



# Permission to Muck About, Knowledge, and the Grammar of Intuition

Exploring the value of design research, practice, tacit knowledge and night science through documentary film

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## ABSTRACT

This paper reports on the process of making *Permission to Muck About*, a documentary film that explores the value of Design Research. It contrasts how science, design, art, and craft make knowledge. Before long, the film confronts the question of how we know anything at all and what mechanisms drive our assessments of the quality, originality, validity, rigour, and relevance of our research. While the answers to these questions are plural and fluid, characterised by the tensions of consensus/dissensus and healthy discussion/unhealthy derision, the challenge of navigating this landscape can frustrate and suppress great research. Based on a wide range of interviews, field research, and the creative process of crafting a coherent narrative, the film explores an often-hidden grammar of intuition, it frames a deep-rooted but under-exposed reliance on tacit knowledge and practical experience, and it concludes with an assertion that our research community—and the world in general—could benefit from a minor readjustment in the overarching epistemic commitments; we need more permission to muck about.

## CCS CONCEPTS

• **Human-centered computing** → Interaction design; Interaction design theory, concepts and paradigms.

## KEYWORDS

design research, research through design, knowledge, tacit knowledge, intermediate knowledge

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## 1 INTRODUCTION

This paper tells the story of a film, the film is part of a project, and the project's *raison d'être* is to celebrate the past and empower the future of Design Research. The project, *Design Research Works*<sup>1</sup>, is a 7-year study of the communities, practices, methods, and motivations behind the Design Research movement. The film, titled *Permission to Muck About*, is one of the major outputs of the project and aims to galvanize the existing Design Research community by exploring its diversity, celebrating its differences, and acknowledging its complexities and contours. The film is also intended to communicate outwardly, to persuade others outside of the Design Research world about its virtues and values.

The film aims to communicate and explicate a digestible theory of what Design Research is, how it works, and why this assemblage of attributes might be useful, alluring, and profound in the context of HCI research and beyond. The film's production was led by David Philip Green<sup>2</sup>, who was employed as a Senior Research Associate working on Design Research Works from late 2020 to early 2024. The film owes much to many more people who contributed to it directly and indirectly. There are too many people to mention all by name (a more complete list appears in the credits of the film), but special thanks should be attributed to Jesse Josua Benjamin and Mayane Dore who were employed as Research Associates on the project and Jenny Mac who is the voiceover artist.

The Design Research Works project has developed several tenets relating to Design Research, which are explored, tested, and discussed through the film:

1. Design Research's uniquely flexible epistemological machinery, synthetic and future-oriented stances, and inherent interdisciplinarity lend it an unrivalled ability to engage with rapidly evolving and wickedly intractable challenges.
2. The world is more complex, globalised, fast-paced, digital, unequal, and in need of vision and sense than it ever has been before. In the 20<sup>th</sup> century we made a brand-new world, and in the 21<sup>st</sup> century we need new ways to understand how to deal with its consequences.
3. Although Design Research is well-placed to contribute towards addressing the 21<sup>st</sup> century's challenges, as well as helping to drive sustainable innovation, the specific coordinates of the movement lack clarity, the methods and theories

<sup>1</sup>See <https://designresearch.works/>

<sup>2</sup>See <https://dpgreen.co.uk/>

are adolescent, and together this limits Design Research's impact and leverage.

As we will see as the paper unfolds, these themes return, develop, and, in doing so we hope that Permission to Muck About will help to pave the way for an increase in Design Research's influence over the years to come, helping us to build more sustainable, resilient, and liveable futures.

## 2 A GRAMMAR OF INTUITION

In April 2022, we attended the *ACM CHI Conference on Human Factors in Computing Systems*, it was one of our first trips to film interviews for the film. On our second day in the host city—New Orleans, Louisiana, USA—we encountered a street poet sitting beneath an umbrella in the hot Louisiana sunshine at a small portable desk with a typewriter. He asked if we would like a poem and what our business in town was. We gave a rudimentary explanation of Design Research and the purpose of Design Research Works. The poet, David Blanton<sup>3</sup>, asked that we return in a few minutes. When we returned, he had written this poem, and although we didn't realise it at the time, it would become the basis for the prologue section of the film<sup>4</sup>.

Meaning is found in the process  
 Not in the results  
 Poetry is a controlled hallucination that has to be absorbed.  
 Not examined under a microscope  
 Understanding the world requires metaphors  
 How do we understand anything?  
 Our brains create models of the world  
 Our words create a grammar of intuition  
 Our thoughts become a theatre of the mind  
 Design, like poetry, means nothing without the journey  
 Designs are extensions of humanity's fingerprints  
 This and that must separate or we can't discern chance from fate  
 Every design takes us somewhere and in every where  
 There is some of you and me and poetry

Through a combination of common sense, poetic insight, linguistic playfulness, and Blanton's intuitive understanding of Design Research is that it involves a "grammar of intuition". This framing opens a window into the texture of what Design Research fundamentally *is*, a window which we invite views of the film and readers of the paper to peer through.

## 3 CRABS AND MYCELIUM

In the script document that we used to plan and organise the film, alongside the poem we included the following notes for use in editing and production:

A hallucinogenic mashup of crabs, starlings, and mycelium.

Hands, making and fabrication.

Key moments from the history of design, science, and art.

Over which, the text from the poem appears, type-written as it is spoken.

Most of these elements do visually appear in the prologue of the film. Many are metaphors to accompany, enrich and empower the argument, rhetoric, and problem spaces the film aspires to contend with. Visuals representing the moments from the histories of design, science, and art, given the film's narrative, are relatively self-explanatory. Conversely, the reason behind 'hallucinogenic mashup of crabs, starlings, and mycelium' is, perhaps, less apparent.

The ambiguity of the visual aspects of these film passages is an artistic and directorial decision choice. As such, in disambiguating them, this article creates something of an artist tension. To be clear, when we discuss metaphors from the film, we do not seek to undermine the integrity of those metaphors' ambiguity as they exist in the context of the film. Instead, the intent is to bootstrap the film's agency: to communicate and infer a poised, fluid, and open-ended version of the story of Design Research's profundity and value. We want to help empower the world's Design Researchers with examples, vocabulary, and semantics to enhance how they explain the power of what they do. Alongside, we want to inspire, intrigue, and entice people who are not currently Design Researchers, inviting them to connect with a way of looking at the world that they may not have, so far, paid that much attention to.

With these points in mind, we begin with some notes on two of the visual metaphors that appear in the prologue.

First, crabs. The term carcinization refers to a form of convergent evolution in which non-crab crustaceans evolve into crab forms. Nature, for some reason, keeps evolving crabs. This arose in a team discussion planning the Design Research Works' *Jamboree* event<sup>5</sup> (a week-long symposium held in late August 2022). In that discussion Jesse Josua Benjamin mentioned carcinization. They highlighted that an appreciation that practical engagement with materials leads to new insights about the world in the form of tacit knowledge is something that—like crabs—has evolved multiple times throughout history. This craft knowledge is almost universally valued by indigenous groups worldwide; it has been central to the success of our species' most successful civilizations, and in the 20th century, a new version of this kind of knowing evolved, and that is what we currently call Design Research.

Another visual metaphor in the script just appeared as 'starlings' (i.e., starlings the avian species known as *sturnus vulgaris*). In the film, these birds appear in footage of a murmuration. Murmuration is the phenomenon where thousands of individual birds fly together, creating an effect that looks as if they are a single connected but fluid entity. Two years earlier we had used murmuration as a metaphor in a prototypical version of a publication that later became the paper *Ways of seeing design research: A polyphonic speculation* [11]. Our motivation to use the murmuration metaphor when discussing Design Research was partly exploring how thousands of Design

<sup>3</sup>At the time of writing you can find David on Instagram under the handle *poet\_david1980*

<sup>4</sup><https://designresearch.works/redirect.html?ptma=5>

<sup>5</sup><https://designresearch.works/jamboree/>

Research practitioners across the globe are simultaneously acting autonomously but, allegorically, also make up some larger entity—a field, community, or programme. An inherent property of Design Research is the individuality of practice or the notion that each project is entirely unique, combined with the implicit realization that strength comes in numbers.

Consequently, if we gave two Design Researchers the same brief, they would almost certainly come up with two quite different outputs, conclusions, or solutions<sup>6</sup>—and this is a strength of how this kind of research works. Notwithstanding this ‘ultimately particular’ quality, when viewed globally Design Research is not just a cornucopia of standalone individuals, it is also a sum of the parts, a single entity made up by the many facets of the ultimately particular projects and practices. From this gestalt—represented visually in the film by the murmuration—trends rise and fall, consensus emerge and are refined, and research “programmes” [1, 21] transmute the contingencies of intermediate-level knowledge [12] into robust research findings. It is worth noting (and we thank the reviewer who suggested this) that our position is that *this paper* is arguably another contribution with the hallmarks of intermediate knowledge. As such, we might assess it by criteria including contestability, defensibility, and substantiveness [12]. Of course, the text refers to and builds on the film, and the film refers to and builds upon the points of view we, as filmmakers, came to alongside the positions held by those we interviewed. We posit that many of the ideas we present are contestable, i.e., they have novelty and aren’t widely held already (for example, these musings on crabs and mycelia). Furthermore, we suggest that our positions are defensible, largely by drawing on the testimonies of those featured in the film and the examples they cite. While the final criteria—substantiveness—probably needs to be tested through time, we hope that the discussions in this paper, as well as in the film, do prove to be worthy of consideration by the broader community. We note that substantiveness most likely does not require ‘correctness’ but rather orients around a contribution’s ability to stimulate productive, insightful and generative debate. Early indications since its release suggest that Permission to Muck About has these attributes.

Whilst the stories behind these metaphors are never explicitly exposed within the film itself, as they alluded to in the discussions above, they reveal the extent of the multifaceted and cross-contextual gamut of issues and perspectives we considered while conceiving of and refining the film’s narrative. The metaphors of carcinization, murmuration, and David Blanton’s poem all talk to a top-down view of Design Research. They discuss a macro perspective or panoramic view of the world of Design Research. The film also engages with the other end of the spectrum, the deeper down and zoomed-in view of the field. This examination seeks to articulate the machinery that makes Design Research function and to unpack how the knowledge that emerges from Design Research differs from other forms of knowledge.

#### 4 KNOWLEDGE AND BREAKING EGGS

The second chapter of the film is titled *Making & Eggs*<sup>7</sup>. As with each chapter, it opens with a quote, in this case the famous chef Anthony

Bordain, “The way you make an omelette reveals your character”. The quote highlights that the humble omelette, although one of the simplest recipes in the classic culinary tradition, can actually incorporate a huge amount of craft and artistry. The voiceover script for this chapter of the film begins thus:

A recipe usually starts with a list of ingredients.

Next, the recipe tells us what to do with them.

It doesn’t tell us everything.

A recipe actually includes lots of assumptions.

It’s often assumed, for instance, that we know to separate the shell from the contents of an egg.

It’s assumed that we know which utensils to use.

It’s assumed we know what is meant by “a medium heat”.

These assumptions rely on a particular kind of knowledge.

And without this kind of knowledge, a recipe is only half a story.

Tacit knowledge is everywhere, but it can be hard to identify.

It’s a kind of knowledge that we tend to get from experience.

These words accompany footage of a child naively following the instructions and spectacularly failing to make a satisfactory omelette. The relevance to Design Research is the realisation that acquiring the experience necessary to do Design Research in each domain satisfactorily tends to rely upon having previously obtained relevant tacit knowledge. In an interview for the film, Sir Christopher Frayling—film studies expert, former Rector of the Royal College of Art, and author of the influential pamphlet *Research in Art and Design* [7]—was minded to refer to a lecture given by the philosopher Michael Oakshott where he demonstrated that the ‘know-how’ necessary to cook an omelette could not reasonably be written down, but rather needed to be acquired through the practice of making omelettes.

This humble entry into the nuance of formal knowledge and ‘know-how’ is a theme that arises several times in the film and has several implications. The first implication, demonstrated by the omelette example, is that Design Research requires experience to do sufficiently well. It requires a tacit, craft-like, and practical understanding of the media being worked with. This is what David Pye refers to as the “workmanship of risk” [20] and represents the contrast between improvised creative problem-solving and a more *designerly* engagement with a material that can only happen through a sustained and practical exploration with a particular material, context, or problem<sup>8</sup>. Designers tend to make good Design Researchers because design training instils an open mind regarding the value of this kind of sustained material engagement. Consequently, this highlights why distilled approaches such as Design Thinking tend to have limited benefit for non-designers, as they do not consider the need to develop a craft. A practical takeaway is that Design Research training must have a practical element. One cannot learn to be a good Design Research practitioner only by

<sup>6</sup><https://designresearch.works/redirect.html?ptma=7>

<sup>7</sup><https://designresearch.works/redirect.html?ptma=8>

<sup>8</sup><https://designresearch.works/redirect.html?ptma=9>

reading. One would not assume a doctor who had never seen a patient would be good at their job. Similarly, one should not assume that a Design Researcher who has not actually designed anything would be competent.

Another implication of Design Research's symbiotic relationship with tacit knowledge relates to the challenge of communicating findings. Many of our traditional means of sharing research are not commensurate with the kinds of knowing that Design Research tends to produce. In Chapter 3 of the film—*Design & Knowing*<sup>9</sup>—reference is made to Robin Wall Kimmerer (a Potawatomi botanist, author, and the director of the Center for Native Peoples and the Environment at the State University of New York College of Environmental Science and Forestry). Kimmerer has written about the practice of braiding sweetgrass to make baskets. In this work she considers that from a utilitarian point of view, the baskets are designed for carrying things, however, as Kimmerer discusses, the practice of braiding the sweetgrass both communicates the practical knowledge but also encodes a much more profound and tacit understanding of what it means to be Potawatomi, what it means to be connected to the environment, and lessons to do with reciprocity and responsibility [14]. The baskets demonstrate that craft, design, and material engagements can encapsulate knowledge. Whilst it is eminently possible to capture some sense of this and translate it into the written formats that dominate scholarly publishing, it is palpably infeasible for there to be a one-to-one translation without something being lost in the process. Discussing this matter in Chapter 7 of the film—*Evolution*—Pieter-Jan Stappers (Professor of Design Techniques at Delft University of Technology) notes in “our words are bad tools” while Audrey Desjardins (Associate Professor of Interaction Design at University of Washington) elaborates “.. what we learn is along the way, and so I think we need to find strategies to share those in between moments”<sup>10</sup>. Publications expect squares, but Design Research frequently produce circles, or triangles, or strange other shapes, and the resulting knowledge just does not fit in the publication-shaped hole.

A further implication of the import of tacit knowledge is the nature of what we might find out through Design Research practice. Throughout *Permission to Muck About* we frame the notion of Design Research as a counterpoint, relation, or contrast to *science*. We introduce science as a primarily positivist practice that assumes facts and truths about the Universe can be established if a suitable scientific method is followed. This presentation is, owing to the constraints of the film, a little reductive. The notion we are more pointedly referring to is known as *scientism*, or the idea that the *only* reasonable lens to view the world through is a scientific one. The film (see Chapter 1, *Science & Beyond*<sup>11</sup>) highlights the danger of scientism through a series of soundbites of UK politicians using the phrase “follow the science” when discussing their political decisions relating to managing the Covid-19 pandemic in 2020 and 2021. The reality was that hundreds of government scientists shared and discussed many pieces of evidence addressing the pandemic from different angles. The conclusions to be drawn from these pieces of evidence rarely aligned, and ultimately, the decisions were political. However, the deference to the phrase “follow the

science” is indicative of an unconscious societal tendency to assume there is a traditionally scientific answer to most questions.

This implicit scientism arguably has roots in The Enlightenment period of history [18, 19]. During that time, scientists managed to amass so much evidence through scientific endeavour that, in Europe, the dominance of the Catholic church's view of the universe (e.g., geocentrism) was ultimately undermined. Cycles of hypothesis, experimentation, and observation—what we might now call the Scientific Method—achieved what one could reasonably have thought to be impossible. If we shift our historical lens to the present day, the same scientific machinery has brought us the industrial revolution, space flight, computing, the internet, and artificial intelligence. Therefore, it is unsurprising that we have an unwritten and powerful allegiance to science, which can manifest as scientism. But science and its methods have obvious limitations. The wicked problems that characterise the 21<sup>st</sup> century such as global inequality and climate change are complex to break into constituent parts that can be addressed scientifically without some other guiding principle. Socio-technological challenges that cannot have a falsifiable or ‘correct’ outcome, such as the infamous trolley problem, do not have answers that can reasonably be obtained scientifically. Challenges without precedent, for example, how to make policy decisions relating to an innovation that has not yet been invented. All of these matters require interpretation, and these are the kinds of challenges that Design Research can help to explore. So, we frame Design Research as the *interpretivist* counterpoint to science and positivism in Chapter 1, *Science & Beyond*<sup>12</sup>.

Various theories and discussions are signposted within the film that talks to the relative value of Design Research's interpretive foundation compared to science's positivism. One of these relates to Fraying's dissection of Design Research into Research *for* Design, Research *into* Design and Research *through* Design<sup>13</sup>. While these have been discussed thoroughly elsewhere [e.g., 17], they are worth considering briefly. Research *for* Design—background research or the gathering of reference materials to help support the process of designing something—*can be scientific*. For example, a physical or chemical exploration of matter or materials to understand how to make something functional. Similarly, Research *into* Design can also be scientific. For example, a sociological or psychological approach to understanding how designers think and work. However, Research *through* Design is implicitly different. It is not a, by traditional uses of the term, a ‘scientific’ endeavour. It is a way of knowing that relies upon a pragmatic [3–5] and practice-based [10] engagement with the world, that results in tacit knowledge. A useful framing for this kind of understanding is *intermediate knowledge* [12]. This kind of understanding is not so particular that it can only apply to one individual setting, nor is it so general that it might be called a theory<sup>14</sup>. Instead, intermediate knowledge occupies a space that can infer valuable insights from a specific example, or design, and convey those insights so that they might be useful or generative in some other context. The key to understanding how intermediate knowledge works, is accepting that it arises from the experience of gaining tacit knowledge. The mechanism beneath this is much the same as how any one of us might learn to make an

<sup>9</sup><https://designresearch.works/redirect.html?ptma=10>

<sup>10</sup><https://designresearch.works/redirect.html?ptma=11>

<sup>11</sup><https://designresearch.works/redirect.html?ptma=12>

<sup>12</sup><https://designresearch.works/redirect.html?ptma=13>

<sup>13</sup><https://designresearch.works/redirect.html?ptma=14>

<sup>14</sup><https://designresearch.works/redirect.html?ptma=15>

omelette, make a cup of tea, or any other practical and material task. In Design Research, however, the same logic is applied carefully, thoughtfully, and to a plethora of different domains.

## 5 DISCOVERING THE NIGHT

In their consideration of emergence as a property of practice-based Design Research, Gaver, Krogh, Boucher and Chatting refer to Nobel Prize winning biologist François Jacob’s conception of *Night Science* [10]. Jacob explores this idea in his autobiography. He defies the simplicity of stereotypes of science and codifies the practice into two types: science of the day and science of the night. His poetic turn of phrase captures the essence of the distinction. Day Science, he says, “meshes like gears and achieves results with a force of certainty [...] One admires its majestic arrangement as that of a da Vinci painting or a Bach fugue. One walks about in a formal French garden. Conscious of its progress, proud of its past, sure of its future, day science advances in light and glory” [13:206]. Jacob’s imagery and metaphors allegorically envelopes the stereotypical version of science that arguably is what fuels the tendency towards scientism discussed *a priori*.

Contrastingly, Night Science eschews the trappings of tradition, history, and certainty. Jacob’s invocation of verbiage to describe his feelings about Night Science is extensive, expressive, and exciting. This idea, which he realises is so fundamental to what the practice of science really is, is articulated thus. Night Science “wanders blindly [...] Doubting everything, it feels its way [...] It is a sort of workshop of the possible [...] spontaneous generation [...] What guides the mind, then, is not logic. It is instinct, intuition” (ibid). Jacob’s explanation exudes a rare energy, a passion to articulate a holism of science that is usually missed. The striking thing is that his explanation of the ‘other half’ of science, seems to be a fitting description of a significant part of Design Research too. For this reason, Chapter 6 of the film is titled *Night Science*<sup>15</sup>, and we explore the resonance through the eyes of several interviewees.

Pieter-Jan Stappers notes how, in interdisciplinary collaborations (outside of the world of design) ambiguity tends to arise at disciplinary boundaries. This realisation highlights a similarity to how design training and skills help individuals thrive while within the ambiguous part of scientific, design, or research processes. In the early 1990s Christopher Frayling had already noted how the stereotypical views of designers, engineers, artists, and scientists tend to collapse if one interrogates them: artists work in a cognitive idiom as much as scientists work in an expressive one [7]. When interviewed for Permission to Muck About, Frayling recounts a key moment in the tale of Crick and Watson discovering the structure of DNA, describing a crucial chance encounter with a mathematician as a “Craft moment”. He discusses *The Nature and Art of Workmanship* [20], which sets up two conceits: the workmanship of certainty and the workmanship of risk. The former bears an uncanny resemblance to how Jacob explained Day Science’s “force of certainty”. The latter resonates with Frayling’s conception of Research through Design, with Jacob’s “workshop of the possible” and with the stochastic and creative core at the heart of all Night Science—Design Research included.

Similar themes arose in many of the interviews that make up the film. Also appearing in Chapter 6, Doejna Ooejes (Assistant Professor of Industrial Design at Eindhoven University of Technology) recounts how, in Design Research, a continual and intuitive perspective switching is essential, realising that sometimes it is the material or the context that makes these choices for you: “Surprising things happen, and I think we can be a bit more open to that and listen more to that”. Meanwhile, her colleague, Kristina Andersen (Associate Professor at Eindhoven University of Technology) explains how the exploratory nature of ‘designerly hunches’ and inquisitiveness led to designs for weaved facemasks that inadvertently pioneered a new type of viral filter. The innovation was not predicted; it wasn’t the intention, it wasn’t a product of the workmanship of certainty, but it was a serendipitous outcome of the workmanship of risk. The value of this kind of work is fundamental to the spectrum of Design Research that appears in the film, Chapter 5<sup>16</sup> of the film includes nearly 50 minutes of testimony from a wide variety of projects, all of which exhibit the craft-based, intuitive, stochastic, and creative sparks. François Jacob’s presentation of Night Science illustrates that these are hallmarks of excellence in science, as well as in Design Research.

## 6 FINE TUNING OUR KNOWLEDGE PRODUCING MACHINERY

While much of the film deals with metaphors, examples, points of view and allegorical portrayals of what Design Research is and does, towards the end of the film, those elements are framed in terms of practical challenges that hold back the Design Research movement and steps we might take to overcome them. Chapter 7, titled *Evolution*, addresses this<sup>17</sup>.

Over a decade ago, Bill Gaver used the term “pre-paradigmatic” to describe what we could “expect” from Design Research [9]. The implications of the term pre-paradigmatic are a fascinating framing of where Design Research sits at this moment in history and builds on Thomas Kuhn’s work on *Structure of Scientific Revolutions* [16]. Kuhn realises that in the early days of new fields, movements, disciplines or sciences, much effort is spent establishing the consensus (or paradigm). During the pre-paradigmatic phase, this effort is disproportionate compared to the efforts used in *applying* the paradigm. While the evidence would suggest that Design Research continues to be pre-paradigmatic, as we point out in the film, other precedents suggest this shouldn’t necessarily prevent progress. For example, in physics, the particle and wave models of light fundamentally disagree. We can take this as an example of lacking consensus; however, as has been demonstrated, many innovations and derivative research have been forthcoming based on *both* models. The takeaway of this comparison is that having a widely accepted singular paradigm isn’t always necessary, so long as there is a shared language, an ability to communicate coherently, and an awareness of this multiplicity. Establishing this shared language is, arguably something the field could improve upon. The film touches on this briefly at the end of Chapter 3—*Design and Knowing*<sup>18</sup>—where we establish a precedent to simply use the term

<sup>15</sup><https://designresearch.works/redirect.html?ptma=16>

<sup>16</sup><https://designresearch.works/redirect.html?ptma=17>

<sup>17</sup><https://designresearch.works/redirect.html?ptma=18>

<sup>18</sup><https://designresearch.works/redirect.html?ptma=10>

'Design Research' while accepting this encompasses several more specialised approaches with their own terminologies. Notwithstanding the issue of shared terminology, the other topics discussed in Chapter 7 discuss day-to-day logistical challenges of being a Design Researcher, which arise from it being a pre-paradigmatic field.

One of these challenges is the conceptualisation that Design Research is 'unempirical', i.e., that it does not have a way to verify hypotheses based on observation. To an extent, this is true. However, a qualifier is that the epistemological framing within which empiricism is virtuous is a different epistemology to that which Design Research participates in. The terms used to explain high-quality research—words like validity, rigour, and reproducibility—these terms *do* have analogies in Design Research. However, they are allegorical and metaphorical—the terms cannot be used in the same way they are in many other types of scholarship. Once again, this, we argue, is a product of Design Research's unique assemblage of interpretivist [22], pragmatic [4] and reflexive [23, 24] epistemologies that can be 'drifted' across [15]. Summing this up succinctly, in most research fields, an experiment that when it is run twice and produces the same result, is desirable. In Design Research this type of reproducibility is not only impossible, but it is also antithetical to the value proposal of the very epistemology the practice is built upon. Because Design Research derives its value from the journey of intuition earlier characterised as Night Science, the intention is to produce a *unique* outcome each time an experiment is run. Those unique outcomes manifest as intermediate knowledge measurable in terms of their contestability, defensibility, and substantiveness [12]. Alongside, another aspect of validity usually emerges in Design Research through multiple instances of intermediate knowledge being viewed as a whole in what is usually known as a research programme [21].

Another practical issue relates to the struggle of publishing Design Research. In Chapter 7, Audrey Desjardins notes the rigidity of the typical formats we used for sharing, contrasting the benefit of the 'final thing' made in a Design Research project with the realisation that much of what is learned happens 'along the way'<sup>19</sup>. The challenge of capturing the value of the process is, in part, a product of its intangibility; the challenge also relates to the privilege of words and text in publication traditions. Publications are increasingly diverse. Concepts such as such annotated portfolios [8] and pictorials [2] go some way to enriching the media of publication. The—currently mothballed—conference, *Research through Design* [6] pioneered a multi-modal format for publishing Design Research that included physical objects, an exhibition, and image-rich publications. An interesting and related precedent is the Journal of Visualized Experiments or JoVE<sup>20</sup>. JoVE is a peer-reviewed scientific video journal. It was created because many lab experiments, when written up in text-based journals, were not reproducible by other scientists. By *showing* the experiments in video, rather than *telling* them in text, JoVE seeks to enhance this reproducibility. Interestingly, this highlights the value of tacit, practical, and hands-on knowledge—ideas that are core to art, design,

and craft, but, as this demonstrates, are also core to some types of experimental science.

Daniela Rosner (Associate Professor in Human Centered Design & Engineering at University of Washington) raises a crucial, and somewhat unresolved in the film, point about inclusion in debates about Design Research and the potential reproduction of structural inequities across many factors such as race, class, and gender<sup>21</sup>. She points out that Design Research has historically failed to account for these challenges, contrasting the idea of layering inclusion on top of the status quo with a more critical approach that might ask that the status quo be held to account for its foundations, evolution, and development of the field. Resonantly, Christina Harrington (Assistant Professor in Human-Computer Interaction at Carnegie Mellon University) points out that rather than didactic engagements with communities, Design Research may benefit from a more open-minded, less privileged, and bent that should 'shut up and listen'<sup>22</sup>. While we do not *directly* address these concerns in the film, these considerations did influence the overall rhetorical thread of the film and the range of examples used. We believe that this rhetorical thread, is, as much as we could accommodate, consistent with a coherent story of what Design Research is and does, *as well as* supporting the idea of and potentially taking part in a holistic, inclusive, global, and postcolonial recapitulation of the field.

The final part of the film, Chapter 8—titled *Inventing the Future*<sup>23</sup>—zooms out from these practical challenges, recapitulates the main messages of the film, and then invokes the metaphor of an imaginary control room. This control room has dials to set the general preferences of people worldwide. The narrator speculates that by using these dials, we could influence world views, and by influencing world views, we could affect global change. The narrator uses a description of this control room to articulate the film's calls to action. These are steps that we propose, accepting all the nuance and commentary discussed hitherto in this paper, as viable and achievable ways to unlock more of Design Research's value, and to hopefully contribute to a more sustainable, equitable and resilient society.

So, let's imagine. . . a control room.

That governs how we know things in the world.

The dial for science is set a bit *too high*.

The destructive dogma of scientism needs *dialling down*.

Science can't tell us everything.

Art is valued, as it should be.

(But maybe we could turn it up a bit, since we're in here).

Design Research is *a dial unto itself*.

And it is set *so low* that many people don't even know it exists.

So, we're not getting the best from it.

And its knack for integrating, synthesizing, imagining, and making tacit knowledge tangible is going unnoticed.

<sup>19</sup><https://designresearch.works/redirect.html?ptma=20>

<sup>20</sup><https://www.jove.com/>

<sup>21</sup><https://designresearch.works/redirect.html?ptma=22>

<sup>22</sup><https://designresearch.works/redirect.html?ptma=23>

<sup>23</sup><https://designresearch.works/redirect.html?ptma=24>

We dismiss the value of “intermediate knowledge” too readily when we write it off as unscientific, unempirical, or invalid.

Let’s adjust the dials.

Let’s rebalance our ways of knowing, and thinking, and seeing, and feeling.

And dial into a more intuitive, pluralistic paradigm.

Let’s teach Design Research to everyone – not just designers and researchers – but *everyone* – including each other.

Let’s bring it into our schools, our organizations, our governments and institutions, and into public life and the public consciousness.

Because permission to muck about belongs to everyone.

These, the closing words in the film, make an argument based on an assumption. That assumption is that the world would be a better place if it was inhabited by citizens who are educated about the contrasting ways that Design Research and science produce knowledge. The myriad of examples used throughout the film, we hope, provide a compelling set of reasons why this would be the case. The final call to action proposes that it is ultimately education that helps fine-tune the dials in the imaginary control room to affect this change in the world. The logistics, politics, and practicalities of delivering that education are undoubtedly complex but we hope that the story and content contained in this film may become part of that education in the years to come.

## 7 PERMISSION TO MUCK ABOUT?

What we call Design Research, or Research through Design, is not just about design; it is an epistemological machinery and model for how envisioning research and innovation are manifested through practice. This machinery is shared across many fields, from the hardest science to the ‘artist’ art to the most traditional of crafts. The reason it spans these diverse contexts is that it is a fundamental part of how humans make sense of the world. However, we live in a time that, despite some diversification, still fetishizes and privileges science. This is often driven by the false promise of facts, even in situations where the binaries of proven/unproven or truth/falsehood are folly.

Whilst the title of our film is an idiom that evokes the feeling of playfulness that could potentially suggest that Design Research not be taken seriously, that was not our intention. Rather, the reason Permission to Muck About seemed like such an appropriate phrase is that the current paradigm of what constitutes research and knowledge is *incompatible* with the exploratory, fluid, and often playful practices that define Design Research. What underpins the disconnect between Design Research and the dominant paradigm has little to do with profundity, relevance, evidence, or utility, and has everything to do with culture, tradition, and disciplinary inertia. Our choice of title, then, references the notion that to ‘muck about’ (i.e., to act whimsically) is antithetical to what dominant and often dogmatic views of science, knowledge, and research are. The reference to muck about in our title is not meant to belittle the practices of Design Research as ‘only’ play, but to suggest that

anyone purposefully renouncing ‘mucking about’ from their research practice is, arguably, belittling some aspect of *their* research practice’s potential.

Our conclusion, provocation, and relevance to the 2024 Halfway to the Future Symposium, is that *we are* making progress. Arguably we are halfway to inhabiting a more cohesive research landscape that transcends the murkiness of scientism. We are in a place that is pragmatically inclusive and appreciates the full gamut of different ways of knowing. *But* halfway is only halfway and a glass half full is a glass half empty. There is still more to do. As a research community, therefore, we should not rest on our laurels. We should keep pushing the boundaries, pushing both what the boundary is constituted of and who or what it encompasses. We must strive for more discussion of these issues, strive for more literacy on these matters at all levels, and strive to acknowledge and grant *Permission to Muck About*.

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## REFERENCES

- [1] T Binder and Johan Redström. 2006. Exemplary Design Research. In Design Research Society Conference.
- [2] Eli Blevis, Sabrina Hauser, and William Odom. 2015. Sharing the hidden treasure in pictorials. *Interactions* 22, 3: 32–43. <https://doi.org/10.1145/2755534>
- [3] John Dewey. 1908. What Does Pragmatism Mean by Practical? *The Journal of Philosophy, Psychology and Scientific Methods* 5, 4: 85. <https://doi.org/10.2307/2011894>
- [4] Brian Dixon. 2019. Experiments in Experience: Towards an Alignment of Research through Design and John Dewey’s Pragmatism. *Design Issues* 35, 2: 5–16. [https://doi.org/10.1162/desi\\_a\\_00531](https://doi.org/10.1162/desi_a_00531)
- [5] Brian S. Dixon. 2020. *Dewey and Design*. Springer International Publishing, Cham. <https://doi.org/10.1007/978-3-030-47471-3>
- [6] Abigail C Durrant. 2016. Developing a Dialogical Platform for Disseminating Research through Design. *11*, 1: 8–21.
- [7] Christopher Frayling. 1993. *Research in Art and Design*. Royal College of Art Research Papers 1, 1: 1–9.
- [8] Bill Gaver and John Bowers. 2012. Annotated Portfolios. *Interactions* 19, 4: 40–49.
- [9] William Gaver. 2012. What should we expect from research through design? In *Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems - CHI '12*, 937–946.
- [10] William Gaver, Peter Gall Krogh, Andy Boucher, and David Chatting. 2022. Emergence as a Feature of Practice-based Design Research. In *Designing Interactive Systems Conference*, 517–526. <https://doi.org/10.1145/3532106.3533524>
- [11] Green, D. P., Lindley, J., Encinas, E., Dore, M., Benjamin, J. J., & Bofylatos, S. (2023, June 12). Ways of seeing design research: A polyphonic speculation. *Nordes 2023: This Space Intentionally Left Blank*. <https://doi.org/10.21606/nordes.2023.96>
- [12] Kristina Höök and Jonas Löwgren. 2012. Strong concepts. *ACM Transactions on Computer-Human Interaction* 19, 3: 1–18. <https://doi.org/10.1145/2362364>

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- [13] François Jacob. 1987. *The Statue Within*. Cold Spring Harbor Laboratory Press.
- [14] Robin Wall Kimmerer. 2015. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Milkweed Editions.
- [15] Peter Gall Krogh and Ilpo Koskinen. 2020. *Drifting by Intention*. Springer.
- [16] T.S. Kuhn. 1970. *The Structure of Scientific Revolutions*. University of Chicago Press, Chicago.
- [17] Joseph Lindley. 2015. A pragmatics framework for design fiction. In *Proceedings of the 12th European Academy of Design Conference*.
- [18] Joseph Lindley. 2023. Making design research work by flourishing through disappearance. In *Flourish by Design*. Routledge, London, 88–91. <https://doi.org/10.4324/9781003399568-19>
- [19] Joseph Lindley and David Philip Green. 2021. The Ultimate Measure of Success for Speculative Design is to Disappear Completely. *Interaction Design and Architecture(s)*, 51: 32–51. <https://doi.org/10.55612/s-5002-051-002>
- [20] David Pye. 1968. *The Nature and Art of Workmanship*. Herbert Press Ltd.
- [21] Johan Redström. 2017. *Making design theory*. MIT Press.
- [22] Gemma Ryan. 2018. Introduction to positivism, interpretivism and critical theory. *Nurse Researcher* 25, 4: 14–20. <https://doi.org/10.7748/nr.2018.e1466>
- [23] D. A. Schön. 1992. Designing as reflective conversation with the materials of a design situation. *Knowledge-Based Systems* 5, 3–14. Retrieved from <http://linkinghub.elsevier.com/retrieve/pii/095070519290020G>
- [24] Donald Schön. 1983. *The Reflective Practitioner: How Professionals Think In Action*. Basic Books.