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## PhD Pit-Stop: Human-Material Interaction - Examining the Material Agency Concept in Making Processes

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### 1. Introduction: Material as a Vibrant Entity

The motivation of this doctoral research is to promote more sustainable and respectful ways to co-exist with nonhumans, such as animals, nature, and materials. The environmental crises we are witnessing indicate that sustaining life on earth requires taking immediate action from multiple perspectives. Finding new ways of co-existing with other entities is a significant part of these actions as life on earth is formed with many entities. Understanding the renewed ways of co-existing can guide us on joining in the flow of continuous changes rather than instrumentalising nature and animals for human needs. Accordingly, in my doctoral research, I examine human material interaction in craft-design processes to clearly demonstrate that humans need nonhumans for their existence. Examining this interaction within craft-design context is useful since through making our bodily experiences bring the co-dependency of humans and nonhumans into light. I believe that we need to shift our thinking from a human-centred perspective to having multiple entities as essential actors of our experiences and existence to transform our life into a more inclusive and sustainable one.

Accordingly, to elaborate on the concepts of co-existence and dependency between humans and nonhumans, this research investigates the ways in which humans interact with the material and how these interactions affect our thinking, making, and essentially being in this world. To understand the active affection of the nonhumans, this research employs the concept of material agency as its frame. As Jane Bennett (2010) perceives matter is a vibrant entity in its individuality. Bennett argues that the power of different materialities enables materials to gain agencies within their independent or collaborative existences. Through their agencies and capabilities, things can act differently under various conditions, time, and spaces. Sociologist Andrew Pickering (2005) argues that the agency of matter accumulates new configurations for human-nonhuman relationships. Pickering claims that material, artefact, knowledge and social transformations evolve together and structure each other's development. Correspondingly, this active affection between humans and nonhumans significantly contributes to constructing our thinking and experiences in the world.

In the context of making, materials are already a distinctive component, and accordingly, its role has been tackled to understand the maker's relationship with the practice, material, and society (Risatti, 2007; Adamson, 2013; Sennett, 2013), emergence of the artefact (Bolt, 2007; Ingold, 2010; Nimkulrat, 2010; Malafouris, 2013) or ways to interact



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with artefacts (Latour, 1988; Pickering, 2005; Karana, et.al. 2015). Following artist and art theorist Barbara Bolt (2007) and anthropologist Tim Ingold (2010), this research emphasizes the co-emergence of the final form from the togetherness of human intentionality and material agency. Similarly, this research unfolds a scale where humans are not positioned as the sole decision mechanism of creative practices but rather comakers together with materials and other participating entities. As a continuation of these discussions, in this research, I examine material's activeness within different settings to illuminate its impact. These settings differ from each other with the skill stage of the maker, making environment, and the purpose of making. Accordingly, to have a holistic understanding, this research perceives the coupling of several entities and components as entanglement and advocates for nonlinear and complex relations in which togetherness of several entities form each other's existence in dynamic ways (Barad, 2003; Ingold, 2010; Hodder, 2012). With a focus in felt making, this study illustrates making as an entanglement of various connected elements while specifically arguing for material's active participation in that landscape.

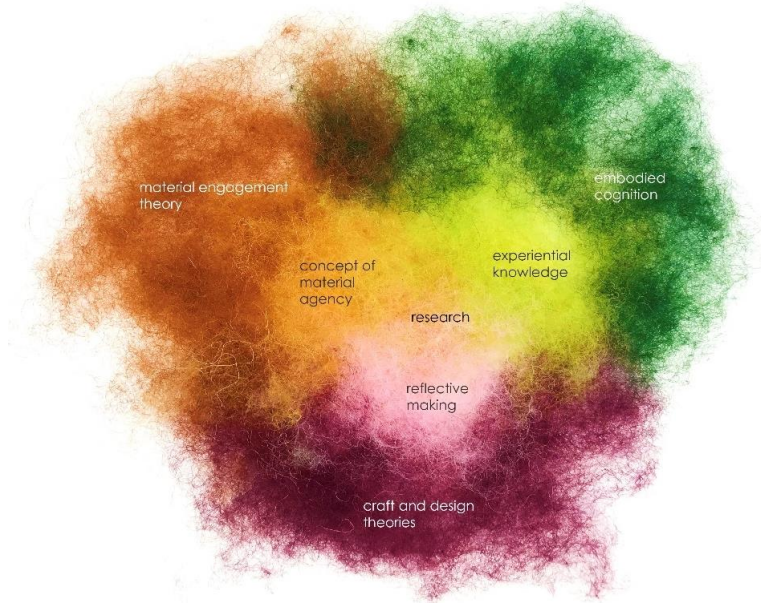


Figure 1. The conceptual framework of the research that is emerged from the larger theories.

To examine the interactions, I bring the concepts of material agency, experiential knowledge, and reflective making together to thoroughly understand how the material affects our experiences (Figure 1). Accordingly, the main research question lies in the intersection of these concepts: **how does material actively affect human existence and their experiences, thinking, and being in this world?** In order to investigate this question comprehensively, three sub-questions are generated. These questions study making and material relationship at three expertise levels and unpack layers of the co-emergence of artefacts:

1. How do expert makers interact with the material during making and how do their bodily movements develop in relation to material movements?
2. How can the agency of the material become a source for developing own way of making and designing for competent makers?
3. How can novice makers learn a craft skill through following the agency of a material?

Each sub-question generated a study and the studies are conducted with makers who are at different skill stages. The first sub-question was investigated with expert makers with embodied material knowledge who followed the flux of the material, the second sub-question was investigated with a competent maker, who had certain material knowledge and experience to handle material interactions, and finally the third sub-question was investigated with novice makers, who acted as curious observers and, at the time of the study, had their initial meetings with the material.

## 2. A Designerly Way to Study the Activeness of Material in the Context of Felt Making

In this research, the interaction between maker and material is examined within the context of felting. Felting is a nonwoven textile that is made by entangling wool fibres. Felting utilizes basic techniques of pressure and friction between wool fibres. In this process applying hot water and soap catalyses felting (Burkett, 1979). Felting can be done even without any additional tools and its making techniques have remained to be similar since the early examples. I believe this situation indicates its material-ness and provides a nice example to study human material interaction.

Accordingly, this research follows a case study methodology which enables conducting deep examinations in one complex field, in this example felting, that can produce knowledge to be applied in other fields (Muratovski, 2016, pp. 49-50). Case studies investigate a topic in its real-life context (Yin, 1981, p. 98) by providing concrete examples to answer how questions (ibid., p. 109).

As in this research design the knowledge about material's activeness is acquired through experiences, practising felt has been implemented as part of the research. Accordingly, felting has been implicated as part of the research. Employing a practice-led approach provided close contact to examine the significant effects of the material and its transformations. Within the case study methodology, the practice-led approach enables understanding the interactions through bodily experiences and contributes to articulating abstract concepts. Accordingly, in this research design, I, as a practitioner-researcher, make felt to generate research questions through the reflective making processes (See also Schön, 1991). Having a twofold role of being a researcher and designer also enables a comprehensive understanding (McNiff, 2008). Accordingly, practice becomes a vehicle to explore and to contribute to knowledge through hands-on experiments (Mäkelä & Routarinne, 2006, p. 13). Together with examinations through felting, each study also had its own methods of collecting data. In these studies, qualitative research methods have been employed such as semi-structured interviews, participant observation, and facilitating the making processes.

## 2.1 Three Studies

My doctoral dissertation will be a compilation of three articles and an introductory essay. For this, a conference paper (Aktaş & Mäkelä, 2017) and two articles have been published (Aktaş, 2019; Aktaş & Mäkelä, 2019). Each publication focuses on one study and the studies are summarized below (Figure 2).

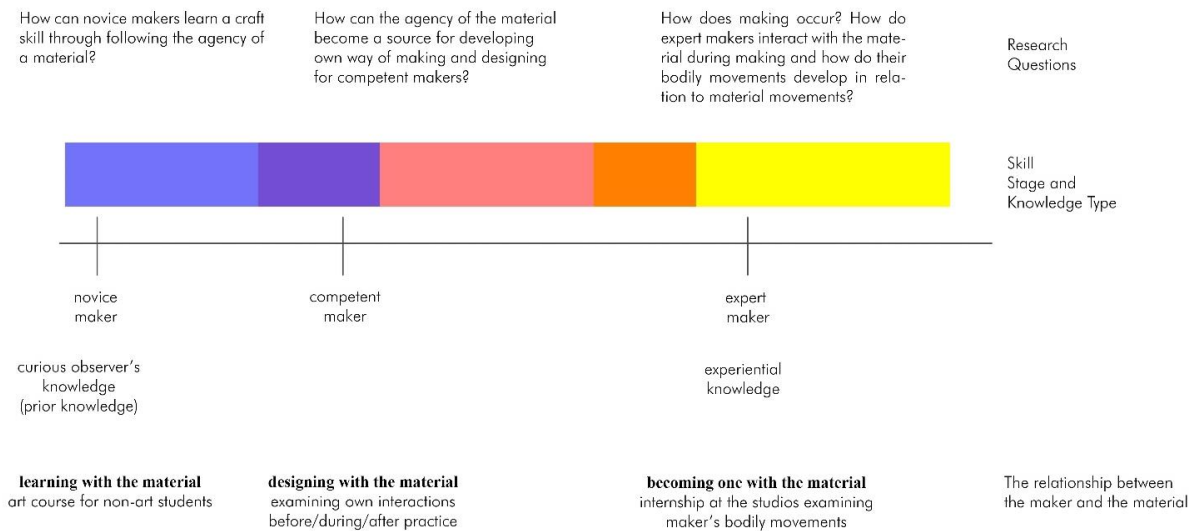


Figure 2. Three sub-questions and the studies they developed, their context, and the preliminary results.

Currently, I have completed the first two studies in the premises of Aalto University (Table 1). After designing the studies and collecting data, the research outcomes were published in peer-reviewed journal articles. For Study 3, the data is collected from the novice makers to reveal how we start thinking with the material in a way that respects non-humans and builds sustainable relationships with them.

Table 1. Current stage of the studies.

	Objective	Study Setting	Status	Research Outputs
Pre-study (December 2016)	<b>understanding the field of felting</b>	Interviews with eight expert felt makers	Completed	Conference paper: Craft Dynamics: empowering felt making through design, at NORDES conference (JUFO 1).
Study 1 (July 2017)	<b>designing with the material</b>	Observing material in its natural environment and design studio	Completed	Article: Using Wool's Agency to Design and Make Artefacts, published at RUUKKU (JUFO 1).
Study 2 (August 2017)	<b>becoming one with the material</b>	Participant observation at expert maker's studio	Completed	Article: Negotiation Between the Maker and Material: Observations on Material Interactions in Felting Studio, published at International Journal of Design (JUFO 2).

Study 3 (March 2019)	<b>learning with the material</b> – art course for non-art students	Designing and teaching a multidisciplinary art course	In the analysis process	To be submitted to DRS conference in November 2019 (JUFO 1).
Supportive study	the general situation of the field and material's effect on it	Reconfiguring the field of felting from agency perspective	In finalising progress	To be submitted in June 2019
Supportive study	thinking with the material	Exhibition of artefacts	Completed	6-18 May at V2 Gallery at Väre, Espoo.

### 3. Expected Outcomes and Further Steps

We naturally understand the world from a human perspective through our experiences, however, the crises indicate that to be able to sustain life on earth we need more-than-human ways to be. This research provokes new ways of looking at the world from a larger perspective that acknowledges other kinds of agencies as well. This shift in thinking aims at overcoming the boundaries between different forms of existence. Considering the depletion in natural resources and growth in need for creating new, reusable, eco-friendly, and recyclable materials, this research can inspire research in material sciences in terms of its methods and methodologies. As new materials are continued to be developed, this research can become a methodical example for developing ways of employing unexplored features of new materials. However, this thinking, I believe, can be applied in the discussions that are not limited to design. This research promptly promotes renewing perspectives in a world facing many human-made problems. A wider perspective can overcome hierarchical binaries such as human and nonhuman, static and active, given and constructed that are the main causes of our current crises.

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#### About the Researcher

**Bilge Merve Aktaş** is a doctoral candidate at the Department of Design at Aalto University. She holds a BSc degree in industrial product design and an MA degree in design technology and society. Her research interests cover topics like textile crafts, materialities, material agency and maker movements.