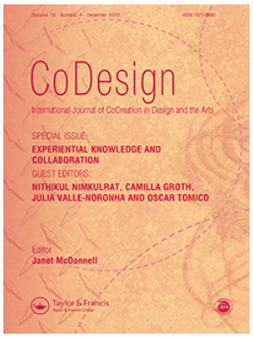


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EDITORIAL



# Knowing together – experiential knowledge and collaboration

Nithikul Nimkulrat[a], Camilla Groth[b,c], Oscar Tomico[d,e] and Julia Valle-Noronha[f,g]

[a]Faculty of Design, OCAD University, Toronto, Canada; [b]Department of Visual and Performing Arts Education, University of South-Eastern Norway, Notodden, Norway; [c]Department of Conservation, University of Gothenburg, Gothenburg, Sweden; [d]ELISAVA Barcelona School of Design and Engineering, Barcelona, Spain; [e]Department of Industrial Design, Eindhoven University of Technology, Eindhoven, The Netherlands; [f]Faculty of Design, Estonian Academy of Arts, Tallinn, Estonia; [g]Department of Design, Aalto University, School of Arts, Design and Architecture, Espoo, Finland

**ABSTRACT**

This Special Issue examines collaboration within research teams of professionals, researchers, and other stakeholders with diverse disciplinary expertise. It aims to understand how individual experiential knowledge – or knowledge gained by practice – is shared, how collective experiential knowledge is accumulated and communicated in and through collaboration in interdisciplinary research. The experiential knowledge generated through collaborations between experts in various fields are discussed in four studies that illuminate the relationships established within the collaboration, the approaches used, and the new knowledge gained and transferred within the team. This should contribute to a more systematic approach for studying and integrating experiential knowledge exchange in collaborative practice and research.

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Collaboration; creative practice; experiential knowledge; interdisciplinary research; knowledge exchange

## 1. Introduction

Creative practice has transformed from one based on the production of material artefacts to one that engages expertise and knowledge from multiple disciplines. Recent research has revolved around this changing territorial context and has increasingly involved professionals and academic researchers working collaboratively to explore an interdisciplinary inquiry in the field of the creative practices (Plattner, Meinel, and Leifer 2018; Driver, Peralta, and Moultrie 2011). Forms, models, and best practices of collaboration in such research has therefore become vital but few research groups have a clear plan for how to facilitate experiential knowledge exchange within the team before embarking on new projects. A research team may comprise different disciplinary experts, such as scientists, technologists, artists, designers, architects, psychologists, business strategists, and policymakers, working across academic, commercial, and public sectors (e.g. Bowen et al. 2016; Nimkulrat and Matthews 2017). They may work with materials and/or non-materials such as services or digital/virtual materials. Examples include research in the fields of New Materials, Smart Textiles, Art-Science Experimentation, Embodied Design Ideation, Service Design, and Participatory Practices in which various partners are in dialogue, developing, consolidating, and enhancing knowledge while generating new

**CONTACT** Nithikul Nimkulrat nnimkulrat@faculty.ocadu.ca

opportunities for interdisciplinary knowledge exchange and the emergence of unforeseen fields.

This Special Issue examines collaboration within research teams of professionals, researchers, and other stakeholders with diverse disciplinary expertise. The aim is to understand how individual experiential knowledge – or knowledge gained by practice – is shared and how collective experiential knowledge is accumulated and communicated in and through collaboration in interdisciplinary research. An additional question is concerned with how skills and knowledge in different professional disciplines can be shared and/or applicable to one another in a collaborative practice.

This, in turn, draws attention to how experiential knowledge is embodied in the outputs and may be traced back to the origins of the practice.

The Special Issue is particularly concerned with 'making' as the action of change in which matter and materials are transformed through collaboration, interaction, or negotiation among the team and their material and non-material environments. The experiential knowledge generated through collaborations between experts in various fields are discussed in four studies that shed light on the relationships built within the collaboration, the approaches used, and the new knowledge gained and transferred within the team. This collection of studies contributes to a more systematic approach for studying and integrating experiential knowledge exchange in collaborative practice and research.

## 2. The special issue

This Special Issue of *CoDesign* has been developed from work initially presented at the seventh International Conference of the Design Research Society (DRS) Special Interest Group on Experiential Knowledge (EKSIG 2019) held at the Estonian Academy of Arts in September 2019.

The EKSIG conference series began in 2007, with the theme on the 'New Knowledge in the Creative Disciplines' at the University of Hertfordshire in Hatfield. The event has continued on a biennial basis with conferences at London Metropolitan University, University for the Creative Arts, Loughborough University, Design School Kolding in Denmark and Delft University of Technology in the Netherlands. Themes have continually focused on the understanding of 'knowledge' and the employment of different kinds of knowledge and means for knowledge communication in design research, especially in areas where designing forms part of the research process.

The aim of EKSIG 2019 was to explore ways in which experiential knowledge is generated and shared in interdisciplinary collaboration between professionals and academic researchers in the creative disciplines and beyond. The theme 'Knowing Together – experiential knowledge and collaboration' reflected a wish to examine how designing in the digital age draws artistic and scientific disciplines together and to explore how they can complement one another.

From 17 peer-reviewed papers presented at the conference, several were invited to submit manuscripts for this Special Issue. The four contributions published here aim to illuminate the generation and enhancement of experiential knowledge in interdisciplinary collaborations of multi-stakeholders from within and outside various design disciplines, from first- and third-person perspectives.

Troy Nachtigall, Svetlana Mironcika, Loe Feijs, and Oscar Tomico examine emerging forms of digital craftsmanship in shoe design in the form of new data/material relations for Ultra-Personalised Product Service Systems (UPPSS). A co-design game for UPPSS shoemaking is designed and deployed to help designers when confronting the challenges of the complex process of UPPSS.

By emphasising making as the action of change, Miranda Smitheram and Frances Joseph address aspects of collaboration with the ecosystem to create artefacts that are not functional products, but rather matter flows that are formed through diverse perspectives and collaborative processes. The methodology shifts away from human-centredness to 'matter as collaborator' and 'place as habitat' where the relationships between things can be expressed.

Kristi Kuusk, Ana Tajadura-Jiménez, and Aleksander Väljamäe reflect on a collaborative prototyping project carried out by experts from the fields of e-textiles, neuroscience, and human-computer interaction (HCI). The project results in a garment that generates tactile sensations to the wearer, which in turn elicits emotional responses. The article provides perspectives on finding a common space and language for sharing cognitive and experiential knowledge between researchers.

Camilla Groth, Margherita Pevere, Kirsi Niinimäki, and Pirjo Kääriäinen interviewed researchers to identify ways in which the combination of scientific and artistic research in interdisciplinary projects in new materials research provide opportunities for opening up new areas of knowledge previously hidden in-between disciplines and navigate the challenges and opportunities for sharing experiential knowledge between researchers from different epistemological backgrounds.

Through the aforementioned articles, this Special Issue opens up the discussion on how collaborations carried out by research teams involving members from various backgrounds and pre-understandings can contribute to, and benefit from, the integration of experiential knowledge in collaborative practices.

## 3. Experiential knowledge in cross-disciplinary collaborative practice

Generally understood as a way of knowing and understanding through direct engagement, experiential knowledge is a term that has been used by researchers across various fields, from medical sociology to design. Much of this knowledge is regarded as tacit, meaning that it is carried and transmitted through actions and ways of doing rather than communicated verbally. Borkman (1976) outlines two main characteristics of experiential knowledge: first, it is based on an individual's experience; and second, the individual regards it highly as he or she has acquired it through direct interaction with the physical, social, and intellectual world. It is 'pragmatic, in that it emphasizes obtaining concrete observable results … subjectively perceived by the individual who is going through an experience' (Borkman 1976, 449). Abel and Browner (1998), working in the context of the history of human health, propose two types of experiential knowledge: embodied and empathetic. Whilst embodied knowledge is concerned with personal perceptions of bodily experiences and feelings (i.e. 'direct sensory experience'), empathetic knowledge stems from involvement with other people who have a particular experience (i.e. 'emotional ties between individuals' Abel and Browner (1998, 315).

More recently, definitions of experiential knowledge have emphasised the contextual, subjective, unconscious, and emotional properties of knowledge (Boardman 2014, 138).

A further definition, by Berg (2008) in regards to community empowerment, identifies two forms of experiential knowledge. First, 'indigenous' or 'local environmental knowledge' is information gained through active engagement in an activity and shared within a group or community. The second form of experiential knowledge focuses on researchers' own lived experiences that influence how they frame their research questions and how they collect and interpret data. Such experience is formed by identity, gender, race, ethnicity, class, sexual orientation, education, and position. Experiential knowledge is embedded in the process of inquiry conducted in naturalistic settings, and this way of knowing that utilises the researcher's 'senses in seeing, hearing, feeling, and understanding' is supported by unobtrusive observation, informal conversation, interview, photography, and survey (Berg 2008, 332). Whilst differing in detail, these definitions all suggest that proximity to the experience in question has potential to create different ways of knowing.

In art and design, Biggs (2007) discusses experiential knowledge in relation to research and points out that epistemic subjectivity is inherent to the nature of experience and that a practice-based researcher must extract experiential content in a communicable, transferable form. However, experiential knowledge can be described only partially; some part of it eludes communication, remaining tacit (Niedderer and Reilly 2010). Experiential knowledge's tacit nature resists the practices of justification and evidence typically used in research (Williams 2001, 98). Niedderer (2007) proposes experiential knowledge to be taken as the basis for two kinds of knowledge: propositional knowledge, i.e. 'justified true belief' (Grayling 2003, 37), and procedural knowledge, i.e. 'how to do something in the sense of an ability or skill' (Grayling 2003, 38). While the former is utilised as the norms and principles for understanding experiential knowledge that can be made explicit, the latter can be understood as experiential knowledge in action that may be indescribable but can be evidenced by artefacts (Niedderer 2007, 9). While someone's experiential knowledge is personal it may be shared with colleagues working in the same or similar conditions over longer periods of time, as the collaborators will have overlapping and similar experiences and may reflect on these through their shared background knowledge of the issues and the meanings of these.

Various forms of experiential knowledge generated from within collaborative practices are exemplified in all contributions to this Special Issue. In both Groth, Pevere, Niinimäki, and Kääriäinen's and Kuusk, Tajadura-Jiménez, and Väljamäe's collaborative practices, it is apparent that embodied knowledge (Abel and Browner 1998) is the type of experiential knowledge that plays an important role in their studies when researchers have direct sensory experiences with materials. On the other hand, the collaboration presented in Nachtigall, Mironcika, Feijs, and Tomico's article reveals empathetic knowledge (Abel and Browner 1998) gained from involvement with participants of design activities. Indigenous or local environmental knowledge (Berg 2008) is evident in Smitheram and Joseph's article in which information is gained through active engagement with an ecosystem, non-human phenomena as well as cultural and scientific experts. More importantly, lived experiences (Berg 2008) of all contributors of this Special Issue influences how they frame their research questions and how they collect and interpret data that produce not only propositional knowledge but also procedural knowledge as a result (Grayling 2003; Niedderer 2007).

Cross-disciplinary collaboration has been discussed in relation to disciplinary boundaries (e.g. Jantsch 1972; Gibbons et al. 1994; Stein 2007; Morse et al. 2007; Adams et al. 2009; Dykes, Rodgers, and Smyth 2009). Adams et al. (2009, 339–340) suggest that cross-

disciplinary approaches 'focus on the nature of the problem, integrating several perspectives to synthesize a collective whole' and the term cross-disciplinary characterises 'a collection of practices associated with thinking and working across disciplinary perspectives … [that] include multidisciplinary, interdisciplinary, and transdisciplinary practices'. According to Adams et al. (2009) differences in these practices can be recognised from 'an orientation to the problem, mode and outcome of knowledge production, and social interaction structures and discourse practices' (Table 1).

In comparison, Morse et al. (2007) highlight differences across these concepts based on different levels of disciplinary integration in research which is concerned with the following factors: '(1) level of interaction among team members; (2) problem definition; (3) epistemology; (4) design, research, questions, methods, and theory; (5) knowledge generation; (6) academic programs; and (7) research products' (Table 2).

Contributions to this Special Issue are particularly concerned with interdisciplinary and transdisciplinary collaboration and how it brings about experiential knowledge through interaction within the research teams (grey highlighted areas in Tables 1 and 2). As can be seen in the tables, an interdisciplinary team collaborates closely and consistently throughout a project in order to generate knowledge from multiple perspectives that impact knowledge structures in all disciplines involved. This can be recognised in Nachtigall, Mironcika, Feijs, and Tomico's and Smitheram and Joseph's articles. On the other hand, transdisciplinary team members work collectively and develop new language, logic, and concepts for their projects to produce knowledge that is shared and leads to new theoretical frameworks and areas of

**Table 1.** Synthesis of cross-disciplinary practices (adapted from Adams et al. 2009, 341).

| | Multidisciplinary | Interdisciplinary | Transdisciplinary |
|---|---|---|---|
| Definition | Joining together of disciplines to work on common problems; split apart when work is done | Joining together of disciplines to work or identify common problems; interaction may form new knowledge | Beyond interdisciplinary combinations to new understanding of relationships between science and society |
| Problem orientation | Not a problem solving orientation but rather thematically oriented projects where several disciplines contribute to a theme | Problem solving orientation in which solution focus is either instrumental (pragmatic problem solving) or conceptual (philosophical enterprise) | Problem solving orientation in which solution focus explicitly includes experiences of affected persons |
| Mode of knowledge production | Additive, juxtaposition of perspective as separate voices. | Integrative synthesis, holistic mixing of perspectives | Integrative and action-oriented transformation that transcends disciplinary views |
| Outcome of knowledge production | No new cross-disciplinary knowledge | New interdisciplinary knowledge | Knowledge fusion characterized by critical reflection |
| Interaction and discourse structures | Divide and conquer approaches | Beyond academic disciplinary structures | Participatory – science and society |
| | Collaborate as disciplinarians with different perspectives; no shared home | Close collaboration; development of common ground | Close and continuous collaboration; elaboration of new language, logic, and concepts |

**Table 2.** Disciplinary integration in research (adapted from Morse et al. 2007).

| | Multidisciplinary | Interdisciplinary | Transdisciplinary |
|---|---|---|---|
| Level of interaction | Team members cooperatively conduct research in parallel | Team members coordinate frequently and consistently throughout the project | Team members act, plan, and combine research as a collective |
| Problem definition | Usually guided by one disciplinary paradigm and often framed by lead discipline | Mutually developed by researchers from multiple disciplines | Transcends disciplinary boundaries; context-specific with multiple stakeholder perspectives |
| Epistemology | Team members rely on disciplinary epistemology, but of differing paradigms. | Team members may rely on disciplinary epistemology, but must accept the validity of different paradigms. | Team members rely on a transcendent or common epistemology that reflects the nature of the problem definition. |
| Design, research questions, methods, and theory | Team members use traditional disciplinary approaches; research questions and scales are framed by the discipline that defined the problem. | Team members coordinate research design, questions, methods, and theory; temporal and spatial scales and conceptual frameworks are synchronized. | Team members develop new conceptual frameworks that transcends disciplinary boundaries; research design, questions, methods, and scales are collectively developed. |
| Knowledge generation | Knowledge created within disciplines, but conclusions may generate research questions that are applicable to other disciplines | Knowledge created that may impact knowledge structures in all disciplines; conclusions generate new types of interdisciplinary research questions | Knowledge restructured through the creation of new shared knowledge; conclusions drive new theoretical frameworks and areas of research |
| Products | Disciplinary or summary of combined disciplinary findings; for disciplinary journals | Joint synthesis manuscripts; for interdisciplinary journals | Joint synthesis manuscripts that transcend disciplinary orientations; for interdisciplinary journals |

research. This can be recognised in Kuusk, Tajadura-Jiménez, and Väljamäe's article, and prerequisites for this type of knowledge exchange are discussed in Groth, Pevere, Niinimäki, and Kääriäinen's article.

Despite plurality in approaches to cross-disciplinary collaboration, research done beyond a single discipline through multi-, inter-, and transdisciplinary efforts, hold collaboration at their core. When a research project falls in the intersection of different disciplinary fields, researchers involved benefit from a more diverse set of experiences. In this way, as previous research has shown, hidden opportunities and innovative power can be more easily uncovered (Feast 2012).

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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