



Delft University of Technology

## Design Research Notes II

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## Design Research Notes II

Design research is widely recognised as having the potential to provide significant insights into the practices and processes of design as well as the huge variety of areas to which design is applied and fields that relate to design, such as innovation or behaviour change. However, with this potential comes the responsibility to deliver quality research.

Here, research quality addresses the whole of design research from question formulation to methodology, knowledge building, and reporting. In 2022, Cash, Daalhuizen, and Hay (2022a) took a step towards surfacing these issues of quality in design research by creating a platform for publication in this area in the form of the *Research Notes*. This, for the first time drew together disparate quality related work and provided a *home* for discussions of design research quality. The first issue of *Research Notes* was hosted by *Design Studies* (pre the split with the *Design Research Society*<sup>1</sup>), the current issue is hosted by *Journal of Engineering Design*, and future notes will be hosted by the journal *Designing*. However, despite these differing outlets *Research Notes* retain a common title, scope, and approach as set out in the first editorial (Cash, Daalhuizen, and Hay 2022a, 1). Specifically, this SI continues the aims of this series in foregrounding research quality discussions, based on the following criteria:

- I. They enhance the quality of design research, celebrating the value derived from the field's diversity in perspectives, methodologies, outputs, and impact.
- II. They are vital to the research endeavour, distilling and translating quality insights into concrete, actionable guidance for design research practice.
- III. They are dynamic and reflexive, foregrounding the evolution of practices in design research, as well as reflecting relevant developments in related fields.
- IV. They are transparent and accessible for the whole design research community, accelerating and democratizing the evolution of design research practices." (Cash, Daalhuizen, and Hay 2022a, 1)

### 1. Background and approach

Following the *Research Notes* focus on developing a robust yet transparent, equitable, and inclusive dialogue this SI again builds on an open call coupled with the offer of support for authors in developing their ideas through three main stages. First, following the open call for proposals we received 38 extended abstracts, of which 19 we deemed out of scope based on review by two SI editors. This was, mainly due to proposals focusing on more traditional design research topics and outcomes. The criteria for inclusion were a contribution specifically focussed on revealing, understanding, and or addressing issues of research

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<sup>1</sup> Collaboration with *Design Studies* ended as part of a mass resignation by all editors due to compromised scientific integrity with the publisher; see: <https://www.designresearchsociety.org/articles/the-future-of-design-studies-update>

quality within the framing of research *about, through, and from* design (Clemente, Tschimmel, and Pombo 2019, sec. Table 1), but not research for design or design work itself. Second, of the 19 proposals that moved forward we (the editors of this SI) hosted an article development workshop where we provided initial feedback on draft manuscripts and scaffolded peer to peer feedback and discussion. The criteria for feedback from the editorial team were primarily structure, focus, and contribution, while peer feedback focused on topic specific content and argumentation. Third, the editorial team offered ‘friendly review’ prior to submission for all authors considering submitting a manuscript. This was to help authors connect to and meet the quality criteria linked to peer review, again focusing on structure, focus, quality of argumentation, and contribution. Of the 19 proposals almost all took us up on this offer, as well as 6 other authors, resulting in over 50 pages of ‘friendly review’ comments. Finally, an open SI submission was created in the *Journal of Engineering Design*, allowing all interested authors to submit their manuscripts. This resulted in 15 total submissions and 10 finally accepted articles. The criteria for acceptance followed the typical quality criteria for double-blind peer reviewed work in *Journal of Engineering Design*, coupled with the scope criteria employed in screening abstracts in the first stage of this process.

### **1.1. Diversity and inclusion**

This process involved authors from across the research community and a final set of 26 authors with published articles in this SI. These accepted authors include 16 women and 10 men and range in seniority from PhD to senior professor. However, we also note that we received only five proposals from authors based in the global south and of those two were found to be out of scope in the first stage outlined above and two chose not to further develop their submission after feedback. This highlights an issue of representation aligned with wider discussions in the field (Perry and Pereira 2023). However, we are also keen to address this issue and invite authors in these regions to reach out if they have ideas for how to make our processes more transparent, equitable, and inclusive.

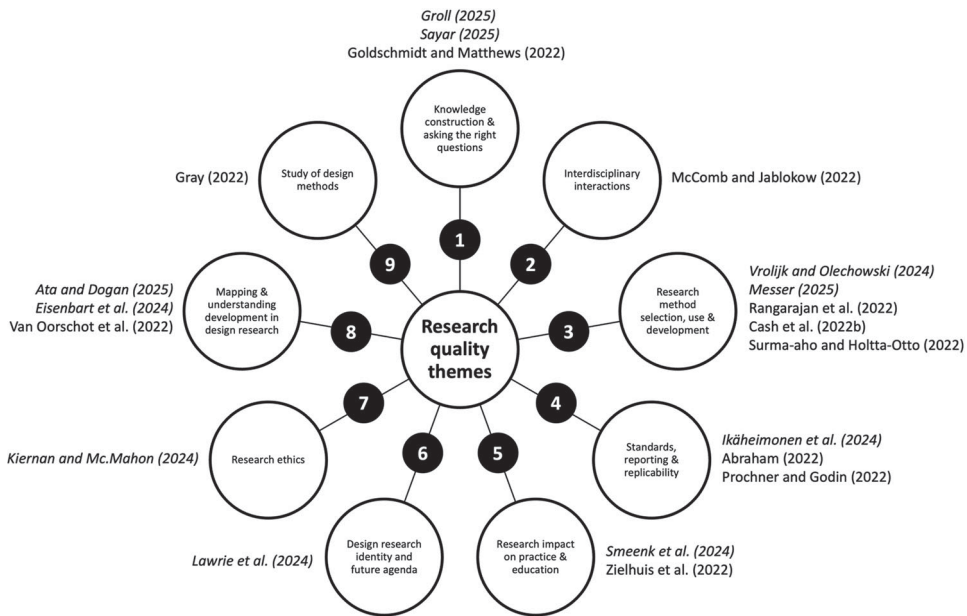
## **2. Developing research quality themes**

Submissions to this SI addressed many of the nine research quality themes previously identified, complementing and building on prior *Research Notes*. The submissions and their positioning with respect to the themes are summarised in Figure 1.

### **2.1. Theme 1: knowledge construction and asking the right questions**

Building knowledge is a key objective for design research, with challenges surrounding knowledge, theory, and research questions. In the prior SI Goldschmidt and Matthews (2022) wrote on developing quality research questions. However, open questions remain around knowledge construction, theory development, qualitative/quantitative synergies, and quality criteria in this area.

In this SI two articles directly address issues of theory development. Groll (2025) discusses the oft noted phenomena of design research borrowing theory from other fields.



**Figure 1.** Overview of the nine developing design research quality themes, and summary of SI contributions, building on Cash, Daalhuizen, and Hay (2022a, fig. 1). Note: publications in this SI are denoted in italics.

In response they offer specific considerations on how to borrow macro theories and discusses possible foundations for this approach in the field. In contrast, Sayar (2025) examines theorising around emerging phenomena. Such phenomena are nonlinear, ambiguous, multi-layered, and often dynamic, and hence pose unique challenges to theory development. In response, Sayar proposes a framework for emergence in design research, including the notion of “adaptive rigour” to account for quality and flexibility demands when facing emerging phenomena. Together, these contributions highlight the need for further discussion surrounding how design research develops theory and the ways in which this interacts with knowledge development in other fields.

## 2.2. Theme 2: interdisciplinary interactions

Developing an understanding of design both draws on and has the potential to influence knowledge in other fields. In the prior SI McComb and Jablow (2022) wrote about multidisciplinary interactions. However, no articles addressed this theme in the current SI and questions remain regarding how to leverage such interactions or even elevate them towards transdisciplinary ones, how theory can be developed across fields, and how we can distinguish distinct design research quality criteria in relation to other fields.

## 2.3. Theme 3: research method selection, use, and development

Research methods form the core of many design research contributions. In the prior SI this theme was addressed from multiple angles including Rangarajan et al. (2022) examining

approaches to the investigation of affective quality, Cash et al. (2022b) outlining guidance for research sampling, and Surma-aho and Holtta-Otto (2022) discussing issues surrounding precise definition of concepts and proper operationalisation of them. However, research methods provide a fertile source for questions in design research, with the field representing a melting pot of approaches.

In this SI we see two very different approaches under examination. Vrolijk and Olechowski (2024) discuss how Computer-Aided Design platforms can be leveraged to simultaneously and unobtrusively capture information about the artefact, actors, and actions of design across whole projects. Further, they discuss how such a data collection instrument can support inductive, abductive, and deductive design research. Continuing the focus on understanding the practice of design, Messer (2025) examines the relationship between creative practice and practice research. Messer goes on to discuss the challenges faced in practice research and how such approaches can be effectively documented, asking the practitioner-researcher to consider why and how they archive their practice, and when and what they need to archive. Together, these contributions highlight some of the synergistic diversity in design research. While adopting very different perspectives on the research process, they both deal with eliciting and documenting insights about design processes and address many common challenges. In this, they reveal opportunities to further explore how design research can leverage rather than silo its diverse research methods.

#### **2.4. Theme 4: standards, reporting, and replicability**

Quality criteria are key to establishing norms of practice as well as understanding within and across fields. In the prior SI Prochner and Godin (2022) addressed this directly by examining possible standards for Research Through Design (RtD), while Abraham (2022) identified different context factors impacting the study of design creativity. Questions here include what constitutes ‘good’ design research and how to ensure standards foster synergy across the many approaches found in design research?

In this SI Ikäheimonen et al. (2024) tackle issues of replicability and reproducibility in data-intensive research. They directly address challenges of complexity and transparency in these approaches by developing a step-by-step guide to applying a data analysis workflow. They demonstrate this via an example of research empathic understanding and highlight how clarity in methodological workflow is key to understanding how research outcomes emerge during the process. While dealing with a specific example, this contribution is illustrative of ways in which issues of replicability and reproducibility can form the basis for productive rather than constraining development in design research and could inspire similar endeavours in related areas of the field.

#### **2.5. Theme 5: research impact on practice and education**

Much of how design research creates impact is through its relationship with practice and education. In the prior SI Zielhuis et al. (2022) examined the practice aspect of this relationship. However, the importance of this theme leaves many open questions surrounding how to foster practice and educational links, build relevant knowledge and methodology, develop effective support, and democratise design research to open doors for marginalised communities?

In this SI Smeenk, Zielhuis, and van Turnhout (2024) continue the discussion around how knowledge exchange between design research and practice can be understood and improved. They examine the research practice ‘gap’ from the perspectives of abstraction, communication, alignment of knowledge needs, and support for local knowledge production. Based on this they provide implications and actionable insights for practitioner-centred knowledge production. This contribution further illustrates the rich potential for different forms of knowledge production in design research, offering potential links to Theme 2, and at the same time highlights how theory and standards of practice can be essential to helping develop the field.

## **2.6. Theme 6: design research’s identity and future research agenda**

How design research has, is, and could develop is a significant point of reflection for the field. While no articles addressed this theme in the prior SI there are numerous important questions here. For example, how best to craft inclusive future agendas, and how best to leverage the diversity of design research?

In this SI Lawrie et al. (2024) examine a specific research area, exploring how Dual-process cognitive theory has been applied in design research. Based on this, they develop a roadmap for future dual-process theory-driven design research related to defining constructs, determining research foci, and selecting research methods. This contribution provides valuable input to the ongoing conceptualisation of dual-process theory in design and further highlights how theoretical borrowing (see Section 2.1) can be both valuable and confronting; illustrating how theory needs to be adapted to the contexts of design research. More generally, this and other contributions (e.g. Groll 2025), emphasise the need to better understand theoretical linkages, development, and adaptation processes in design research.

## **2.7. Theme 7: research ethics**

Ethics, empathy, and the challenge to do good for individuals and society are core tenets of both design research and design. Yet they have remained a relatively under-discussed area of attention with respect to design research. Here key questions include how best to adopt standards that enhance rather than constrain design research, as well as how to enhance inclusivity, minimise risks, and at the same time realise the potential of design research insights and methods.

In this SI Kiernan and Mc Mahon (2024) take a major step forward for the field by establishing a ‘living’ set of guidelines for student designers and design researchers when working with vulnerable participants or/and on sensitive topics. They examine questions such as when is it/not appropriate to involve participants, how can expectations be managed, and what is the payback for participants? This contribution highlights some of the unique challenges faced by design researchers surrounding ethics and empathy and at the same time illustrates how productive ways forward can be scaffolded through the development of guidelines and discussions of what constitutes good practice in design research.

## 2.8. Theme 8: mapping and understanding development in design research

Understanding development within the field is central to improvement and maturation, as well as communication with other fields. In the prior SI Van Oorschot et al. (2022) mapped out key dimensions of participation in design research. However, many questions remain regarding how we can as a field, best understand our core concepts and methods, and their development over time across the varied communities found in design research.

In this SI we see two contrasting examinations of the design field. Eisenbart, Blessing, and Canatamessa (2024) take a wide-ranging look at development in the engineering design context by comparing conference proceedings 20 years apart. They explore the current state of rigour in reporting and show that significant improvements have been made over time, whilst also identifying potential areas for further improvement. They then formulate concrete recommendations for further improvement. In contrast, Ata and Dogan (2025) provide a deep dive examination of cognitive studies on design processes. They characterise key topics, authors, developments, and impacts in this sub-field over the years, and provide an illuminating foundation for further work in this area. Together, these contributions help illustrate the positive development of design research and the still growing potential of the field. However, they also reveal the need for continued efforts on quality, knowledge building, and researcher development if the field is to realise this potential.

## 2.9. Theme 9: study of design methods

Design methodology and methods are key foci and outputs of design research, bridging research, practice, and education. In the prior SI Gray (2022) examined how understanding of design methods and their functions could be formalised. While no articles address this theme in the current SI, questions remain regarding how design methods can be theorised, evaluated, and compared, as well as developed in more inclusive ways.

## 3. Final remarks


This SI, as part of the ongoing *Research Notes*, is motivated by the need for design research to more actively reflect on, celebrate, and build research quality to mature as a field. This motivation is reflected in the diverse and valuable contributions within this SI, which both build on prior *Research Notes* and identify directions for new developments and future research. In this editorial we have aimed to bring a continuity to the *Research Notes* discussion, both reflecting on the work done and that to come in this growing area of attention. In closing, we encourage authors to stand up and be heard around the issues of research quality that not only shape how we understand and evaluate our own work, but how others from across diverse fields understand and interact with design research. Development in understanding of research quality helps both individuals and the whole community. If you are so inclined, take this as a call to action for the betterment of yourself and the field.

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