



Entangled Fibres: an examination of human-material interaction

Research Through Design Case Study

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Abstract

Material's role in making has been previously tackled to understand practices, objects, and society from multiple angles. Recent research on materials challenges prioritising human perception, experiences and needs while proposing that materials actively participate in everyday interactions and experiences through their embedded agencies. This research examines the active role of material within the context of design and craft-making. The main research question is: how does human-material interaction occur, and how does material actively affect the making processes? This examination is carried out through the case of felt making via four studies.

The first study was conducted at expert craftspeople's studios and examined how through negotiation the material and the body become united during making processes. The second study examined the material in its own environment and at the design studio and focused on how material interactions affect ideation while making



an artefact through a practice-led study on my own making process. The third study tackled how the early material engagements of novice makers might challenge their understanding of being with the world. By utilising first-hand experiences, this study challenged established human values to discuss coexisting with other entities in more responsible ways. The fourth study examined the field of felting and its

material connections to reveal how material agency shapes the fluidity of the practice within the field.

The case study methodology provided meticulous analysis of a material's changing activeness in four research settings. By employing a practice-led research approach, human-material interaction was explored through the reflections and experiences of makers. Participant observation and reflective making were particularly useful methods of collecting data as they revealed the steps of direct



engagement with the material. Examining felt making from the material's activeness perspective provided four theoretical insights: 1) the material's meaning can change based on how the maker is with them, and it can gain different roles for various processes, 2) making is a situated and context-dependent action and can gain different meanings under various conditions, 3) perceiving the material as active also requires activating the self by being more flexible, and 4) understanding the extent of the material's activeness in the material engagement can expand the boundaries of responsibility.

The findings stimulate cultivating new pedagogical models for teaching new skills and for building empathy towards existing with humans and nonhumans. The design of studies can inform new material development processes by valuing experience-oriented explorations over goal-oriented ones. By embracing the coexistence of human and the nonhuman, this research prompts an acknowledgement of other kinds of agencies and our dependencies on them. Realising that humans do not own or dictate but collaborate with materials generates more responsible behaviours and inclusive political actions for coexisting with nonhumans.

Summary of research through design activity

In this research, design practice is used in two ways: Firstly, as a way of thinking with the research topic and to become an insider of the researched phenomena throughout the research. The concrete first-hand experiences facilitated how to make sense of theories from the perspective of research questions. Secondly, I employed practice as a way of generating data to examine particular research questions.



Design practice, or in my case more specifically practice of felting, facilitated first-hand examinations on how material interaction shapes making and thinking processes. Being trained as a designer, the act of designing or making things by hands and the body is my natural way of thinking. Thinking through making appeared organically from the beginning of the research to stay in contact with the material. Making things with wool throughout the research provided reflections for conceptualizing the experiences and interactions. This process is documented via reflective text in the working diary in free style, videos, and images. By being an insider of the practice, I was able to interpret theoretical discussions in a way that can specifically answer or contextualize my own research topic. For this reason, my research followed a practice-led research approach that shaped the development of the entire research. Reflections emerging from various research phases informed the next steps of the research. Experiences, questions and articulations emerging from the practice helped advance the project and theoretical thinking.

Simultaneously, to conduct systemic analysis of the material interactions I have also practiced felt in various research settings, such as with expert craftspeople and individually in my studio and in nature close to sheep farms. These making processes were documented as data to answer to research questions 1 and 2 of the research, and later analysed through video analysis and textual studies.

Underpinning research, context and summary of methodology

The aim of this research was to examine how humans interact with materials during their creative making processes, specifically during felt making. By studying these processes with various practitioners, such as expert felt makers, novice makers, and myself who is competent but not expert yet, I investigated material's role in shaping bodily movements, design ideation and thinking about the relationships with the material and the environment. This discussion was carried out with the notion of material agency to highlight and promote the active affect of materials in human becoming.

To gain comprehensive understanding about the topic, the research is designed as a case study of felting with a practice-led design approach. Within this framing, my aim as a practitioner-researcher was to stay inside the researched phenomena and gain as much first-hand experience as possible regarding how material interactions affect humans. For this reason, methodological decisions followed main ideas related to experiential knowledge that would allow me to be an insider of all data collection processes.



Besides felting throughout the research period to stay in contact with the material, I employed ethnographic methods to investigate existing understandings about material interaction. Conducting field trips and semi-structured interviews with expert felt makers showed the main ideas about material's role in felting. After this, I conducted participant observation at two craft studios, one week at each, to closely observe and understand making processes in relation to the material's agency. In this study, the aim was to identify how felt makers follow the movements of wool by changing their body movements and intentions while making takes place. Additionally, I studied how decisions about wool was affecting the later decisions of the felt makers to demonstrate the connections that materials generate.

To follow how material agency can impact the ways in which designers ideate, I employed practice-led research as a method. I followed my own making processes, which started at the design studio, moved to a sheep farm and sheep's natural environment, and returned back to the studio. By studying how gaining the experience of material behaviour in its origin while still raw and after it is processes, I re-conceptualized the material's role in shaping the ideas for making an artefact.

To follow how novice makers can learn about material behaviours, I designed a course with a colleague and worked with students who had not worked with the selected materials before, namely wool and clay. By creating the course content and assignments that rely on student reflections, I was able to follow how the perceptions of the participants regarding the material's role in everyday life were changing over time. This study showed that studying and recognizing material behaviour can change the ways that people relate to the environment.

Overall, this research followed interacting with wool while felting and provided empirical understanding on how human thinking and behaviour evolves together with materials. As a result, this research proposed the idea of "being with the world" as an attitude that can change the way people build their relationships with their creative practice and with the environment and shift the human dominant perspective. As part of this, "crafting with the material" was proposed as a method of gaining an understanding related to being with the world.

References produced by researcher from/during doctoral research

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