SKIN STORIES :: CHARTING AND MAPPING THE SKIN
RESEARCH USING ANALOGIES OF HUMAN SKIN TISSUE IN RELATION TO MY TEXTILE PRACTICE

CHAPTER 1 RESEARCH AIMS AND SCOPE

New and smart materials as well as intelligent use of low-tech materials provide extensive evidence of the potential for the entire textile industry - in the fashion and clothing sector, in the interiors sector, as well as in the technical textiles. Specialists are predicting that in the near future, our very day-to-day lives will be significantly enhanced and regulated by intelligent devices and processes. Many of those systems will be incorporated into textiles. These future developments will be the result of active collaboration between professionals from a whole variety of backgrounds and disciplines: engineering, science, design, process development, business and marketing.

In recent decades there has been greatly increased development within the technical and intelligent textiles area. Within the last decade in particular, an escalating interaction between textile design, technology and science can be observed. The cross-fertilisation of diverse ideas from various backgrounds stimulates the extensive potential for developing new design products and engineering processes. In this context, design has a particular role as mediator between technological innovation and real living environments.

The principal objective of this practice led research project was to investigate new design possibilities for interactive mixed-media textile surfaces, using analogies of human skin tissue in relation to my own textile practice. As indicated in the original research proposal the aims of the investigation were:

* to examine the technical and practical processes within textile design by focusing my practice led research on biological and medical aspects of human skin and body surface, in particular scientific imaging, magnified anatomical structures and textures, its physical characteristics
* to translate these phenomena into a textiles vocabulary and following the principles of biomimetic design, combine aesthetic and functional aspects of skin characteristics
* to develop and test new applications and technologies within textile design that arise from the research, particularly focusing on aspects of membrane and display, which embodies communication, identity, protection
* to develop mixed media textile surfaces as a result of the process of scanning and mapping the surface of the body, using practical simulation of the skin's physical and functional characteristics into fabrics by means of bonding, felting, layering, 3D-moulding and various print processes
* to produce a body of textile works accompanied by a written thesis

The main idea of this body of work was to develop functional and responsive textile membranes that enable individuals to experience a polysensual and interactive environment. It was anticipated that the new design concept should respond to people's needs, enable them to enhance their sense of wellbeing and offer them the possibility of interacting with their surroundings by creating an ambience consonant to their own requirements at any particular moment. The scope for technical experiments was established in order to facilitate incorporation of selected aspects of functionality and to contribute to new knowledge within this field.

Selected properties of the skin were translated into a textiles vocabulary by identifying a range of textile-related technologies. In order to do this, the structures and functions of human skin tissue were examined from the perspective of a textile designer as stated below:

* exploration of the potential of textiles as latent heating systems to control the room temperature (the analogy of skin being a thermo-regulator)
* examination of the thermochromic properties of textiles as indicators of fluctuating conditions in the interior (the analogy used is that of human skin reactions to physical and psychological stimuli - skin as sensor and biochemical mechanism)
* investigation of the interactive and decorative potential of thermochromic and touch-sensitive surfaces to exploit transient skin images and patterns (the analogy used is skin as a sensor)
* exploration of the olfactory and filtering potential of textiles as deodorising, anti-microbial and curative surfaces (analogy - skin as immunological surveillance and biochemical mechanism)

If you wish to read this thesis (338 pages) please contact the British Library or the London College of Fashion Library.