

Aesthetic Experience and Comfort:

The relationship between semantic form and body movement for the design of wool clothing

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Abstract: This research investigates comfort factors of users' aesthetic experience, in particular, the kinaesthetic aspects of human sensory activities and perceptions. The main aim of the research is to develop concepts and design principles of movement-based interaction for inducing emotion, focusing on wool clothing as an interactive object. This project utilizes theories, design practice, and existing scientific research into the comfort factors of wool and user participation. The research outcomes will inform and assist designers and a partner scientific organization, (the Wooldesk of the Department of Agriculture Western Australia (DAFWA)), by providing new insights into the concept of aesthetic comfort.

Key words: *aesthetic experience, kinaesthetic, clothing, movement, comfort.*

1. The original key idea of the thesis

Comfort is not only based on the human sensory response to clothing materials but is also determined by a variety of psychological, social, and emotional parameters. To enhance the emotional experience of clothing comfort through design, comfort may be affected by a combination of how a garment feels against the skin, how it appears to the eye, how it feels in the space, how it interacts with body movement, how it is remembered and how it can be manipulated by the wearer to create different volumes in space. This research focuses on aesthetic experiences; wearability performance related to body, movement and space to understand (1) the way in which people perceive the senses against body and space (environment), (2) understanding the aesthetic elements of our bodies and bodily aspects of object interactions and bodily action processes, (3) the interplay between object manipulation and movement. The research questions are:

- How can human senses of aesthetic experience be reflected in the design and comfort of wool garments?
- Can a phenomenon of movement quality -as the relationship between the body, space and movement – be applied to enhance the comfort of wool clothing?
- How do 'urban nomad working women', in the 20-40 years age group, respond emotionally to the perceived and actual body image, body form and body movement of comfortable wool garments?

2. The problem domain addressed for the thesis

In human factor analysis of product, textile and clothing design, the emotional dimension of *comfort* is mainly categorized in relation to usability; the scientific, functional, transparent, easy to use and predictable qualities rather than artistic qualities, ambition, and personality [2]. These issues of comfort are not integrated into general aesthetic appreciation of clothing, such as the combination of human perception, cognition and action which is beyond material and functional factors. Fiore and his colleagues [4] stated that “the sense of comfort involving tactile elements of textiles and clothing were not related to aesthetics, because they did not address enhanced pleasurable sensations. Instead, they focused on a voidance of negative sensations, functional fabric comfort factors, functional garments, and protective clothing fabrics.” More importantly, research on consumers’ needs and desire for clothing has shown that consumers differentiated between the concern for comfort and the concern for aesthetic qualities [9]. This research indicates that comfort in clothing is separated from the domain of aesthetics. However, these researchers have not demonstrated how comfortable, enjoyable and pleasurable sensations are different in an aesthetic context.

2.1 Scientific research in wool beneficial properties

Wool has had a long historic acceptance as a ‘comfortable’ fibre, and is linked closely in the minds of consumers with terms such as warmth and breathability, both properties associated with the comfort of clothing. Wool has a number of attributes and beneficial properties such as absorbency, insulating performances, resilience, durability, positive tactile and versatility. In this research, it is proposed to use data from DAFWA’s scientific research for designing aesthetically pleasing and comfortable clothing related to movement.

3. A brief overview of related work

3.1 Identifying aesthetic experience and kinaesthetic properties

Researchers [2, 3] have spoken about aesthetics in various creative domains. Visual; *appearance or feature* and *tactile qualities* have probably received the most attention but few studies have examined *kinaesthetic quality*. Salem et al. [11] stated Kansei experience in terms of aesthetic, emotions, and inner balance. They suggested “two or three distinctions of aesthetics experience: (1) the aesthetics of the perception (AoP); the degree to which all our senses are gratified, (2) the aesthetics of the cognition (AoC); the meaning we attach to the product [3], or (3) the aesthetics of the action (AoA); the way we feel comfortable, satisfied or pleasant though bodily action.” This perspective indicates that design elements of aesthetic experience require understanding of our bodies and bodily action processes. Designers need to examine users’ expressive characteristics and the personal or symbolic significance of particular body movements and behavior in order to design clothing. Consequently, it is critical to identify and evaluate aesthetic knowledge about the relationship of design elements (i.e. body senses, body behavior, meaning, movement) with *comfortableness* in clothing in order to develop new design principles.

3.2 Body of being in-the-movement

Our physical body plays a central role in shaping human experience in the world, understanding of the world and interactions in the world. This aspect of aesthetics is related to the perceived quality of performed movements. The sense of movement is closely related to space. Therefore theoretical work on spatial perception is relevant.

Maurice Merleau-Ponty [8] names properties of space: space is not the setting (real or logical) in which things are arranged, but the means by which the position of things becomes possible. Furthermore, he states that space is described as neither provided by the act of using one's senses (subjective), nor is it an intellectual construct (objective), but its main origin derives from the body. Spatial perception as applied to clothing is not only a matter of what can be perceived but what can have visual, kinesthetic, tactile and spatial aspects. In the creation of a personal zone these may be either inhibited or encouraged.

3.3 Movement theory and practice

The concept of 'movement' is related to our experience of the physical world from our own anthropomorphic bodies and the way we understand objects around us is related to our bodily experiences arising from interaction with the spatial world [7]. Arnheim [1] observed that the more complex the behavior, the more that human qualities were associated with the movement. Gibson, in his theory of 'affordances,' [5] suggested that the world unfolds itself in potential for action. We perceive the world in relation to an intuitive bodily understanding of what we can do with it. Thus, the world is inherently meaningful for our body and by moving we can gain access to that meaning. The external aspect of movement focuses on the structure of the body and physical activity. The internal aspect of movement focuses on the mental aspects and movements originating from 'meanings' understood by an individual. It is assumed that product behaviour can be enriched not only with physical movements for optimizing performance but also with mental enjoyment as a form of communication.

4. The Research goal and the methodological approach

In order to identify comfort factors of kinaesthetic aspects of human sensory activities and perceptions and develop design principles about the relationship of wool clothing with the body, sense of movement and space, this project will adapt a Kansei engineering approach and combine it with existing scientific research into the comfort factors of wool and user participation. This is a design approach aimed at capturing the user's expected feeling ("kansei") when they perceive images and objects, and then embedding emotion into the product [10]. The Kansei engineering approach will be used to find out (1) participants' preferences for the semantic form-finding; '*make a storyboard*' and (2) relationships between clothing experience and its properties.

5. Preliminary research outcomes

The intermediate outcomes include a critique of design concepts and methods in conceptual clothing design and design prototyping within the context of 'object playing' with movement as a source of comfort and enjoyment. The research to date has identified that there are always integrated contributions from inner experience to the outer expression of our bodies. By adding body interaction to theories about clothing, clothing is converted into a three dimensional form with a functional, aesthetic sense and emotional interactions. Clothing becomes part of an in-between transitional space by the process of adding human interaction and its movement. Design prototypes have been executed with the aim of stimulating emotional responses from the wearer for the next phase of the research. These are based on the concept of transformation where the aim is to adapt body movement to users' emotional requirement such as the transformation of furniture into dresses and vice versa. This is a process of shape change - "trans-for-(m)-otion" - as an interactive medium.

6. The future direction of how to carry out the research

This will include (1) interviews using open-ended questions and (2) participant observation digital video recordings of body movement to identify participants' (women 20-40) emotional and bodily behavioural responses to wearing prototype garments. In phase (1), participants will define their preference from a range of garments in images presented to them. They will be required to answer short questions. The interviews will be audio tape-recorded and transcribed for further reference. In study (2), participants will be required to answer short questions in order to inform a choice of prototype for motion tests. Then they will manipulate the garment prototype to demonstrate how they would interact with, and wear the garment in a series of set exercises. Observation of the participants will be carried out using digital recordings to observe their expressions, behaviours, and reactions throughout the process of wearing the prototypes being tested. A maximum of 20 women (20-40) subjects will be recruited. These experiments will be documented and analyzed for an academic and general design audience and also with specific reference to the needs of the partner organization, DAFWA.

7. References

This research is linked to an Australian Research Council (ARC) Linkage project "Innovative Solutions for Wool Garment Comfort through Design" (ID: LP0775433) and is building on the results of scientific research carried out by DAFWA (Department of Agriculture and Food, Western Australia) in wool fibre specification.

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