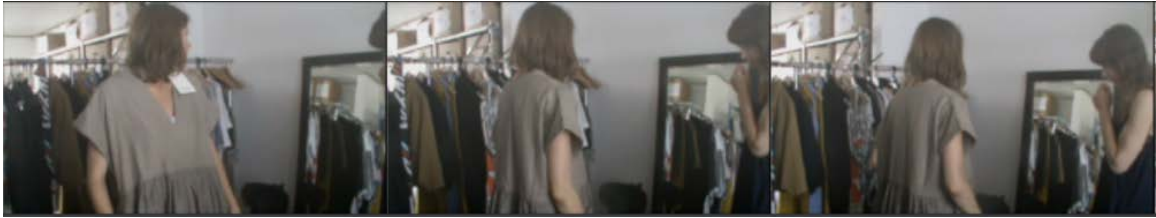


Fig. 6 (c)

Fig. 6 show same type of actions, only here the evaluated garment is a finished prototype that has returned from production as sample. Hence, the evaluation process involving multiple perspectives through use of mirror and distributed cognition takes place throughout the design process and beyond.

The last images in this example, fig. 7 – 9, show use of mirror in a design studio where the mirror seemingly is not considered a formal part of a fashion design work modus. That is, the mirror is situated outside the studio in the floor level’s stairway and toilet area.



Fig. 7(b)

In fig. 7 we see the designer putting on a jumper prototype.

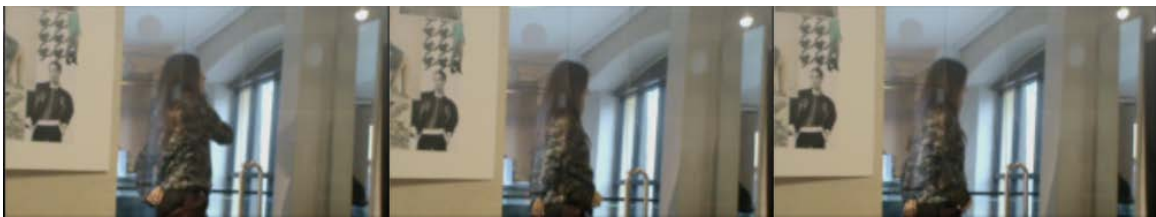


Fig. 8(b)

Fig. 8 shows the designer mirroring herself, while adjusting the jumper by pulling and tucking at the shape.

Again, we see an alignment of the embodied experience provided by the wearing, with the visual disembodied and flat perspective, provided by the mirror image. The fact that the designer actively seeks the mirror, even when the mirror is not part of the studio

interior, might point to the mirror practice as an implicit, yet, for part of the industry, unarticulated, necessity.

Following Kirsh (2001) the mirror can be viewed as a key *entry point* in the work, that is ‘a structure or cue that represents an invitation to do something – to enter into a new venue or information space’ (ibid: 6) within the *activity landscape*, understood as the way users are ‘creating structure by their actions and, evaluating outcomes’ (ibid:11).

The mirror practices exemplified above indicate that use of a mirror, whether tacit or explicit, is an essential way for designers to understand a garment, as it enables a simultaneous evaluation of perspectives i.e. embodied sensorial information with disembodied and visual.

This designer activity can be seen as a recurrent pattern of sensorimotor experience involving the following modes: *Embodied sensorial experience of prototype by wearing – visual experience of worn prototype provided by mirror – alignment of experiences – prototype adjustments.*

Example 3

The images here depict actions whereby the designer develops prototypes directly on to a user body representative.

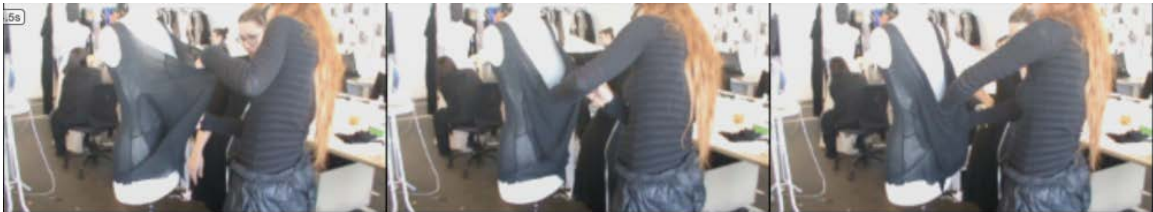


Fig. 9 (a)

Fig. 9 shows the designer in the process of developing a top. For this purpose, she uses a dress stand in the shape of a torso on to which fabric and shape is manipulated in an improvised manner.



Fig.10 (a)

Fig. 10 shows the same process. Here the designer makes use of a team member to represent the user and involve multiple perspective mirror practices.



Fig. 11 (b)

Fig. 11 shows assessment of prototypes on the in-house fitting model.



Fig. 12 (c)

Fig. 12 shows the use of a boyfriend for evaluating menswear prototypes.

To understand the role of the dress stand (or body shape) in the prototyping process, the idea, developed by Hutchins (2005), of *material anchors* is relevant. Hutchins proposes that within processes involving both mental and material structures – named conceptual blends – some parts of a representation needs to be stabilising elements, in order for others to be manipulated (ibid:1557). If all elements are fluid, manipulation and evaluation becomes difficult. The shape of the body can be seen as such a material anchor. It represents a stable structure within the blended conceptual space of the design process on to which manipulation of form, material and expression can take place.

The actions suggest that the designers use the body form – in many varieties – as a material anchor, i.e. a stable structure, when developing and finalising designs. Furthermore, in the case of live models, the designers are able to combine their own visual assessment of how the design looks, with the feedback on how it feels.

This designer activity can be seen as a recurrent pattern of sensorimotor experience involving the following modes: *Tactile and visual experience from manipulation on to*

body shape – visual/verbal reaction/feedback from user proxy – alignment of experiences – prototype adjustment.

Example 4

Here a designer is engaged in a prototype test carried out with her design team.



Fig. 13 (b)

The designer puts on a prototyped jacket (fig. 13). First half the jacket...

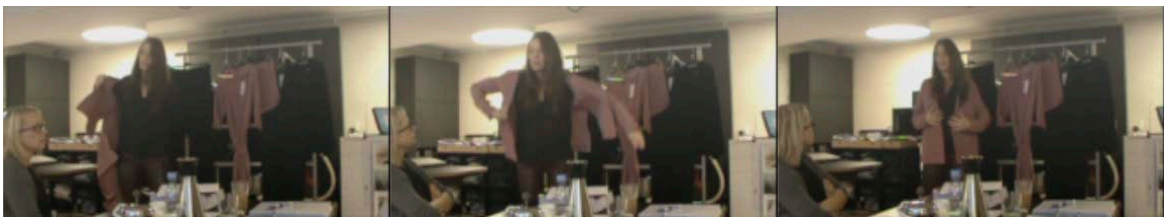


Fig. 14 (b)

...then the full jacket (fig. 14) ...

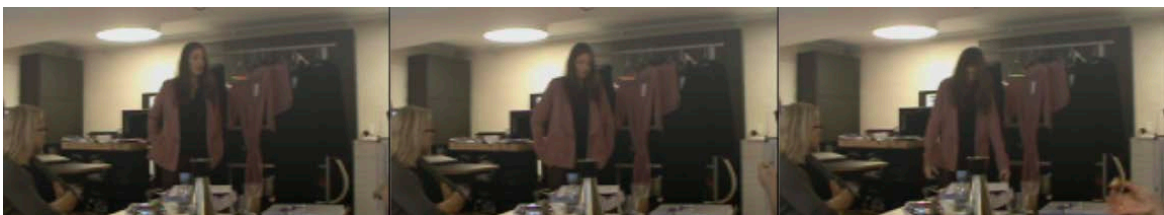


Fig. 15 (b)

...while moving about in order to assess shape, material, fit, pockets, etc. (fig. 15).

The sensorimotor actions point to a work mode where the designer, by the embodied perspective, is able to evaluate the prototype with regard to fit and feel through movement. The observing team members sitting at the table verbally evaluate on visual aesthetic design elements and overall style provided by their disembodied perspective. The team co-join the perspectives in a mutual understanding of what is to be adjusted.

This designer activity can be seen as a recurrent pattern of sensorimotor experience involving the following modes: *Embodied garment experience through movement –*

assessment – alignment with colleagues’ disembodied visual assessment – adjustment of prototype.

FINDINGS

Our findings are still under analysis. Yet, throughout the analysis presented in this short exploratory paper, the prototype unfolds a key mediator of embodied experience between the designer and the user, enabled by way of image schemas. It is thus through the systematic embodied engagement that the designer can embed experience into the design. What might come across as relative non-descript and un-articulated actions, are indeed highly perfected and repeated modes of working. The mediating properties of the prototype appears to be central for the designers’ ideation, understanding, and evaluation of a design. It is by the prototype that the designers’ sensorimotor experiences can be processed and transported to the user. In this respect, Dant’s proposal of the mediating object as one that carries messages across space and time (or both) between people who are not co-present is an appropriate understanding. By eliminating the prototype from the design process, the mediation of embodied experience most likely will suffer, with poorer design for the user as the consequence.

In the further work, we shall go deeper in to the analysis of these early findings regarding the role of the prototype, and address how the image schemas – here referring to the active movements by the hand (and tools) of the designer – aim at turning images of metaphoric character into an enabling design, a design that gives the body affordances and grace in its movements, and furthermore, how metonyms refer to style phenomena. Finally, a major issue is that of propositional models to describe tools that yield accurate measures. These are formal statements and depend on official dimensions such as human sizes.

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