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The future of human reproduction: Exploring wicked problems through interdisciplinary speculative design practices

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Conversation:
Exploring wicked problems through interdisciplinary speculative design practices

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Abstract: The Conversation explored how speculative design can be used to foster interdisciplinary dialogue to address complex societal challenges. Participants identified several key challenges including the perception of speculative design as impractical by non-design fields and the difficulty in demonstrating its impact. During the conversation participants emphasized the need for inclusive collaboration, integrating technology with social perspectives, and democratizing speculation. The conversation concluded with a call for context-sensitive approaches and new methods to communicate and evaluate speculative design's impact, highlighting its potential as a tool for responsible innovation and interdisciplinary problem-solving.

Keywords: Speculative design; interdisciplinarity; ethics; wicked problems

1. Conversation context and setup

The Conversation was developed to address a critical question in design research: How can speculative design facilitate constructive interdisciplinary dialogue and collaboration across diverse disciplines to address wicked problems? This conversation was particularly timely given the increasing complexity of societal challenges that require insights from multiple disciplinary perspectives.

The conversation centered on the premise that speculative design fictions can provide an inclusive "third space" for scholars from diverse fields to jointly analyze sensitive and complex issues without immediately confronting deep disciplinary divisions or entrenched policy positions. To ground this exploration in a concrete example, the conversation focused on emerging reproductive technologies as a case study of a wicked problem.

Recent advances in reproductive science, such as ectogenesis, in-vitro gametogenesis, and human genome editing, present both profound possibilities and complex ethical, legal, and societal questions. These technologies exemplify the type of multifaceted challenges that require nuanced interdisciplinary analysis and debate. The conveners posited that speculative design methods could provide a unique framework for mapping issues and clarifying concerns essential to the process of anticipatory governance in this field.

The conversation brought together scholars from six disciplines: Design, English Literature, Law, Linguistics, Philosophy, and Psychology. This diverse group was assembled to explore how speculative design can facilitate constructive interdisciplinary dialogue on the conceptual, ethical, and social challenges related to emerging reproductive science.

The session was structured as a 90-minute hybrid conversation, engaging 10 participants both in-person and remotely. Seven conveners participated, with one present face-to-face, one joining via video conference. The format incorporated both prepared contributor statements by 5 conveners and open discussion formats.

To initiate the conversation, five conveners from non-design backgrounds presented brief statements discussing the benefits and challenges of speculative design practice in relation to their disciplinary norms. These opening statements set the stage for the main discussion, which was centered around the organizing research question and three related sub-questions:

1. What are the challenges, opportunities, and needs of different disciplines in their engagement with speculative design practices?
2. How does interdisciplinarity impact the process, outputs, and knowledge production of speculative design?
3. How do different disciplines make use of speculation and futures thinking?
4. How can speculative design facilitate constructive interdisciplinary dialogue and collaboration across diverse disciplines to address wicked problems?
5. What are the key issues for speculative design research in interdisciplinary settings?

The majority of the session was devoted to facilitated segmented and full group discussions. Participants were encouraged to share insights from their own practice and experience, fostering a rich exchange of ideas across disciplinary boundaries. To capture and visualize the emerging ideas participants were able to engage through an interactive ideation platform, using Miro Boards, ensured full participation regardless of physical location.

2. Content of the conversation

The Design Research Society (DRS) Conversation on "Exploring Wicked Problems through Interdisciplinary Speculative Design Practices" brought together scholars from diverse disciplines to examine how speculative design can facilitate constructive interdisciplinary

dialogue and collaboration in addressing complex societal challenges. The conversation was structured around several key questions, with participants sharing insights from their own practices and experiences.

2.1. Challenges, opportunities, and needs of different disciplines

One of the primary challenges identified was the perception of speculative design among non-design practitioners. As one participant noted, "*Speculative design is often associated with art by non-design practitioners*." This association can lead to skepticism about the practical applications of speculative design approaches, particularly in disciplines that prioritize empirical evidence and concrete solutions.

Another challenge raised was the difficulty in demonstrating the effectiveness of speculative design as a viable approach for grounded solutions. This challenge points to the need for more robust methods of evaluating and communicating the impact of speculative design practices in addressing real-world problems.

Interestingly, one participant observed that "Human-Centered Design is not sexy anymore," suggesting a potential opportunity for speculative design to offer fresh perspectives and approaches in fields where traditional design methodologies may have lost their appeal or efficacy.

2.2. Impact of interdisciplinarity on speculative design

The conversation revealed both the benefits and challenges of interdisciplinary collaboration in speculative design processes. Participants emphasised the enriching aspect of interdisciplinarity. This sentiment was echoed by others who noted that members from different backgrounds and with diverse expertise can learn from each other.

However, the discussion also highlighted potential pitfalls in interdisciplinary work. As one participant observed, "Disciplines are egoistic: each pretends to have a dominant role in interdisciplinary processes." This insight underscores the importance of fostering genuine collaboration and mutual respect among disciplines.

The need for inclusivity was strongly emphasised as being fundamental to collaboration. Specific disciplines mentioned as crucial to these interdisciplinary efforts included philosophy and ethics, as well as social sciences such as sociology and linguistics.

An interesting point raised was the potential for interdisciplinarity to lead to methodological innovation, where innovative methods and tools can be introduced. For example, designers and anthropologists can combine ethnographic methods with design thinking, using design anthropology theories to address the complexities of socio-technical issues.

2.3. Use of speculation and futures thinking across disciplines

The conversation revealed varying perceptions and applications of speculation and futures thinking across different fields. One participant noted, "Sometimes future thinking is only

related to design disciplines," highlighting a potential gap in how other fields engage with speculative practices.

There was recognition that non-design fields do engage in forms of speculation, albeit perhaps not labeling it as such. For instance, business fields speculate using future forecasting. However, a provocative question was raised: "Do non-designers even ever speculate before building solutions?"

The role of technology in speculation was emphasized. It was noted that technology should be involved in speculation, it is not just a matter of artistic thinking. This point was reinforced by the observation that Big Tech companies use futures thinking and speculation in their current product and upcoming projects storytelling.

An important insight was shared regarding the critical nature of speculation. Speculating is critically understanding why it is worth doing some intervention or not. This perspective positions speculative design as a tool for responsible innovation and decision-making.

2.4. Facilitating interdisciplinary dialogue through speculative design

Participants discussed how speculative design could serve as a bridge between disciplines in addressing wicked problems. One participant suggested that "Speculative design can be an informative and practice-based approach to address problems that can actually be avoided through future thinking."

However, challenges were also identified. Differences among fields can be tricky when exploring wicked problems, and criteria set by diverse fields can be limiting for speculation. These observations highlight the need for careful facilitation and mutual understanding in interdisciplinary speculative design processes.

An interesting point was raised about the democratic nature of speculation. It was stated that "Speculation is (should be) democratic." This suggests that speculative design practices could potentially serve as a leveling field where diverse disciplinary perspectives can be equally valued and integrated.

2.5. Key Issues for speculative design research in interdisciplinary settings

The conversation concluded by identifying key issues for further research and practice in interdisciplinary speculative design. These included:

- The need for tangible outputs
- Effective communication across disciplinary boundaries and grounding speculative approaches in real-world contexts and problems were identified as key needs.

As one participant succinctly put it, "There is no general formula to make speculative design work in interdisciplinary teams," underscoring the need for flexible and context-sensitive approaches to interdisciplinary speculative design practice.

3. Reflections on the conversation

The DRS Conversation provided a rich exploration of the potential and challenges of using speculative design practices in interdisciplinary settings to address wicked problems. Several key themes emerged from the discussion:

- **Disciplinary Perceptions and Biases**: The conversation revealed that speculative design is often misunderstood or undervalued by non-design disciplines. This highlights the need for better communication and demonstration of the value of speculative approaches in addressing complex societal challenges.
- **Balancing Disciplinary Expertise and Interdisciplinary Collaboration**: While the benefits of interdisciplinary work were widely recognized, participants also acknowledged the challenges of overcoming disciplinary "egos" and fostering truly inclusive collaboration. Finding ways to leverage diverse expertise while maintaining a spirit of equality and mutual learning emerged as a crucial consideration.
- **Integrating Technology and Social Perspectives**: The discussion emphasized the importance of bridging technological and social considerations in speculative design practices. This suggests an opportunity for speculative design to serve as a mediator between technical possibilities and social implications.
- **Democratizing Speculation**: The idea that "speculation is (should be) democratic" opens up interesting questions about who gets to participate in speculative design processes and how these practices can be made more inclusive and accessible across disciplines and sectors.
- **Evaluating Impact**: The challenge of demonstrating the effectiveness of speculative design approaches points to a need for new frameworks and methodologies for assessing the impact of speculative practices in addressing real-world problems.
- **Contextual Sensitivity**: The recognition that there is "no general formula" for interdisciplinary speculative design underscores the importance of developing flexible, context-sensitive approaches that can adapt to the specific needs and dynamics of different interdisciplinary collaborations.

Moving forward, this conversation suggests several promising directions for further research and practice in interdisciplinary speculative design:

- Developing and testing models for facilitating effective interdisciplinary collaboration in speculative design processes.
- Exploring new methods for communicating the value and impact of speculative design approaches to non-design audiences.
- Investigating how speculative design practices can be integrated with other disciplinary methods to create novel, hybrid approaches to addressing wicked problems.

- Examining the ethical implications of speculative design in interdisciplinary settings, particularly in relation to issues of representation, power dynamics, and responsible innovation.

By continuing to explore these areas, the design research community can further develop speculative design as a powerful tool for fostering constructive interdisciplinary dialogue and collaboration in addressing the complex challenges of our time.

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About the Convenors:

Alexandra Krendel is a Lecturer in Applied Linguistics at the University of Southampton. She uses linguistic methodologies such as corpus linguistics and discourse analysis to investigate online communication about various topics, including ectogenesis, men's online (anti-Feminism) and "traditionally feminine" women.

Georgia Walton is a Research Associate on the Future of Human Reproduction Project at Lancaster University. She is a specialist in American Literature from the nineteenth-century to the present with a particular focus on literary form and Critical Theory.

Nicola Williams is Wellcome Lecturer in The Ethics of Human Reproduction in the Department of Politics, Philosophy, and Religion at Lancaster University. She is a co-investigator on the Wellcome-funded 'Future of Human Reproduction' project and her primary research interests lie in questions of reproductive ethics, transplantation ethics, and intergenerational justice.

Kirsty Dunn is a Lecturer in Developmental Psychology on the Wellcome-funded 'Future of Human Reproduction' project at Lancaster University. Kirsty uses empirical methods to understand more about how we learn from the auditory and visual environment before birth.

Laura O'Donovan is a Research Associate on the Wellcome funded 'Future of Human Reproduction' project at Lancaster University. Laura is an academic lawyer who does research in healthcare law and bioethics with a particular focus on the regulation of reproduction, reproductive ethics and organ donation.

Andrew Darby is a Post-Doctoral Research Associate on the Wellcome-funded Future of Human Reproduction project at Lancaster University. He has worked at Lancaster and Durham universities as a

design researcher, and has interests in design fiction, participation, and interdisciplinary research.

Emmanuel Tsekleves is a professor of Global Health Design at Lancaster University and Co-Director of the Future Cities Research Institute. He leads international research in design for global and planetary health, employing speculative design.