Conversation: Design + Ethics: How is it more than the sum of its parts?

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Abstract: The discussion of ethics in design has so far relied on theories and approaches from other disciplines. We argue that design can benefit from an explicit discussion on the ethics of its methods and practices that arises from within the discipline. This Conversation aimed at stimulating this discussion. Around 25 people attended in person, in addition to the online participants. We asked our audience about the main approaches they use for ethical inquiry and discussed the opportunities and challenges of applying these. We found out that ethics may best be framed as an *invitation to care*, without reducing it to a checklist, toolkit or an afterthought that can be added onto the design process. Although the situated nature of ethical issues calls for a plurality of approaches, we foresee boundaries to pluralism that acknowledge historical legacies of violence. Hence, we see a role for design to willingly engage with problematizing (vs. problem-solving) when addressing societal issues, with a view towards structural injustices.

Keywords: design ethics, interdisciplinary research, practice-based research, design education

1. Introduction

As design expands its scope from creating products to re-imagining systems, ethics has become an increasingly 'hot' topic in design research. This increasing attention to ethics uncovers the normative orientations of the design discipline (Dorrestijn & Verbeek, 2013) and raises new research questions on how to frame ethics in a way that guides reflexive design practices in research, education as well as in the public and private sectors.

We argue that design can benefit from an explicit discussion on the ethics of its methods and practices that arises from *within* the discipline (cf. Verbeek, 2013). Therefore, the main aim of this Conversation was to explore and unpack the dimensions along which design and ethics may be related through experiences and anecdotes in design education and practice. A better understanding of these dimensions can ultimately inform a coherent and constructive interdisciplinary conversation. Eventually, this Conversation will also inform a new DRS Special Interest Group (SIG) on Design Ethics.

We understand *design ethics* as a broad, complex, and nuanced field that should concern itself beyond establishing behaviours that are generally accepted in the profession. To guide this Conversation, we posed two research questions:

- 1. What are the main approaches that bridge design and ethics (e.g. value sensitive design, participatory design, critical theory, virtue ethics...etc.)? What are the opportunities and challenges of implementing these approaches in design education and/or practice?
- 2. Based on #1, what are the interdisciplinary tensions between designerly and critical-ethical approaches and how can these tensions be constructively managed?

2. Context of the Conversation Topic

Our preliminary position is that engaging with ethical inquiry has historically been pushed to the realm of the ethics and critical theory of technology, whereas design has come to be mainly associated with creative problem-solving. Although philosophical concepts give us inspiration and guidance, these insights are often not immediately actionable in practice. Here, disciplinary boundaries and diverging epistemologies (e.g. humanities vs. sciences, problem-solving vs. problematising) may obscure the dimensions along which ethics and design may be related. This is evident in critically-oriented design fields such as critical design (Malpass, 2016) and participatory design (Bjögvinsson, Ehn, & Hillgren, 2012). Moreover, the challenges of integrating designerly approaches and ethical inquiry in practice-based research may further undermine interdisciplinary efforts. In such settings, academic disciplines meet the perspectives external stakeholders from public and private

sectors, where priorities may shift towards societal (vs. scientific) impact and possibly short-term (vs. long-term) gain (Norman, 2010).

As a result, the main aim of this Conversation was to get an impression of the complex landscape of design ethics and explicate the various ways through which ethics and design add value to each other. We were particularly interested in hearing from those who embrace a critical stance towards own disciplinary perspectives (i.e. critical researchers) and practices (i.e. critical practitioners), and feel committed to bridging theory and practice to achieve both societal and scientific impact.

3. Set-up of the Session

The conveners have interdisciplinary backgrounds (design, philosophy of technology, architecture and arts, and international law), which helped stimulate a multi-faceted discussion. All conveners contributed to the preparation of the session. The first and the third convener hosted the Conversation in-person, and the fourth and the fifth convener hosted the virtual part of the session, integrating comments and questions from online participants. The Conversation lasted 90 minutes. Figure 1 shows a snapshot of the session, which was professionally recorded for future reference and reflection.

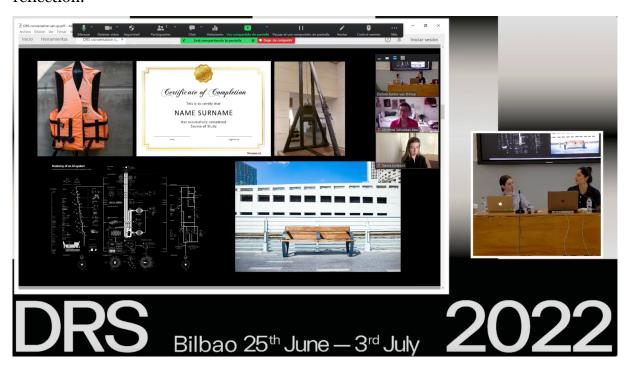


Figure 1. A snapshot of the Conversation session

We held the session in plenary, hybrid format according to the schedule on Table 1.

Table 1. Structure of the session

Activity Number	Duration (minutes)	Activity Explanation
1	15	Introduction and personal anecdotes (by conveners)
2	40	Reflection on own practices (plenary): What does ethical inquiry mean in your work?
3	20	Discovering tensions and patterns (plenary): What are your ethical resources and why these? How do you deal with the complexity of bridging ethics and design?
4	15	Wrap-up and next steps (by conveners): What keeps coming back in the Conversation? What might be some next steps?

We started the conversation with a short introduction to the context of the topic, emphasizing that the goal was to celebrate the plurality of ethical thinking in design instead of coming up with a rigid definition or a common framework for design ethics. To kick off with the first two questions, each convener shared a personal anecdote that characterizes a memorable encounter with ethics (see Table 2).

Next, we encouraged the audience to share their own anecdotes by asking, What does ethical inquiry mean in your work? To explore ways forward, we also asked about how they deal with such encounters: What are your ethical resources and why these? How do you deal with the complexity of integrating ethics and design? By ethical resources, we mean the theories and practices that one seeks in interdisciplinary collaboration (e.g. with moral philosophy, political science, intersectional feminism, political theory, critical theory) to better understand what ethics may mean in the context of a specific project.

Finally, the conveners summarised recurring insights in the Conversation and invited all participants to get in touch if they wished to continue the discussion as part of a new DRS SIG on Design Ethics.

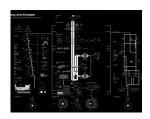
Table 2. Conveners' anecdotes used to start the discussion

Image	Anecdote
	One of my bachelor students designed a life jacket for Syrian refugees in her final graduation assignment in 2016. She wanted to design something useful for those in need and had identified her design problem as creating a life jacket that could keep people warm and their important documents safe. As she researched materials and textile engineering, my question became: How to preserve the good intentions of a bachelor student, while steering her towards adopting a systematic approach that addresses the root causes of societal challenges instead of their symptoms - and to do this in an institutional context that highly values technological solutions?

There is not a straightforward way to address this question and look forward to unpacking it further in this Conversation and a future special interest group on design ethics.



When I was working in The Hague, where the International Criminal Court and the International Court of Justice are, some judges from Uganda had been flown over to receive training in international criminal law. It's really important to say they were seasoned judges, who had been working in criminal law for decades. My job, because I was a postdoc at the time, was to get their certificates printed. There was this photo opportunity, and then, I was told to upload that picture onto the website under the heading of 'Ugandan judges successfully trained'. It seemed unethical to me. There were so many dynamics there: the racial element (white, young, male, western, almost entrepreneur academics who were training very experienced judges from the Global South), the gender dynamics, the class dynamics and so on. I'm really interested how law and design interact and how can we instead consider structural problems?



Kate Crawford and Vladan Joler. The diagram is an anatomical map of Amazon echo. It explores human labour, data and planetary resources: from the origins in a geological process (extraction), human labour issues, toxicity, hazards, algorithmic biases, privacy issues, life as a consumer AI product, and ultimately to death (e-waste). This is a brilliant example as it forces us to think beyond our projects (design action), making visible the consequences for others and ecological systems. This is especially important for students engaging with advanced computational tools as this is often an opaque territory.



I've chosen the image of the bench. First of all, I have to mention that there is not that much greenery in the image. So we could also discuss the matter of imagery and representations of nature missing from this particular scene of urban environment. But with the addition of the bench, I think many important discussions could start and be initiated about who can use this particular bench, what are the hostile design elements that could prevent certain uses of the bench, but also aesthetics related discussion. I'm looking forward to this special interest group forming around these types of questions and whatever comes out of the needs of people who have an interest in design and ethics.

4. Findings

The flexible format of the Conversation allowed for a lively discussion that brought up unexpected insights and several examples of ethical resources. The anecdotes of the conveners helped to trigger the discussion on ethical encounters in design, covering a wide range of practices from education to research and external practices. In this section, we organize what we heard according to four main themes:

- 1. Re-framing ethics in design
- 2. The plurality of approaches to ethical inquiry
- 3. Dilemmas and frustrations of the ethical practitioner

4. Expanding our ethical resources

We illustrate these themes below with quotes from the participants (denoted by 'P') as well as conveners (denoted by 'C').

4.1 Re-framing ethics in design

On multiple occasions, the participants expressed that ethics should not be about 'ticking boxes on an ethical approval form', an afterthought, or a separate part of the design process that also needs to be considered. Instead, ethical inquiry was referred to as a competence, a sensitivity, or a process of taking care in every design decision:

[P5] I think that is a main part that's been frustrating me since entering the field that lots of people say like, Oh, design ethics are so important and it becomes this placeholder for a lot of really non-defined things (...) But ethics is not like a part (...) It's a process of moral deliberation, of considering in a situation, what do you think is the right thing to do? And it's not just about certain values, because values play out so differently in different contexts and situations leading to these dilemmas and paradoxes that we're encountering now in design.

[P6] It becomes this tag on thing to consider and removes students' intrinsic ethical deliberations and the care that they bring with them into the design process naturally making it like, I don't know, removing the natural process and getting it back to the checklist step that you talked about instead of actually taking care in every decision.

At the same time, two distinct stereotypes came up that may stand in the way of framing ethics as an care-taking process:

[P4] When I started* in 2016, ethics was seen as a very bad thing. You are the bad guy in the room. You are going to stop innovation (...) So now we know that it didn't work. We need ethics in there. And then my methodologies emerge as bringing consequences as part of the design method. *PhD project on the ethics of virtual systems

[P2] I think for me, something that it all comes back to quite a lot is also the fact that we need the life jacket* to be still the story about the hero, the saviour, the good designer who helps out kind of thing. It's in the wrong place. But I think that is, you know, we need to find ways to dismantle that figure quite, quite quickly within design. *See Table 2.

These two stereotypes stand in tension to each other, which may obscure the possibility of making mistakes and the necessity of explicating one's political stance:

[P2] You know, we're not going to be able to do that project* and do it right. You're going to make massive, massive mistakes. So I think also doing ethics and being able to be in that as a process is really kind of important. *Life Jacket project, Table 2.

[P5] You can put out tools and people will totally use them with their very own intentions (...) I would also tie that to a comment that was made before about the political parts of it: How can we make the ethical considerations, not political? I don't think that's possible. Ethical is inherently political. If you try to

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¹ We have produced a transcript of our conversation for analysis and reflection.

not do that, you're just furthering the status quo, like there is no way to do that. So and I think the tools* might actually be a way to try to be neutral, which then just leads to further UX theatre. Yeah. For the performativity of it. *Tools to help doing ethics.

[C3] Disentangle ethics from politics? And my perspective would be to say no, and we should be unapologetically political about it, right? So because that means we are going out of the classroom and connecting this to struggles. And I think that in the time of climate catastrophe, the rise of repressive patriarchy, as we can see through bigger institutions in the US, the violence of borders, the oppression of people and so on, I think it's really important to connect what we are doing to these struggles, right, to in order to come out of ourselves. And that leads back to (...) whose processes are privileged and whose are silenced? Where are those silences? And in some of those silences, I think is really key to thinking about ethics productively.

4.2 The plurality of approaches to ethical inquiry

The plurality of approaches to ethical inquiry became almost immediately clear after a participant expressed a need for a toolkit, guidelines or a common framework and many others responded by emphasizing the dangers of the 'toolkit mindset' due to the broad, complex, and situated nature of ethical inquiry in design projects:

[P7] I've been trying to search for design ethics to see if I can find some inspiration and guidelines anywhere. And I've come to the conclusion that design ethics maybe do not exist, because if anyone can point me to like a place where it says: This is it, I would really appreciate it. But the research ethics is really a thing (...) So we actually have tried to go to research ethics to find out some practical guidelines we can use in our work and translate them into the science world due to the kind of general lack of design ethics.

The audience responded by saying:

[P3] I wouldn't expect a set of instructions, you know, but maybe dimensions that you can think of. And that's what I've seen in this conference in a few places, frameworks to make you think about the different ethical considerations.

[C2] I think I want to add that, in my opinion, it is not about a toolkit because the problems that we are dealing with are so vast and so complex. It goes from historic injustice to interrelations to more than humans to material ethics. So I think we should aim for a very plural framework (...) Because there're not clear ways out, but they require conversations and very, very complex entanglements of analysis.

[P8] I think ethics is contextual. You should create your framework with the communities that you work in. It's not the same to have work in the UK or to have work in China. Ideas of individuals or communities or what is important is very different. So it would worry me to suddenly have a special group trying to create an ethical framework.

Later, what is meant by a framework or a toolkit was further clarified to reveal insights into how to develop productive scaffolding techniques:

[P10] I think it is very dangerous to rely on our individual selves to know what is the ethical thing to do. The point of frameworks or toolkits is in the process of drafting and implementing them, assuming that process is inclusive, you get out of yourself and what you think you know about others. The idea of an ethical framework is to highlight the questions you should ask, not the answers, and that also prevents it from becoming a neo-colonial exercise.

[C2] But as a practitioner, what do you do when you receive a student who has not any background? Where do you start if you're teaching in a BA or if you're in an MA program or if you're doing fieldwork, how do you really see this and in a way that is comprehensive? And because, as I fully agree, it's super contextual and situated, you give a very good and robust set of tools, so that when that student needs to act fast, as you're saying, you have the right tools in mind and understandings to act ethically, as ethically as possible

4.3 Dilemmas and frustrations of the ethical practitioner

Speculative design was mentioned several times as a 'go-to' field for materializing ethical critique; however, several participants expressed the need to move beyond this 'detached' form of critique and to be more tactical in dealing with ethical issues in real-world practices:

[P4] So in speculative design, normally you get out of the system and then you are criticizing the system and that was it. And these guys*, they want to operate within the system. So they want to have a company, they want to have an income, they want to operate in the start-up thing (...) So they want to shape the world and try to make it better. And then we see that we are trying to conceptualize that whether we are moving kind of from the critical to the tactical. And that's kind of a really interesting shift. And we see students are much more interested in that. One of the main problems that we have is that they think that good intentions are enough and sometimes they are not enough. So there is something missing in there which we need to address. *Social entrepreneurs.

[P1] (...) we had huge, lengthy discussions in our lab whether or not we could at all enter this area of design* or whether or not it would be too much of an ethical minefield to even sort of go there. And then looking around, it seems like that's the easy solution for a lot of design projects. We stay within the safe spaces. We stay where, of course we have to deal with people and there's ethics in everything, but we rarely dare go into these super critical areas. And when we do it, we quite often do it as a critical design project because that's sort of still a little bit hands off. But how do we do it in a tactical way? How do we develop design tactics in these super critical areas? *Political violence.

In addition, several participants pointed to the values and priorities of academia which hinder ethical academic practices:

[P3] And if we talk about impact and writing papers or creating start-ups, there is no room for ethics whatsoever. So as long as you are doing it and ticking the boxes. Academia often doesn't care. And that's problematic in itself because that doesn't ask us or invite us to question the ethics of our work.

[P11] And, you know, when you're doing research, you know that we're facing all sorts of ethical committees (...) They take on research, and these are actually bureaucrats. And they are enforcers of a certain way to do research that also, in a way, forbid you to think about what you should do to be the best researcher you can be in the situation you are.

[P9] I think we're talking about ethics, but in a way we're also talking about historical legacies. And one of the things that we don't acknowledge when we write the ethics forms or when we go in with the idea that we want to work in an ethical way, is actually there are structures of violence which have existed because of colonialism. And actually until we have some understanding on how that plays out in the way that research bids are presented or in the way that authorship credit is given to peers and authors on papers. It plays out in the way that our partners are represented within projects. It's absolutely embedded in the system. So when we talk about ethics, actually, we need to go right back much more to historical legacies of violence.

4.4 Expanding our ethical resources

Upon asking about how one could respond to aforementioned themes, we heard multiple resources to help move forward with ethics as a process of caring, making mistakes, and owning one's political stance:

Ethical resource 1: Much greater emphasis on histories

[P9] I would say that also I think there needs to be much greater emphasis on histories (...) But I think we also need to really understand actually our position within Europe, in the European power structure and what the consequences of that has been for the world. And I would also recommend reading Eric Williams, who was the prime minister of Trinidad and Tobago, and he talks about slavery and the economics of slavery (...) I mean, the Industrial Revolution, that the money came from slavery, we were selling goods to the empire. We denied them their own industries so that we could sell them our goods. That in design history is hardly spoken about. So I think actually we do need to really go back and have a more accurate picture of what these systems were about.

Ethical resource 2: Material ethics

[C2] A lot of our students really go into super techno oriented solutions. So they use resources. They use a lot of tech to solve even problems that are not problems. But when they're using tech, I think an exercise that I really, at least in my practice, tried to embed in design students is that you really need to understand the constellation of material ethics. Where are these resources coming from? Where the metal is coming from, the lithium, the nickel... So that you can order online, you know, this cheap for your experiment.

Ethical resource 3: Tools and methods as critical-ethical resources

[P5] So I think that is mostly my angle, trying to work out how to leverage or how to integrate levers in conversations that open up the notions of what people are thinking about when they want to do the right thing. Right, because that is often it's like, Oh, we want to have tools to do the right thing. It's like, okay, what do you mean? And try to make it possible to shift these notions. What people think is unchangeable is a given, is a deterministic notion, and how we develop it and what's maybe not.

5. Reflection

Insights from this Conversation illustrate that doing ethics is a broad, complex and situated endeavour with tensions around how to move forward with ethical inquiry across different contexts. Based on what we heard, we suggest to frame doing ethics as an *invitation to care* instead of a discipline to borrow from, a set of guidelines to follow, a toolkit to implement, or an afterthought to tag onto routine design activities. This re-framing of ethics is also audible in the comments on not reducing it to a checklist one typically encounters on ethical approval forms or to a toolkit that may override the intrinsic motivation to take care in every decision. Care is an emerging theme in exploring the ethical and political dimensions of design. For instance, DiSalvo (2022, p.33), borrowing from Mol (2008) and Tronto (2013), offers care as a value and a process of ordering our relations that prioritizes communal living. DiSalvo's work contributes to participatory design and is situated at the intersection of design and democracy; but it still helps to clarify the 'care' angle we propose: Recognizing the collaborative and relational aspects of ethical inquiry, and consequently, moving away from thinking about ethics as static and universal.

Understanding *ethics* as care may also facilitate seeing ethical inquiry as a complex, and at times uncomfortable, process in which one will make massive mistakes. The 'care' angle ties well into the discussion on the wicked nature of design problems. Wicked problems have no definitive formulation, no clear beginning or end, no right or wrong solutions (only better or worse ones), and are interdependent (for a complete discussion of wicked problems and design ethics, see (Sweeting, 2018). Moreover, attempting to address wicked problems is "a 'one-shot operation'; because there is no opportunity to learn by trial-and-error, every attempt counts significantly" (Rittel and Webber 1973, p.163)" (as cited in Sweeting, 2018). As a result, designers have "no way to be right, but no right to be wrong" (Sweeting, 2018, p.7). Against this backdrop, the ethically-sensitive practitioner faces the challenge of either being pushed into a corner as a hindrance to technological innovation or longs to be admired as a saviour with good intentions. Both of these stereotypes seem to overlook the complexity of situated ethical inquiry and the discomfort it produces, whereas understanding ethics as care provides might offer an alternative purpose to doing ethics.

How to then nurture ethically-sensitive practices? Two main reservations were expressed that underpin the resistance towards using frameworks and toolkits in ethical inquiry. First, ethical issues encountered in design are broad, situated, and constantly in flux. This requires a unique framework of ethical action that is co-created in the local context of each project. Second, frameworks and toolkits may imply that ethical inquiry can be confined to the issues and values that are framed by that specific toolkit, which may hinder one from thinking outside of those issues and

values and practicing own political agency. Overcoming these two reservations, we argue, requires *lingering in the problem space* by reinforcing alternative values such as care, criticality and justice (e.g. Costanza-Chock, 2020). This may help us welcome the plurality of approaches to ethical inquiry, with a view towards historical legacies of violence (P9, section 4.3).² As P10 suggested, we do not need to abandon scaffolding techniques (tools, methods, frameworks), yet we need to treat them with caution and critically reflect on what they do in practice. We see this as an exciting area of methodological research into design practices through developing, deploying and evaluating such scaffolding techniques across various cases.

At a meta level of reflection, the way we access critique is of crucial importance — whether it is from outside in (i.e. as in, for example, speculative critical design) or from the inside out (i.e. from within the systems, as in, for example, participatory design). The audience expressed a shift from 'critical' to 'tactical' asking '*How do we develop design tactics in super critical areas?*' (P1, section 4.3). We suggest that moving from critical to tactical starts with examining and challenging dominant disciplinary values, and simultaneously, searching for ways to *care-fully* reorder design's relationship to society's struggles. Viable starting points for this might be to recognize our limited cultural and geographic mindsets, to problematize as much as (and even, instead of) problem-solving, to access critique as expertly as accessing creativity, and to explicate one's political stance instead of claiming neutrality when responding to structural issues.

Finally, we observed that the topic of ethical resources was discussed a lot less vividly and lengthily compared to dilemmas and frustrations encountered in ethical inquiry. In fact, only a limited number of ethical resources were mentioned throughout the conversation (see section 4.4), whereas one-to-one conversations with some of the participants revealed many more. Further reflection and a deeper analysis of such discussions are necessary, using for example discourse analysis or phenomenological research, to better understand what might hinder sharing ethical resources.

6. Towards a new SIG on Design Ethics

This Conversation will inform the formation of a new SIG on Design Ethics (DE). The aim of this SIG is to bring researchers, students, and practitioners together in furthering the scholarly discussion on the ethical and political dimensions of design both as a discipline and a profession.

Based on aforementioned insights and reflection, we suggest three main preliminary qualities for SIG DE. First, we suggest to frame ethical inquiry as an invitation to care, i.e. to listen, hear, reflect and dialogue with people. Second, we aim to examine and challenge dominant disciplinary values, and simultaneously, to explore

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² P9 had mentioned the following book for those interested in better understanding structural inequalities in health: Farmer, P. (2004). *Pathologies of Power: Health, Human Rights, and the New War on the Poor* (Vol. 4). University of California Press

alternative values such as care, criticality and justice. Third, we welcome the plurality of theories and approaches that enables design researchers to access critique and commit to adopting and adapting them in specific situations reflexively. Simultaneously, we see boundaries to such plurality with a view towards structural inequalities and historical legacies of injustice.

The current Conversation was a valuable starting point, which mainly covered the scholarly aspects of design ethics. In the future, we aim to also engage with design education and practice through additional activities. Encountering, comparing, and contrasting perspectives from education, academic research, and the public and private sector, as well as the interactions of the three categories, are key to covering the complexity of the field. With our current and future members, we aim to build upon this Conversation by:

- Collaboratively examining and challenging dominant values in design that perpetuate structural inequalities and historical injustices, and simultaneously, unpacking values such as care, criticality and justice
- Continuing to share dilemmas and frustrations to listen, hear, reflect and learn from each other
- Learning how to research, develop and deploy scaffolding techniques for situated ethical inquiry with care and caution
- Being more specific about what's included and excluded in the plurality of approaches to ethical inquiry
- Expanding ethical resources to support recognizing our limited cultural and geographic mindsets, accessing critique, problematizing (vs. solving) problems, and explicating one's political stance

Hereby, the DRS community is invited to join this new network to advance the discussion on ethics as an invitation care.

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7. References

Bjögvinsson, E., Ehn, P., & Hillgren, P. A. (2012). Design things and design thinking: Contemporary participatory design challenges. *Design issues*, *28*(3), 101-116.

Costanza-Chock, S. (2020). *Design justice: Community-led practices to build the worlds we need.* The MIT Press.

DiSalvo, C. (2022). Design as Democratic Inquiry: Putting Experimental Civics into Practice. MIT Press.

Dorrestijn, S., & Verbeek, P. P. (2013). Technology, wellbeing, and freedom: The legacy of utopian design. *International Journal of Design*, 7(3), 45-56.

Malpass, M. (2016). Critical design practice: Theoretical perspectives and methods of engagement. *The Design Journal*, 19(3), 473-489.

- Mol, A. (2008). The Logic of Care: Health and the Problem of Patient Choice. Routledge, London.
- Norman, D. A. (2010). The research-Practice Gap: The need for translational developers. *interactions*, 17(4), 9-12.
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, *4*(2), 155-169.
- Sweeting, B. (2018). Wicked problems in design and ethics. In P. H. Jones & K. Kijima (Eds.), Systemic Design: Theory, Methods, and Practice (pp. 119-143). Tokyo: Springer Japan.
- Tronto, J. C. (2010). Creating caring institutions: Politics, plurality, and purpose. *Ethics and Social Welfare*, *4*(2), 158-171.
- Verbeek, P. P. (2013). Technology design as experimental ethics. In *Ethics on the Laboratory Floor* (pp. 79-96). Palgrave Macmillan, London.

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