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Conversation: How do we articulate design research to other academic disciplines?

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1. Conversation Context

> "This multivoicedness and the unspecificity at boundaries trigger dialogue and negotiation of meaning, explaining why encounters of boundaries are often described not only as challenging but also as worthwhile to investigate in relation to learning." (Akkerman & Bakker 2011:150)

Research in all fields is becoming increasingly multidisciplinary as institutions and funders seek to address complex challenges that require integrating different knowledge and expertise. Design Research, it has been argued, embodies diverse creative capabilities that make complex and intractable challenges its subject matter (Buchanan 1992). Examples include negotiating tensions and interdependencies between social, technological, scientific, and environmental factors (Goldsworthy & Ellams 2019) and developing the frameworks and methods to reconcile different forms of knowledge (Whitney & Nogueira 2020; Prendiville et al 2023), translation (Page & John 2019) and communication (Hornbuckle 2021). Design research is perhaps as much about the questions researchers ask, which are often explorative, responsive, purpose-driven, and relational, as the approaches, frameworks, and methods deployed to subvert research knowledge and assumptions. Furthermore, the formulations or assemblages of these conceptual structures can intersect with other disciplines to integrate diverse perspectives and stakeholders involved in the research context, including those impacted by the research, into its process and results (Hornbuckle & Page 2024).

Design research evolved together with the neo-liberal role of design practice. Recognizing such limitations in facing today's complex challenges, design researchers increasingly seek to participate in multidisciplinary research (Kimbell et al 2023).

However, bringing design research into a multidisciplinary context is not straightforward; articulating what design research can do has been an ongoing challenge for over fifty years within our community and maintains ambiguity at the boundary with other academic discourses. 'No wonder designers and members of the scientific community have trouble communicating.' (Buchanan 1991:19).

Is there an inevitability or even a necessity for the transformative learning that often emerges from these misunderstandings at the boundaries with other disciplines (Akkerman & Bakker 2011)? If so, how do we negotiate this challenge when we seek to improve the uptake and quality of design research in multidisciplinary research?

Other disciplines may recognise that creative approaches are needed in multidisciplinary research, but do they understand the distinctiveness of design research as an applied form of the creative process, as a 'trans-discipline,' as a research methodology, or as a translational or transformative force? The onus is on the design research community to rise to this challenge and translate this offer so that it is more understandable to other disciplines.

The purpose of convening this DRS Conversation was to broaden our collective understanding of the barriers and drivers of success design researchers face when communicating with other academic disciplines. A particular focus was given to situations when designers embark on new partnerships in multidisciplinary research. Our goal was to create a context to expand participants' understanding of ways they can position design research in multidisciplinary sandpits, build collaborative language in project contexts, and participate with confidence in academic forums where design research could play a vital role.

Main question for discussion

How do we articulate design research to other academic disciplines?

Sub-questions to be considered by participants in this conversation, based on their experiences of working with other academic disciplines:

1. What types of knowledge do we, as design researchers, co-produce with other disciplines?
2. What functions do we perform?
3. What are the methods and frameworks that we find useful for knowledge co-production?
4. How do we situate these forms and functions of design research within the worlds of other academic disciplines?
5. How might we articulate and negotiate this value when in conversation with new potential research partners from other academic disciplines?

6. What 'tricky tactics' do we use to enter multidisciplinary research partnerships, and how does this affect our identity as design researchers? (Fisher & Gamman 2019)
7. To what extent is it inevitable (and beneficial to innovation) that design research is ambiguous, informal, and not fully known at the boundary with other disciplines? (Akkerman & Bakker 2011; Whitney & Nogueira 2020)

About the convenors:

Rosie Hornbuckle, Rowan Page and Andre Nogueira came together from different experiences in intersecting design with other bodies of knowledge in complex contexts of collaborative practice. The*Track 19: Translational Design: Enabling impact in complex multidisciplinary and multi-stakeholder research projects through design* conversation further advanced and expanded previous DRS conversations related to our main question, such as Lindley et al (2022), also embracing the view of other disciplines about design.

Rosie's research has been predominantly about translational design practiced and observed in the spaces between materials science, design, production, and society relating to circular economy and sustainability discourses. Rowan's research relates to translational design and Research through Design (RtD) within the medical technology and health sciences. Andre's research intersects design knowledge with other fields, such as public health, economics, public policy, industrial ecology, business, management, and nursing, concerned with transformation in the social, political, environmental, and economic dimensions of well-being systems.

2. Conversation Set-up

Given the large number of attendees, the format was slightly altered from our original proposal to prioritize conversations in pairs and small teams rather than whole-group discussions. We also separated the online and in-person audience. These adaptations reflected our interest in ensuring all participants could share meaningful, guided discussions with their peers. In turn, we had to reduce time initially allocated to the plenary discussion and methods.

The conversation proceeded as follows:

1. A short introduction to the conversation topic and our background for all participants, after which the online participants left to hold their conversation via ZOOM.
2. The audience was then asked to reflect about a specific work they had conducted with a researcher from another discipline. They were given a blank postcard to record their reflections.
3. Using an active listening protocol, participants shared their reflections with those beside them. .

4. Sub-questions 1-3 were seeded into the paired discussions, followed by a short plenary discussion.
5. An open discussion of the remaining questions was then facilitated involving both online and in-person attendees.
6. The host of the online conversation presented the themes of their discussion back to the in-person group to conclude.

https://dl.designresearchsociety.org/drs-conference-papers/drs2022/conversations/4/

Figure 1. The conversation was well-attended both online and in-person. We were surprised that some people were turned away due to the room size. We flexed to paired work to ensure participants had the opportunity to discuss the themes.

3. Reflections on the Conversation

3.1 Multiplicities of Design Research

An underlying theme across both online and in-person discussions was around the diversity of design research and practice. While welcomed by most participants due to the difference in the contexts they work in, such a property also makes it challenging to arrive at an agreed-upon approach or description for design research that can be used when intersecting design knowledge with that of other disciplines. This sense is captured in the following exchange:

> “There are many kinds of design. So it depends on what we are considering design”
>
> “Some are different kinds of design research and some different kinds of design practice ."

This sense of the multiplicity of approaches toward research and practice stretched to epistemological diversity in the field's body of knowledge. Some design researchers favour a specific and relatively closed epistemology, such as in the engineering and industrial design tradition. In contrast, others take an open and relational stance, for example, in the subdisciplines of collaborative and social design, as this participant commented:

> "Some comprehensions of design suggest that there is a specific epistemology. Others are more relational or maybe a third type of design considers that epistemology is relational."

This participant noted that these epistemological stances of the design researcher can even be open to variation depending on the context within which they are researching:

> "Epistemic properties of design and how these are variable depending on the context of practice."

This is related to the expectations and the epistemological stance of the disciplines with which the design knowledge may be intersecting in a complex research project. For example, one expert may expect a certain type of output from a project, such as a detailed specification. Another expert from a different discipline working on the same project may be expecting more social and behavioural outcomes. These different expectations toward collaborative work may lead designers to adapt or adjust their position to enable collaboration to take place or be effective. In this context, participants of our conversation discussed concerns about the shortfalls of this 'servant' positionality design research might assume in these collaborative endeavours. One implication, for example, is that collaboration with other academic disciplines, to some extent, shapes design research.

The theme of breadth and variety continued with design research methodologies, some that are distinctly originated in design, while others are adapted from other disciplines:

> "the idea that there's quite a spectrum of different methodologies in design."

Similarly to design research and practice, methodologies are also diverse, with some researchers taking an open, exploratory, and intuition-based approach, while others adopt a more rigorous, structured, and methods-based approach toward knowledge creation:

> "The methodological positioning of design, whether it is flexible and adaptable or more structured and rigid."

Interestingly, the multiplicity in design research was perceived as a quality that opens possibilities for the field's body of knowledge to stretch beyond those formally trained in design. Several participants were not from the design field but were engaging in design because they recognized traditional approaches to knowledge creation and dissemination are falling short in addressing the needs present in their research context.

3.2 Research through design practice and making

Conducting research through design practice plays a crucial role in expanding and deepening translational research activities in multidisciplinary projects. The diversity of knowledge application areas and specialties within design practices and disciplines creates a rich canvas

for formalizing, refining, and advancing the constellation f of research methods that design researchers bring to these engagements. As one conversation participant noted:

> "There are so many different ways to practice design as well. So some of the different kinds of design research also come from different kinds of design practice."

Participants recognized that the strong connection between frameworks and methods used to support practice and research is one of design's strengths, as it biases design researchers toward generating knowledge that improve action and allows a plurality of methods to be advanced and leveraged in diverse application contexts. However, the way practice is discussed in research remains a contested space, requiring design researchers to continually justify its value:

> "Often as design researchers, we're working in multiple kinds of contested spaces. Practice and design practice research is something that is constantly being defended."

Participants also noted that making is central to many of these methods, helping to translate and embody ideas in material artefacts. These artefacts, both in practice and research, are of diverse nature and formats, from refined products and services to early stages prototypes and conceptual system maps. Importantly, participants also shared that making should not be seeing as an underlying capability to create artefacts:

> "Practice and making are integral to design research, acting as both process and output."

This emphasizes the importance of recognizing knowledge and know-how, embedded in making activities, as subjects of research. It also reflects the relational nature of making within the design field, particularly when it intersects with other disciplines. Common to these circumstances is designer researchers making artefacts as boundary objects to elicit knowledge creation and integration at these disciplinary intersections. This relationality also extends to the practice of facilitation and co-design, with a participant pointing out that:

> "it depends on how much you see practice as part of the research activity or facilitation."

In multidisciplinary collaborations, the integration of disciplines becomes essential, creating spaces where design acts as a facilitator, translator, and integrator of diverse disciplinary expertise and types of knowledge. As one participant observed:

> "The integration of disciplines is really fundamental in creating collaborative spaces where design plays a central role."

The role of the designer in these multidisciplinary teams often expands beyond traditional boundaries, taking on functions as facilitators and translators. Moreover, building these collaborative spaces requires careful attention and a deliberate process. This expanded role is crucial to enabling the ultimate goals of collaboration, as noted by a participant:

> "The role of the designer actually is expanded [to be a facilitator/translator].... how much is that expansion of what we have to do in order to enable the ultimate goal of or purpose of the collaboration?"

Through these varied roles and practices, research-through-design practice has the potential to contribute to the creation and advancements of design knowledge as well as foster deeper integration and collaboration across disciplines. This reinforces one of the important roles designers can assume in multidisciplinary research, where the practice of making and the facilitation of collaborative spaces become central to achieving the broader integration and impact in complex research projects

3.4 Infrastructure and tactics

During the in-person discussion participants shared their experiences of how institutions may support or hinder multidisciplinary research. For example, in the UK, the US, and Australia, where the conservations convenors are based, there has been a movement in national research policy towards impact-oriented research, which has grown the demand for interdisciplinary collaboration:

> "in the UK impact is starting to be talked about around the funding models. […] The evaluation of impact is becoming increasingly important, influencing the design and execution of research projects."
>
> "Institutional frameworks and funding models play a crucial role in shaping the direction and feasibility of design projects."

While in other countries this change in focus of funding policy has not yet taken place leaving design researcher with more challenges when seeking to engage in interdisciplinary research.

Some participants reported that they had adapted their reach model to enable interdisciplinary collaboration, for example through the installation of permanent interdisciplinary research teams:

> "Permanent interdisciplinary teams are essential for effective collaboration and maintaining continuity in research projects."

This brought into the conversation the importance of governance to lead the way in new research models, versus the grass-roots approaches of researchers battling to change things one project at a time or in isolated research groups:

> "The big question is how do you change the process? Because grassroots, bottom-up, it’s very hard to get those things to stay."
>
> "So the European Commission wants to fund sustainable inclusive culturally-led projects. But it's a question of grassroots versus top-down changes and the effectiveness of each approach."

Without a change in research policy, the rigidness of institutional structures and frameworks of siloed research focused on academic knowledge as an output (rather than societal impact) prove to be a huge barrier to disciplines working with design research:

> "We're still working with very antiquated frameworks. And we're expected to have processes and we're expected to follow certain pathways from A to B. But we're also

> expected to be fluid and explore new territories and be dynamic and you know coming up with innovation but also due process."

As this participant suggests, this rigidity is counter to the appetite for the uniquely different paradigm of research that design proposes, such as innovation:

> "Balancing innovation with traditional processes remains a significant challenge in collaborative design work."

3.4 Field-focused research v. project-focused research

In many disciplines, the separation between field-focused research and project-focused research tends to be well-structured, even in accessing different funding streams. The informal and unstructured nature of knowledge in the design field and the strong connection between frameworks and methods used in design research and practice can generate confusion regarding the results and contributions generated by these two activities. Often, similar terms are used to describe different activities and purposes, which have implications for design scholars and practitioners working in multidisciplinary settings. Below, we have captured some of these implications under broader themes, sub-sections, and in the form of edited quotes.

Power Dynamics in Interdisciplinary Work

- *Hierarchical knowledge structures: "when the designer works multidisciplinarily they tend to lower their voice to the authority of the other fields. This is no good because the design field can help mitigate conflicts that may arise within and between authoritarian fields."*
- *Designer's power in knowledge integration: "As the designer, you're often responsible for the integration of knowledge into an artefact; you're responsible for integrating different things and reconciling trade-offs. There's actually quite a lot of power in how you deal with the integration of that knowledge." and "Facilitation of [interventions in] large complex systems in healthcare, for example, there's also a certain kind of power in that."*
- *Authority and influence in multidisciplinary fields: "The authority and influence designers hold in multidisciplinary teams can shape the outcomes and direction of collaborative projects." and "the performativity of design becomes almost infrastructural; but power is not gained. Design contributions are often not legitimized as knowledge contributions by its epistemic lineage, it works well as a gear. And we are perceived sometimes like this."*

These and other implications, combined with existing literature, and ongoing debates and conversations among design scholars, suggest the field is evolving to a point that it is important to advance our collective ability to articulate the similarities and differences between field-focused and project-focused activities. This is important not only to conduct work at the intersection of disciplines, but also to advance our disciplinary articulation for

greater support, including funding, to develop field knowledge and increase rigour in practice. While far from being extensive, the following provides a simple articulation that can be useful to advance on this frontier of work.

Field-contributing activities include using design knowledge to test, formalise, create, and disseminate new frameworks, methods, models, capabilities, approaches, tools, and techniques by intersecting design with other disciplines. Project-contributing activities include using design knowledge to generate improvements in a particular setting, increasingly shaped around purpose-driven and socially relevant topics, such as climate change, economic disparities, health inequities, among others. Examples of contributions include conceptualising new organisational models for more sustainable lifestyles or identifying service gaps and creating system enhancement mechanisms that generate more equal opportunities for all to participate in society.

In both, design scholars and practitioners might deploy similar frameworks and knowledge. In fact, design scholars might even conduct projects and generate contributions to their related contexts as a process of contributing to the field (action research, for example). Importantly, however, is to recognize that they demand different knowledge systems, are structured around different units of analysis, and often serve different audiences. If we continue to approach them with confusion, the implications described above and others captured in literature will likely intensify, rather than being confronted.

3.5 General reflections: How to articulate design research to other academic disciplines?

This question remains a fundamental inquiry among design scholars working in multidisciplinary research contexts. The diversity of topics and viewpoints presented in the conversation reflects the state of design research both in terms of field-focused and project-focused contexts. While no single answer or aligned conclusion could be reached, below we summarize the perceptions of participants involved in our conversation about ways design research is being positioned into multidisciplinary research contexts:

Design research…

…is practice-based & realized through making

…is responsive to context

…sits ‘in-between’ disciplines

…is diverse and varied

…facilitates and produces knowledge

…translates by acting on language discrepancies and vocabulary gaps

…is enacted beyond trained designers Design research is multidisciplinary by nature

…can inform practice conducted by non-designers

…is shaped by its collaborators and research policy

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