Traversing the Unknown in Research through Art & Design

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KEYWORDS
Practitioner-researcher; practice-led research; making; ways of knowing; fiction-building.

ABSTRACT
In the ongoing discussion about the nature of research through art and design, one defining factor has been acknowledged: The objective of this research is not the generalization of formal knowledge, but rather the pursuit of an entirely different way of knowing. This is developed through practice-centered research, necessarily subjective and complex, and in many ways unknown. The practitioner-researcher’s unique role in this research—a reliance on traversing unknowns—merits re-imagining. This paper examines diverse literature, as well as the author’s own technical origami practice, to re-envision the work of the practitioner-researcher through the framework of fiction-building.
Introduction

“Experiments, facts, or the absolute truth. But there is no such thing as facts, especially here. Everything here is somebody’s invention” (Tarkovsky, 1979, 1:47:23).

Over the course of the past three decades, research through art and design has been a subject of intense scrutiny, from early attempts to define and characterize the nature of such research to considerations about its societal impact and role in the greater academic community (Elo, 2022). A common defining factor throughout this development has been the acknowledgment that research through art and design, rather than being rooted in the creation and generalization of formal knowledge, has as its goal the pursuit of an entirely different way of knowing. This knowledge is subjective at its essence and necessarily draws from singular experience, as “crucial to an epistemology of art is the way or ways in which art, like literature, theatre, cinema, and philosophy, expand and extend our understanding of ourselves and the ways in which we know ourselves” (Jones, 2013, p. 230). Far from institutional definitions of propositional knowledge, the episteme of research through art and design “seeks to convey and communicate content that is enclosed in aesthetic experiences, enacted in creative practices and embodied in artistic products” (Borgdorff, 2012, p. 144). Thus, this research undertakes the cultivation of knowledge through experiences that are manifested in—as well as inseparable from—practice, artifacts, or a combination thereof in the form of practice-led and practice-based research (Candy & Edmonds, 2018). Integral to this type of research is the process of making that occurs in practice, in which the practitioner-researcher engages with materials and environment to develop meaningful forms. This making process is equally vital in the domains of both art and design, as it is “making things and working with materials that is constitutive of knowing and understanding” (Durrant et al., 2017, p. 5). Regardless of the outcome, “the design situation is a material one that is apprehended, in part, through active, sensory appreciation” (Schön, 1992, p. 4), and making is, therefore, ubiquitous across the diverse disciplines of art and design.

Though practice is highly subjective, it is important to note that subjective knowledge is not a phenomenon unique to research through art and design. Indeed, in many disciplines unpredictability and particularity are regular occurrences in the research environment. Latour (1987) proposes that “science has two faces: one that knows, the other that does not know yet” (p. 7), and Pallasmaa (2000) describes creative processes in which “the scientist and the artist are directly engaged with their body and existential experience rather than an external logistic problem” (p. 81). This not only underscores the intrinsically creative nature of research across academic disciplines, but also proposes an explanation for the ease with which research through art and design undertakes multidisciplinary and cross-collaborative work (Elo, 2022). Nonetheless, the objectives of research through art and design differ from those of the traditional research model in that they do not necessarily strive to generalize newly developed knowledge. Rather, practice is meticulously documented to generate knowledge particular to the exploratory processes under investigation. The subjectivity of the practitioner-researcher is, in this context, essential to the progression of the research.

In research through art and design, practice is a realm of complexities and uncertainties: “Designers are genuine explorers, mapping unknown territories” (Cross, 2011, p. 134), and “artistic creation is a voyage into the unknown” (Turchi, 2011, p. 13). It is precisely within this “unknown” that practitioner-researchers thrive, where data are culled, and discoveries made. If research through art and design aims to generate knowledge through subjective experience, then the enigmatic dimensions of practice are in fact its very foundation. What remains ambiguous is how we, as artists and designers, access the realm of unknowns and utilize the outcomes in the larger context of academic research. In that vein, this paper examines both seminal and contemporary literature on research through art and design in order to re-envision the role of making for the practitioner-researcher. It draws a parallel between the making process and the concept of fiction; one that considers the significance of world-building tools in the development of accessible and disseminable artistic research outcomes, from characterizing the actions of practice to informing its documentation. In doing so, it considers fiction-building as a manifestation of the interrelated physical and conceptual movements that define practice, examining this framework through the lens of the author’s own practice of designing and creating technical origami structures. The result is a review and reimagining of how a practitioner-researcher might successfully traverse the unknown.
Establishing the context

Discussions surrounding research through art and design often return to a common theme, that of boundary work—research activity that finds itself in an undefined space between art/design and academia. Borgdorff (2012) points out that artistic research inherently exists at this “borderland,” where diverse stakeholders and dynamic interpretations define the field—a characteristic common to “non-traditional forms of knowledge production” (p. 144). Accordingly, traditional experimental systems do not necessarily align with the traversive work of practitioner-researchers, and Schwab (2018) proposes that the potential for knowledge production lies at the boundary between the discovery process and its outcomes. Practitioner-researchers “use concepts differently—not as foundations for a theory to be confirmed,” but as operational forces with the potential to become “epistemic things” (p. 8). Integral to this notion is the view that operational actions conducted by practitioner-researchers are crucial sources of knowledge production. Rheinberger (2018) suggests that epistemic things are created at the juncture between “graphematic” and “representational” space (p. 215). If graphematic space is interpreted as made up of the material units that guide practice, then the production of knowledge is comprised of movement between that and representational space, in which concepts and knowledge are transformed into communicable structures (Schwab & Rheinberger, 2013). These moments of transformation can also be characterized as conceptual shifts that parallel physical actions in practice, and they serve as vital sources of knowledge production. As a result, boundary work necessarily blurs the lines between theories, methodologies, and techniques; it welcomes the chaotic influence of the unexpected and encourages the pursuit of interdisciplinary research. That it provides a venue for much of the practitioner-researcher’s endeavours necessitates deeper exploration of the spaces where this work occurs.

The traversive nature of boundary work indicates a dynamic sense of movement. Seen in terms of making, movement through physical space mirrors that of conceptual space. Movement necessarily implies transformation: A shifting temporal and ontological state that is crucial in its contents but also difficult to pinpoint. It is within this movement that the distinctive character of research through art and design reveals itself. In Elo’s assessment, he mentions a notable parallel, that of the crisis of the humanities in institutional research in the 1980s, as summarized by Weber (Elo, 2022; Weber, 1985). Though there are significant differences between research in the humanities and research through art and design, Weber’s views nonetheless present a certain harmony of concept, including an argument for the recognition of “the dynamic conception of knowledge as change” (Weber, 1985, p. 18). If the system of knowledge in research through art and design is based on subjectivity and transformation—singularity of experience and the boundary work inherent to accessing such phenomena—then it is dynamic, ever evolving, and ultimately unknown. The production of reliable knowledge in such a context depends upon the disseminable comprehension of movement in conceptual space, and specifically movement which transforms actions into “epistemic things.” I propose that one model for this comprehension can be found in the connection between the making process and the concept of fiction, in which making embodies the act of creating narratives. To illustrate this, the defining characteristics of fiction will first be identified, and the notion of movement in conceptual space further explored. The making process will then be examined through the lens of fiction-building, which provides an equally useful framework for considering documentation of practice. The unifying capacity of making will also be discussed, from its ability to align approaches within the field of research through art and design to its potential to create bridges amongst broader disciplines.

Fiction-building as framework

Comparing research through art and design to fiction-building is an evolving concept, and Laakso (2006; 2018) has suggested that recontextualizing fiction might facilitate greater understanding of the nature of knowledge in non-traditional methods of research. At its core, fiction can be defined as:

... (fiction is) firstly a form of presentation of things that cuts out a frame and places elements within it so as to compose a situation and make it perceptible. (Rancière et al., 2016, p. 25)

Fiction in this sense depends upon the fabrication of a sturdy framework to develop credibility in a hypothetical setting. Purposeful fabrication of this type is nicely illustrated in the Finnish word *muotoilu*, “literally ‘shaping’, although always translated ‘design’” (Ihatsu, 1998, p. 31),
and similarly by the German noun *Gestaltung*. Frequently applied to the process of design, *Gestaltung* also means something much more substantial, along the lines of transforming or building in a carefully intentioned way. It is perhaps fitting that Koffka (1963), a co-founder of Gestalt theory, similarly recognizes this act of framing in scientific knowledge systems as a “process of selection, in itself of the greatest significance” (p. 8). Connecting intentional construction or framing to research through art and design, Binder et al. (2011) recount that the designer “creates a design world, a narrative of the imagined artifact, in which to act” (p. 92). If we, as practitioner-researchers, are indeed traversing the unknown, Turchi (2011) offers yet another viewpoint: “To ask for a map is to say, ‘Tell me a story’” (p. 11). The creation of this story—building fiction through framing—is vital to the development of meaning, as it provides a structure through which to comprehend the research process.

The act of framing in fiction-building is essentially one of selection based on the denominator of what is known; in the analogous fraction that results, the numerator represents the selection while also implying the potential of what is unknown. Thus, fiction has more to do with constructs of reality than its moniker might suggest. As the adage states, “truth is stranger than fiction, but it is because fiction is obliged to stick to the possibilities” (Twain, 1897, p. 156). While fiction may dabble in degrees of speculation, it does so via deliberate, rational framing that artfully reveals what was previously unknown. In literary fiction, for example, “the rooms, squares and streets of a great writer are as vivid as any that we have visited; the invisible cities of Italo Calvino have forever enriched the urban geography of the world” (Pallasmaa, 1996, p. 68). When done skillfully, fiction-building creates a new kind of reality that is equally subjective and immersive: A subjective world that, through its framing, can be shared and re-experienced. Applied to research through art and design, the tenets of fiction-building are very much at play. If the unknown is revealed methodically, through selective framing—and particularly in the process of making—then new knowledge has been generated and can be shared. An alternative type of truth has been created; one based on specificity of experience rather than generalizable arguments or *a priori* ways of knowing. Through the narrative of the practitioner-researcher, this truth can not only be more effectively accessed and disseminated but also better understood. Approaching research through art and design from a fiction-based perspective thus provides a clearer view of subjective knowledge, while also serving as a method of concretely explicating the space in which both boundary work and the making process occur.

The practitioner-researcher conducts work in conceptual space by building fictions which structure that space as it is traversed. This act is distinct from Design Fiction (Coulton et al., 2017), and focuses rather on the process of making as one of selective framing, in which the choices and actions made during practice reflect a narrative that unfolds between maker and materials, and a “fictional” world is constructed from which an artifact emerges. “Making, then, is a process of correspondence: not the imposition of preconceived form on raw material substance, but the drawing out or bringing forth of potentials immanent in a world of becoming” (Ingold, 2013, p. 31). While the idea of form may exist in the practitioner-researcher’s mind, the process of making ultimately relies on the immediacy of physical actions and material correspondence, as “the designer designs not only with the mind but with the body and senses” (Schön, 1992, p. 5). The physicality of making, and of the materials and spaces in which construction takes place, supplies a set of rules that must be followed. Dormer (1994) refers to these as “constitutive rules”, and they are “the components of an activity which together add up to
a body of knowledge” (p. 60). In my own practice, which involves the creation of technical origami structures (Figure 1), the constitutive rules might include the flexibility of the paper given its grain and grammage, the direction and type of folding employed, and the speed and accuracy of the final creasing in tandem with the shape of the pattern. Constitutive rules are the rationalities on which the fiction of making is necessarily based. The maker’s experience and knowledge, intertwined with the experiential qualities of the materials, correspond to create a selection of framed moments: the veritable plot points of the narrative of practice. Accordingly, the process, along with its resulting artifact, is a meticulously crafted form of fiction.

Fiction-building through the making process takes place in practice regardless of domain, but it is valuable to acknowledge the distinctions between research through art and research through design. Aptly summarized by Jones (2013), the making process—despite these distinctions—has a unifying potential, one that can benefit both domains:

> If art research is associated with the exploration and understanding of consciousness, then design may be seen as active in a different way, associated with knowledge of and through use, and with the understanding of utilitarianism. Both art and design research can be seen to have a procedural dimension … a shared interest in aesthetic knowledge and the principles of making and doing. In this way art and design might emerge as a unified and enriched subject field. (p. 231)

As a testament to the unifying potential of the making process, Dunin-Woyseth and Michl (2001) argue for “a making discipline” with the means to bridge emerging and traditional forms of research in both academia and professional practice (p. 2). This unifying capability also expands to the analogy of fiction-building, in that creating fictions applies across disciplines. Whether the intention is exploration of consciousness, investigation of utility, or testing of hypotheses in laboratory experimentation, building fictions via making unites the endeavors of a broad spectrum of practitioner-researchers.

### Exploring the uncharted

Let us pause for a moment to enact an exercise of fiction-building through the lens of Andrei Tarkovsky. In his film Stalker (1979), we are introduced to the Zone: A primeval area shrouded in mystery—created perhaps by meteoric fallout or extraterrestrial visitation—where trekking is perilous due to the environment’s unpredictability and seemingly irrational physical laws. The Stalker is a figure trained in traversing the Zone, and he brings along a writer and a scientist who wish to visit a fabled room where one’s innermost desire may be granted. The room is essentially a truth mechanism that reveals the visitor’s inherent nature, no matter how elaborately it may be hidden. At a desperate point in the journey, the writer cries out in exasperation: “There is no such thing as facts, especially here!” (Tarkovsky, 1979, 1:47.29). Facts cannot exist in a subjective context, where rules of time, space, and being are dictated by constructs. Taken as a framework, Tarkovsky’s Zone is uncannily parallel to the status quo of research through art and design. The area itself is an infinite realm of possibilities surrounded by formidable institutionalism; it is grounded in rules, but those rules are in constant flux; many paths exist that lead to meaningful destinations, though the proper methods of progression are hotly debated across disciplines; and finally, the objective is rare and powerful, as reliant on the journey as it is on the one who pursues it. The Zone is, in this way, a manifestation of boundary work, in which the pursuit of new knowledge is characterized by movement through transformative, in-between spaces. Truth is the ultimate goal, but that truth takes a distinctly different form for each traveler.

Similarly, methodologies in research through art and design are implicitly structured around movements in conceptual space—movements between boundaries—but investigating such spaces poses a labyrinth of challenges. Visualizations of fiction-building are one method of mapping these conceptual spaces, and the Vexierbild analogy utilized by Schwab (2018) is an effective example. A Vexierbild is an image that can be perceived in two ways, but the perception must shift prior to the materialization of meaning. The result is an act of framing that can be experienced through the image and its subsequent transformations. The figure-ground vase popularized by Gestalt theory is a well-known Vexierbild (Bruce & Green, 1990); in one instance two identical faces appear reflected at the edges of the image, but in the next, a vase can be seen in the image’s center. The same effect can be seen in the simple geometric rendering of a Necker cube (Hollier et al., 2015), which can be seen as a cube viewed from above or below (Figure 2).
Both images cannot be perceived simultaneously, and Schwab (2018) describes the moment prior to the breakdown of the image into one or the other interpretation as a “productive state” full of “open potential” (p. 193). Within this space, “open potential” provides a basis for the cultivation of meaning—where subjective truths are constructed and translated into actionable perceptions.

Conceiving of the “productive state” as a sort of perceptual limbo, though tempting, would be false, as it is a manifestation of active movement from which the outcome is not yet known. In Schön’s (1983) description of the activities of the practitioner-researcher, he refers to moments characterized by unpredictability as the “action-present” (p. 62). These are crucial moments in practice because they manifest the consequences of movement in conceptual space. A juncture is reached, and the path forward has yet to be determined. The movement that ensues is a necessarily subjective framing, and thus the “action-present” represents a singular environment: Conventional rules of time and space are suspended, seemingly distant connections spark and unspool, and disparate dimensions converge as specific experience and context chart an unexplored path. It is unsurprising, then, that “artistic research, which is sensitive to the specifics of what is at hand, may present new options not only for a bottom-up rather than top-down approach, but also for an approach for which there is no ‘up’, only positions that result from movement” (Schwab, 2018, p. 7). The generation of knowledge is not confined to the vertical movements implied by inductive or deductive reasoning, but rather broadens to include what Rheinberger (2018) refers to as “subduction” (p. 216). Fiction-building offers a similar freedom of movement where temporality is secondary to the construction of meaning.

If we expand the moment of “open potential” and envision it as a ubiquitous force in research through art and design, we are better equipped to imagine how operational actions in practice might be identified. Conceptual movement is a fundamental aspect of practice, and there are many approaches to its characterization. Notable, however, is the number of these that utilize dynamic, motion-based language to capture their subject. Cross (2007) proposes that designers move frequently between “problem space and solution space” (p. 13). This conceptual motion takes place when the designer shifts areas of focus in an exploratory manner and builds theoretical constructs to advance the work at hand. In defining this movement, Cross suggests that “the perceptual act underlying creative insight … is not so much a ‘leap’, but more akin to bridging” between spaces (1982, p. 13). Whereas leaping implies abandon, “bridging” captures intentional framing.

Parallel to bridging is the function of “drifting,” which occurs when a practitioner-researcher intentionally follows a seemingly random path of inquiry as an integral step in the design process (Krogh et al., 2015, p. 39). In constructive design research, types of drifting can be categorized by their distinct temporal and spatial qualities as well as intended objectives (Krogh & Koskinen, 2022; Krogh et al., 2015). Here, framing movement—as
well as making space for unstructured movement—is indispensable to the research process. Similarly, Binder et al. (2011) describe the design process as both “metamorphing” (p. 79), and an “act of distinction” (p. 64), in which designers and stakeholders identify the elements that are significant and those that serve as background or context for the creation of an artifact; once again, an action of framing or fiction-building. Acts of distinction are ongoing, reversible, and constantly evolving throughout the design process, and ultimately “the boundary between an object and its context emerges together with the web of the constituents characterizing the object” (p. 66). In this case, the outcome of practice is not simply an artifact but a complexly crafted fiction.

This metaphor can be extended to the concrete example of folding in technical origami, which is part of my own design practice. Technical origami structures are three-dimensional and dynamic, requiring consideration of both structural mechanics and materials. In addition, the structures are folded by hand, which provides an apt illustration of parallel physical and conceptual spaces. First a grid is created that serves as the basis for the folded design, then the grid is subsequently pre-creased, or pinched repeatedly into the desired shape of a repeated design. Lastly, the term collapse refers to the process between pre-crease of the model and transformation into its final folded form (Figure 3). The collapse is a collection of micro-movements, reversals, and circuities often drawn out extensively depending on the complexity of the structure. If the collapse is successful, the labyrinth of creases and vertices moves in a seemingly impossible fashion, its elements united in a seamless machinery that produces three-dimensional equilibrium.

Folding, as it manifests in my practice but also in a broader view, presents a novel approach to understanding movement in both physical and conceptual space. According to Eisenman (1992), “folding changes the traditional space of vision … it functions, it shelters, it is meaningful, it frames, it is aesthetic” (p. 147). Folding upends temporal and spatial principles, and through it space is both literally and conceptually framed. In technical folding, the grid phase can be seen as a mode of rule-setting, or establishing the contextual basis needed to create form. The ensuing correspondence between the practitioner-researcher and the materials occurs during pre-crease, when the mechanical properties of the paper sheet reveal themselves through varied modes of contact. Repeated folding and pinching indicate the fiber makeup, elasticity, and resilience of the material, determining the factors that will ultimately create the frame itself. Finally, the collapse is the manifestation of framing: Collecting and navigating the rules and narratives that have been established in order to build a fiction—a physical world of paper invention that is both subjective and immersive. The origami structure is, in this way, a constructed piece of fiction; a narrative artifact that reflects the complex, unpredictable, and singular interaction between maker and materials.

Documenting the journey

Imperative to all forms of academic research are the objectives of iteration and clear articulation of methods. In research through art and design,
pluralism of methods is prevalent, but practice—and by extension, making—is a unifying factor. In the interest of transparency and rigor in research, the components of practice are vital instances of data, though their precise nature is frequently elusive, resulting in a conundrum for the practitioner-researcher. Documentation in this context is a crucial tool that “renders the implicit artistic experience accessible and discussable in the context of disciplined inquiry” (Nimkulrat, 2007, pp. 6-7). The well-known methods of reflection-in-action and reflection-on-action (Schön, 1983) provide a basis for analysis of practice and the conceptual movements inherent in it, but equally valuable is “documentation for making,” which “arises before the actual creation of artifacts … in the process of searching inspiration” (Mäkelä & Nimkulrat, 2011, p. 8). The significance and effectiveness of documentation underscores the fundamental role of making in research through art and design, one in which “the designer constructs and reconstructs the objects and relationships with which he/she deals” (Schön, 1992, p. 4). Thus, not only is the act of making what enables critical experience and facilitates data; it also provides evidence of how discoveries are made and new knowledge developed—in other words, how fictions are built. In my own practice, one mode of documentation includes filming the folding process from a variety of perspectives, with the objective of capturing the intricacies of the physical movements involved (Figure 4). In this way, multimedia documentation—certainly not limited to video—offers an enhanced experiential dimension to the chronicling and analysis of the actions that make up practice.

Multimodal approaches that capture a variety of sensory occurrences thus establish a more complete picture of the subtleties inherent in the making process, which is integral for practitioner-researchers and research communities alike. The level of immersion achievable through multimodal cataloging underscores the relevance of fiction-building to the realm of documentation. If, as Turchi (2004) suggests, writing represents an act of exploration and presentation, then documentation in practice-centered research is both an exploratory technique and a method of dissemination. From it, narratives unfold, worlds are forged and reconstructed, and shareable subjective experiences are formed.

Documentation has the ability to capture the complexities of the creative process, regardless of the practitioner-researcher’s disciplinary domain: “The object of design is not its outcome, its embodiment: the latter may be less rich than the process of bringing it into existence; some of its constituents may light up its sense or evoke qualities that it in itself does not adequately embody” (Binder et al., 2011, p. 60). “Constituents” here refers to the multitude of sketches, drafts, interactions, material samples, prototypes, and countless other active elements of the making process, many of which remain hidden from view in the final product. Seen through a fiction-building framework, these ‘constituents’ form the rules, rationalities, and expositions of

Figure 4. Capturing the folding/framing process from different perspectives. Folding, documentation, and video stills by Laureen Mahler.
narrative. The ‘unseen’ elements of practice, when documented and disseminated, allow us as practitioner-researchers to share a glimpse of the vivid and complex contexts that guide our practices—by concretizing these rules, as well as the conceptual and physical shifts that occur within them, the outcomes of practice become immersive worlds that are explicable and understandable, yet nonetheless subjective for maker and viewer alike. Candy and Edmonds’ (2018) work supports this notion with the delineation of different types of practice-centered research, in which the artifact itself, be it an artistic object or design product, does not always play a necessary role in the formulation of knowledge. It is therefore the making—the *Gestaltung*—that comprises the heart of research through art and design, whereas its outcome represents only part of the whole. This is not to say that the outcome of making—the artifact—is insignificant. On the contrary, the artifact is the translation of boundary work into physical (or virtual) form, thus embodying the conceptual movements that led to its creation. Artifacts are “the receiving of form through one’s senses … not only determined by the perceived object *per se* but in a concrete sense codetermined by the ways it is experienced” (Redström, 2017, p. 67). Nevertheless, it is the crucial role of experience—the immersion into fiction—that characterizes and illuminates the artifact, that allows it to transcend its status from physical to “phenomenal” (Koffka, 1940, p. 219).

**Conclusion**

Making is the process of constructing worlds, and making in research through art and design is the materialization of fiction-building. It is a method of concretizing conceptual movements enacted in practice, which is intricate and dynamic by nature. Ultimately the beauty of making lies in its ability to manifest the various, complex, and unpredictable aspects of practice, as well as showcase the pliability of reality in terms of exactly what the outcomes of practice capture and how those artifacts will be engaged with in the world. Through the framework of fiction-building, making is the careful construction of realms that did not exist prior to their conception. Their nooks and avenues are populated with a diverse cast of materials, methods, theories, and inspirations. Their storylines are complex and often unexpected, encompassing an abundance of experiences and interactions. Finally, their development is an intentional act of framing, a curated snapshot of process merged with traces of context—remnants of an extended sojourn in a place with its own particular set of rules and understandings. These fictions go on to carry their own epistemic potentials, producing new meanings as they are experienced beyond the practitioner-researcher’s reach.

There is a distinctive circularity about this process: Boundary work and fiction-building engender methodologies that strive to articulate subjective knowledge, which is then embodied in things that are transformed into new boundary objects with their own dynamic methods of generating meaning and forming narratives. It is a circularity drawn from the pursuit of knowledge that is not entirely known. It allows for nonsequentiality and unstraightforward movement, and its very nature implies the singular, contextualized processes that characterize research through art and design. If it is the task of the practitioner-researcher to “keep grasping towards what cannot be grasped, to encounter the unknown as unknown” (Laakso, 2018, p. 188), then the exploratory, fictional, reflexive, and constructive nature of this work is perhaps both requisite and imperative to its outcomes.

**Acknowledgements**

I would like to thank the instructors, guest lecturers, and fellow participants of the seminar *Research through Art and Design* (Aalto University, October 2022), without whom much of the material presented here would not have been conceived. Additionally, thanks are due to my doctoral thesis advisors at Aalto University, Masood Masoodian (Department of Art and Media) and Kirsi Peltonen (Department of Mathematics and Systems Analysis), as well as to Jarkko Niiranen (Department of Civil Engineering). This research is funded through the Aalto University Bioinnovation Center, which was established by a grant from the *Jane and Aatos Erkko Foundation*. 
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