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Panel description:

Making a 'practical turn' in the philosophy of technology

Steven Dorrestijn, Wouter Eggink & Marijke Timmermans.
Keywords: *philosophical tools, ethical reflection, design research*

This panel contributes to making the so-called *practical turn* in the philosophy of technology. We coined this term for the mutual and constructive collaboration between philosophy of technology and design research. We see the practical turn as a variant and extension of the 'empirical turn' in the philosophy of technology. After the turn from abstract thinking on the essence of technology toward more empirical case studies about concrete technologies, the question we focus on is how philosophical reflection can become 'practical' by collaboration with design. Our practical turn compares to *Constructive* Technology Assessment, but our focus qua 'assessment' is on the philosophical side and qua 'constructiveness' it is on the design and engineering side of innovation. Interestingly there is also a counter-movement in philosophy of technology from 'too much concreteness' back to fundamental ethical evaluation. Our attempt is to be at the same time more practical as well as more philosophical. The panel brings together four research projects 'practicing' the practical turn. Together they explore the question of "how ethical-philosophical reflection about technology can be feedback to technology development" … and vice-versa, "how design practice can include and enrich philosophical reflection".

Four abstracts:

Mediation and digital technologies in construction practice

Hans Voordijk
Keywords: *digitalization, construction industry, technical mediation.*

Digital technologies have come to play a significant role in the construction industry. Although these technologies may seem promising, practitioners often fail to reap their benefits. In an attempt to know why, this study applies the theory of technical mediation to understand the effects of digital technologies on users' perceptions and actions in construction practice. Based on a literature review and empirical studies, we specifically study technologies such as Augmented/Virtual Reality, Radio Frequency Identification and Building Information Modelling.

Subsequently, mediating effects of these digital technologies are analysed in terms of locus, form and domain (Verbeek, 2013). For conceptualizing the *locus* of mediation, the framework of Dorrestijn (2012, 2017) is used. Dorrestijn categorized points of application from which side technologies seize the human body: physical, cognitive or contextual. The *forms* of mediation are categorized in terms of their influence (weak versus strong) and their visibility (hidden versus explicit) (Tromp et al., 2011). The *domains* of mediation can be existential or hermeneutic, and individual or social.

The theory of technical mediation is relevant for construction practice because neglecting the mediating roles of digital technologies could result in misinterpretations or overly optimistic expectations about what these technologies can do. This, in turn, shows that construction practice could achieve more realistic expectations of digital technologies through adopting the perspective of technical mediation. Being aware of and balancing different mediation effects might improve the design, implementation and use of digital technologies in construction practice.

Values that Matter: Applying philosophy for more value in design

Merlijn Smits
Keywords: *Design for Values, Responsible Design, Technological Mediation*

Value sensitive design (VSD) was one of the first design approaches to bring ethics to design. By integrating (moral) values already early on in the design process, the method aims making designing more responsible. Although the method has commonly been used, it falls short concerning its consideration of values. Namely, VSD does not consider that when designing technologies for values, once implemented, these technologies can mediate the nature of the values itself. Philosophy has brought about a set of theories, including techno-moral change scenarios and technological mediation, which could aid designers in understanding the interplay between users, design, and values. The techno-moral change scenarios approach suggests creating future scenarios for visualizing how a new technology will change standard morality. The technological mediation approach studies the relations between humans and technologies and the implications technologies have for human practices and perceptions.

We have brought these theories into a new design for values method: Values that Matter (VtM). The method consists of three phases: Explore, Conceptualize, and Anticipate. First, users' current value frameworks are identified. These values are then embodied in a new design. A pilot study is executed to evaluate the effects of the design on existing value frameworks. Insights support designers to reconceptualise their design or reframe value frameworks for designing positive value change. Values that Matter brings together design and philosophy to responsibly design for values. It has been applied to several case studies in healthcare, including continuous monitoring with wearable devices and Virtual Reality treatments for chronic pain.

On screens and algorithms: towards a 'Philosophy-through-Design'

Jelle van Dijk
Keywords: *philosophical inquiry, research through design, enactivism*

There is a portrayal of a division of labour that goes like this: Philosophy delivers ontological and ethical foundations. Science takes these foundations to discover facts of reality, which, in the natural sciences, goes hand in hand with developing new technologies. Design, last in an implicit chain of command, uses the output of both to produce applications for a practical purpose. In line with this, academic research in design develops proven methods for the transformation from

science and philosophy to society. I propose a reframing of the relation between philosophy and design (ignoring science, for the moment): Design-research may itself actively contribute to philosophical inquiry. I restrict my claim to questions concerning the relations between humans and technologies, which are essentially bound up with what it means to be human.

I illustrate this Research-through-Design with two case studies. Both cases used the activity design with reflections on process and outcomes to investigate questions in enactivism, a theory of human sensemaking. Case one investigates the problematic nature of the 'representational screen' in relation to embodied sensemaking by searching for alternative interactive forms to replace it. Case two investigates the problem of integrating machine learning algorithms in relation to enactivism, searching for an alternative division of labour between human users and AI. Reflecting on these cases I discuss the epistemic value of the public availability and empirical concreteness of designed artefacts as tools for philosophical inquiry.

Responsible design by philosophical tools in a parallel trajectory

Wouter Eggink & Steven Dorrestijn
Keywords: *Ethics of Technology; Practical Turn; Parallel Trajectory*

Philosophy of technology has produced an extensive body of theories and reflections about the impact of technology on humans, society and the environment. Recombining these insights of reflection with the transformative force of design holds the promise of a philosophical design toolkit for a more critical and responsible shaping of our future world.

We will explore some opportunities of philosophical design tools for responsible design, based on a one-week Industrial Design Workshop at the University of Antwerp where 18 students executed a conceptual design project for the improvement of public space. During the process they learned and applied three tools and theories concerning respectively Utopian Technology, the Product Impact Tool, and Open Script Design. The results ranged from an open electric bike-sharing system to a bus-stop that fosters ethical discussion. Apart from the resulting designs, the project demonstrated how design can make tangible the inherent dilemmas and conflicts, often between collective responsibilities and individual concerns, in designing for public space.

This makes a strong case for the *practical turn*, with its reciprocal influence: the materialization and visualization of ethical and social issues through design, based on the ethical reflection from the philosophical tools and theories, does in turn explicate ethical reflection.

The accompaniment of design projects with philosophical tools for reflection proves to be practical for improving responsibility in design. We therefore propose the concept of a parallel trajectory for ethics, with carefully timed philosophical exercises, as an implementation of responsible design.

Biographies

Wouter Eggink

Dr.ir. Wouter Eggink is a design professional and assistant professor of Industrial Design Engineering at the University of Twente. He is affiliated with the Department of Design, Production and Management, where his research centers around the relationships between design, technology and society. His approach is based on the collaboration between design research and philosophy of technology, for which he coined the term "the practical turn".
Wouter Eggink is coordinator of the Industrial Design Engineering master track "Human Technology Relations" and Research Fellow of the DesignLab of the University. He teaches Design Histories and also the course Create the Future, based on scenario development.

Steven Dorrestijn

Dr. Steven Dorrestijn is head of the research group Ethics & Technology at Saxion University of Applied Sciences, the Netherlands. In 2012 Dorrestijn completed his PhD thesis (*The design of our own lives: Technical mediation and subjectivation after Michel Foucault*) at the University of Twente, the Netherlands. Previously he studied Philosophy in Paris and Philosophy and Mechanical Engineering in Twente. Dorrestijn's research and publications focus on the philosophy and ethics of technology, Michel Foucault's work in relation to technology, and the integration into design of knowledge about the impact of technology (Product Impact Tool).

Hans Voordijk

Dr. Hans Voordijk is Associate Professor and director of the PDEng program in Civil Engineering of Twente University. His research interests are philosophy of technology and civil engineering and implementation and impact of digital technologies in construction. Hans was visiting professor at the School of Property, Construction & Project Management of RMIT University Melbourne, project manager at the Netherlands Organization of Applied Scientific Research (TNO), Assistant Professor at Tilburg University and lecturer at Asmara University, Eritrea. He was also member of the Board of Supervisory Directors of Ubbink B.V. He started his career as Research Assistant at the Maastricht Economic Research Institute on Innovation and Technology (MERIT) of Maastricht University.

Merlijn Smits

Ir. Merlijn Smits is researcher at the Department of Surgery of the Radboud university medical center in Nijmegen. Healthcare technologies greatly affect experiences, values, and thereby wellbeing of patients. These mediating 'soft' effects of technologies often remain underexposed in the design process. With her background in industrial design engineering and philosophy of science, technology, and society at the University of Twente, Enschede, Merlijn is fascinated by the mediating effects that technologies have and aims to guide designers into technology assessment and responsible design. In her PhD research at the Radboud University medical center Merlijn leads multiple studies on the mediating effects of state of the art technologies on patient wellbeing, including continuous monitoring with wearable devices, Virtual Reality treatments for chronic pain and an integrated personalised healing system for hospital patient rooms.

Jelle van Dijk

Dr. Jelle van Dijk is Assistant Professor and a DesignLab research fellow at the University of Twente. He holds a master degree in cognitive science and a PhD in Industrial Design. Jelle investigates embodied and situated accounts of human technology interaction. He also works on co-design methods to support the autonomy of autistic people in everyday life, in the project 'Design Your Life'. He recently served as co-program chair for the 2020 ACM conference on Tangible, Embodied and Embedded interaction, Sydney.

Marijke Timmermans

Ir. Marijke Timmermans is researcher in the Ethics & Technology group of the Saxion University of Applied Sciences, the Netherlands. Marijke holds a master degree in Industrial Design & Engineering, on the emerging technology track. Marijke mainly worked on on-body technological applications. First at Xsens Technologies, and later at the Sustainable & Functional Textiles research department at Saxion. Parallel she followed several courses on existential philosophy at the International School for Philosophy in Leusden.