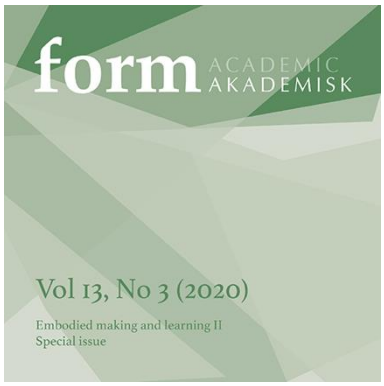

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Editorial

Special issue on embodied making and learning

INTRODUCTION

This special issue on embodied making and learning is dedicated to aspects of embodied cognition that goes on in the field of art, craft and design. The contributors to this issue were invited from the Embodied Making and Learning (EMAL) research group at the University of South-Eastern Norway, where aspects of learning in creative practices have been studied from many different angles throughout the institutions nearly 80 years existence. With its 50 members, divided into five thematic clusters related to embodied making and learning, this research group is one of the largest in the field. It involves both experienced and early career researchers, as well as experienced university teachers, from several disciplines.

In line with the FormAkademisk Journals mission of including a broad view on creative practices and readership, the contributions are in this issue sought not only from the academic research context, but also from the pedagogical practice of craft teacher educators who have longstanding experience from teaching but also practicing in the creative field. The articles in this special issue are published either in Norwegian or English, in line with the strategy of the Journal, to nurture conceptual development in creative practices also in the Nordic languages.

The embodied turn in cognitive science during the last two decades has shown that thinking is a fundamentally situated and contextually embedded activity and that any kind of learning is dependent on the person's active engagement through social and material interactions (Groh, 2014, p. 67). This

has been described as situated or embodied cognition, and can be exemplified through the 4 E's: Cognition is Embodied, which means that cognition is not dependent solely on the brain but involves the whole body, as for example when we make sense of a material through interacting with it in different ways. Cognition is Embedded which means it is embedded within structures in the social and material surrounding, such as in the craft studio. Cognition is Extended, which means that thinking is extended beyond the body of the person or organism such as in tool use. It is also Enacted, which means that what goes on in our minds shows in our actions and for example when we see that someone is skilled at a craft but can't explain how something is done by words (for reference see also Newen, Gallagher & de Bruin, 2018).

In art, craft and design studies, students interact with materials and material situations through their entire sensory spectrum, and in particular through the hands. This material interaction involves thinking and reflecting in relation to what the material affords but also in relation to the intentions and skills of the maker. In research on making processes (Dunin-Woyseth & Michl, 2001) the accumulation of experiential and embodied knowledge in relation to materials and manual skills are key. Embodied cognition is in many ways a suitable theoretical frame for understanding making processes and skills acquisition.

While leaning on the theory of embodied cognition, it is now generally accepted that learning is a process of negotiating meaning in relation to the environment and social and material constructs (Sawyer, 2014). This can be understood as making the need for pointing separately to the embodied aspects of learning redundant. However, using the term highlight the embodied nature of cognition and confronts a cognitive representationalist conception of cognition that "neglects the inseparable co-determining of mental representations from bodily sources" (Schilhab, 2017, p. 4). It thus can facilitate a research focus on the grounded aspects of material making processes (Gulliksen, 2017, p. 12).

The different ways that the embodied dimension of creative practices surface and become apparent, visual or even tangible are explored in various ways in this special issue. The topics in the articles range from artistic practices, educational approaches, and views on empathy, to the more-than-human aspects and non-anthropocentric worldviews, maker cultures, neurobiological perspective on making and navigating methodologies in research through crafts. Digital phenomena, that are becoming more relevant also in the field of art and crafts, is emerging as a theme in the articles. This special issue thus presents research and practice from the perspective of embodied learning, in the field of art and crafts education, from early childhood to doctoral studies.

ARTICLES IN THIS ISSUE

In ***Marte Sørebø Gulliksen's*** article: *Underlying the carver's experience – sensorimotor modulation in cerebellum when carving wood,* we get down to the neurobiological aspects of crafting and making. Through this close study of the embodied interaction between a person and her material we are introduced to the very basics of human-material interaction, and get a deeper understanding of the many different bodily aspects that goes on while we are focused on the experiences and intentions we have for the moment.

In ***Biljana Culibrk Fredriksen's*** article *More-than-human perspectives in understanding embodied learning: Experience, ecological sustainability and education* human learning is connected with the learning processes of non-humans, in this case horses. She has previous expertise in studying young children's embodied learning processes with their environments and materials.

Also, ***Lovise Søyland*** has studied young children's embodied interaction and in her article: *Children's Sense-Making through Exploration: Grasping Physical and Virtual Materialities*, she develops the discussion further in relation to concrete and virtual materials. She found that it is important that children learn the affordance of the concrete materials first to be able to grasp their virtual representations when met on for example a touch screen or a projection.

Ellen Baskår's article: *Narrativ strategi som stedfortredende forsterkning i nettundervisningen i kunst og håndverk* [Narrative strategy as a pedagogical tool in net-based art and crafts teaching] likewise touches on something very topical – namely net based teaching and the problem of connecting with

students on a distant screen-based interface. In large groups over the net there is not only the problem of discussing materials and embodied processes without being able to connect physically with the material, the students and teacher might also feel less connected as some students chose to close their camera and sit behind dark screens. Baskår has developed a narrative strategy for overcoming these problems, and she noticed how the students behind the screens started to open up as she as a teacher opened up her own artistic processes to them. Her article gives examples of the problem and possible ways to get around it.

Astrid Hus and ***Kirstine Riis's*** article: *Å fange med blikket og kjenne med hendene: Utstilling som estetisk kommunikasjon og didaktisk grep,* [To catch it with the eye: Exhibitions as aesthetic communication and pedagogical tool] describes another pedagogical strategy in textile craft teacher education. Having a long experience in textile crafts and ample historical knowledge Hus draws on her own experiences of gathering large-scale material examples in an educational exhibition and the realisation that this facilitates a holistic learning environment that promotes students embodied and socio-material understanding of the subject. The student's experiences were sampled through a questionnaire in which they also reflect over the difference in Hus's experiential methods and the usual Power point, and the different dimensions of learning that these infer.

Ingrid Holmboe Høibo and ***Morten Henrik Lerpold's*** article: *Digitale ferdigheter som ferdigrett eller råvare?* [Digital skills as ready-made or raw material?] discusses the pros and cons of digitalization of the art and crafts subject, showing also how the holistic and embodied understanding of programming and digital processes can help students claim authorship over ready-made solutions in the school's digital laboratories and how the maker movement facilitates a multifaceted view of digital competence.

Anne Solberg studies meaning making through artistic practice and the epistemic role of the artefact in her article: *Enigmatic Epistemic Things: The Epistemic Role of Artworks in Artistic Research Doctorates.* This is an important aspect especially in research, as the role of the artefact as a conveyer of embodied knowing and tacit processes, that may require code competence to be understood, is still disputed internationally in the context of PhD studies. Different ways of accommodating the artefacts in this context is still emerging in the field of higher education in the creative field, and she has previously written her doctoral dissertation on the theme. In this article she elaborates on the subject through her own artistic experience.

Jadwiga Blaszczyk-Podowska, through her artistic processes, reflects over the importance of empathy and how this is changed in a non-anthropocentric world view. This contribution: *Tanatologiens poetikk - et undersøkende essay om fotografi, empati og døden*, [The poetics of thanatology – a reflective essay on photography, empathy and death] she beautifully takes the reader into the borderline between animate and inanimate and over the threshold to the deceased in her photographic study. Her own artistic experiences work as a reference point also in her work with her students, as a lecturer in arts. She points to the importance of sensitizing students' aesthetic sense and learning to listen to inner emotions – empathy is not given, it needs practice to develop.

Research on own creative practice to understand general phenomena in art and crafts is topical also in the article written by ***Kirstine Riis*** and ***Camilla Groth***: *Navigating methodological perspectives in Doctoral research through creative practice: Two examples of research in crafts*. However, methodological aspect might be tricky to navigate for early career researcher, especially when the research field is relatively young, is still developing and draws on different philosophical traditions. Experiential knowing and reflective practice are methodological perspectives discussed here.

Brynjar Olafsson has studied what supports or restrains teachers to encourage children's creativity by interviewing eight art and crafts teachers. Creativity has several dimensions and its development requires a bodily presence and interaction with a socio-material world. The arts and crafts subject focuses on student's creativity in a physical encounter with different materials. The results show that there is need to support both internal factors such as teachers understanding of creativity and competence, and external factors such as time and economy, to enable the teacher to fulfil better the intention of the national curriculum on developing student's creativity.

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Camilla Groth, Kirstine Riis and *Marte Sørebø Gulliksen*
Special issue editors

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