

Upon Opening the Black Box and Finding it Full

Marc Steen, TNO

In this essay the idea is proposed that design practices have inherent ethical qualities. This is done by drawing from three ethical traditions and studying contemporary design practices. Ethics-of-alterity (Levinas and Derrida) helps to understand human-centred design as a fragile encounter between other and self, and brings to the fore the tendencies to ‘grasp the other’ and to ‘program innovation’. Pragmatist ethics (Dewey) helps to understand co-design as a process of joint inquiry and imagination, and foregrounds the need to organize iterative processes of problem-setting and solution-finding. And virtue ethics (Aristotle) helps to understand cooperation, curiosity, creativity and empowerment as virtues that people need to cultivate in participatory design. When we open the ‘black box’ of design practice, we find it filled with ethics. The essay contributes to a discussion of the relationship between design and ethics. Moreover, it is proposed that design practitioners need to make explicit their practices’ inherent ethical qualities and that they can do that by embracing reflexivity.

Keywords: Design, Ethics, Reflexivity

Introduction

What do we need to know about design?¹ What kind of knowledge do we need to have about the practices of designers, developers and engineers who help to shape our material and immaterial world? In day-to-day life, we usually focus on the *output* of design processes; for example, when we interact with the digital devices or online services that were designed by others—smart phones, tablet computers, social networks, online shops etcetera. Sometimes one focuses on the *input* of design processes, for example, when one is responsible for organizing these processes; in such cases, one is interested in resources, time and budgets that are needed. In this essay, however, I will focus on the design *processes* themselves, rather than on their input or output.

Below, I will study contemporary design practices: practices in which designers cooperate in multidisciplinary teams and with prospective users. On a content level, these practices involve the design and evaluation of internet applications and services. I

¹ The title and this first sentence allude, of course, to Langdon Winner’s (1993) seminal article. Moreover, the current essay is intended to celebrate the article’s twentieth anniversary.

will argue that these design practices have inherent ethical qualities, and that these qualities typically remain implicit and unexamined. This argument contributes to a discussion of the relationship between design and ethics. Moreover, I will advocate making these ethics explicit. Those that are directly involved in design need to become more aware of these ethical qualities and find ways to cope with these ethics; this will enable them to improve their practices. Finally, it is critical that those that use the products and services that are being developed—that is, most of us—better understand these design processes and their ethical qualities, and feel enabled to critique or actively participate in these processes.

Design and ethics

In his seminal article ‘Upon opening the black box and finding it empty’, Langdon Winner (1993) expressed discontent with the lack of attention for moral questions that he found in many scholarly studies of the development or application of technology. He argued that, although these studies ‘have opened the black box and shown us a colorful array of social actors, processes and images therein, the box they reveal is still a remarkably hollow one’ (1993). At that time, many scholars were neglecting, ignoring or steering away from moral questions. In the twenty years since, there has been a growing interest in ethics in the field of STS, for example, in studies of the ethics that are at play in various design practices (e.g. Garrety and Badham 2004; Keulartz et al. 2004; Mitcham 1995; Shilton 2012; Van de Poel and Verbeek 2006; Verbeek 2006).

One approach to the relationship between design and ethics is Value Sensitive Design (VSD) (Albrechtslund 2007; Cummings 2006; Flanagan, Howe, and Nissenbaum 2008; Friedman and Kahn 2003; Nissenbaum 2005; Van de Poel 2009; Manders-Huits 2010). This approach argues that those involved in a design process attempt (intentionally or unintentionally) to embed specific values in the products or services that they develop and advocates making this embedding process more transparent, so that people can more consciously participate in this process. This notion is similar to the notion that designers create *scripts* (Akrich 1992; 1995; Oudshoorn, Rommes, and Stienstra 2004; Allhutter 2012; Van der Velden and Mörtberg 2012); they embed specific values into the products they develop and these embedded values subsequently influence what people can—or cannot—do with these products. Design can be understood as a material form of ethics (Verbeek 2005; 2006, 369). In VSD, one

focuses on values and on the ways in which, during the design process, different stakeholders can—or cannot—bring to the fore and take into account specific values.

Another approach to the relationship between design and ethics focuses on design as a social process (Bucciarelli 1994). Such an approach draws parallels between the process of design and the process of ethical deliberation. Whitbeck (1998), for example, advocated viewing ethical problems not as well-defined, rational decision problems, but as ill-structured, wicked problems (Rittel and Webber 1984), and approaching ethical problems via design thinking (Van Amerongen 2004; Dorst and Royakkers 2006 for critique and discussion of this argument). More recently, Devon and Van de Poel drew similar parallels, starting from the design-end of the design-ethics relationship. They argued that design is inherently a social activity and quintessentially an ethical process—‘Ethics is not an appendage to design but an integral part of it’ (Devon and Van de Poel 2004)—and advocated making these ethical qualities more explicit, for example, by examining ‘the social arrangements for making decisions’ during a design process, the ‘iterative social process for making technical and social decisions’. It is this approach that I aim to contribute to.

Below, I will study specific design projects and the social processes in these projects. The reason for focusing on the specific and the social follows from the character of design practices. Design practices are always specific, in that they are concerned with developing specific solutions for specific problems and always social, in that communication and cooperation are at the heart of design (Bucciarelli 1994; Devon 2004). This focus is in line with Van de Poel and Verbeek’s (2006) proposal to ‘perform a context-sensitive form of ethics’—to study people’s social practices within the context of specific projects.

In other words, I will open the ‘black boxes’ (Winner 1993) of several contemporary design practices. My studies are on the scale of project-teams (of 10 to 30 people) who cooperate with each other and with prospective users (for 2-3 years). As a consequence, the ‘black boxes’ that I opened were much smaller than Winner’s. Winner was typically concerned with larger systems and also with their political dimensions (Winner 1988).

Design practices

Below, I will use the terms human-centred design, co-design and participatory design to refer to approaches in design. These terms can be confusing since they are often used loosely or interchangeably. What these approaches have in common, is that they are

concerned with organizing cooperation with potential or future users or customers, organizing multidisciplinary teamwork and organizing an iterative process of research, design and evaluation. Furthermore, they aim to improve idea generation, product or service development, to promote creative cooperation and, ultimately, at to create products or services that match people's needs and preferences (Author et al. 2011). Below, the three terms are used as follows:

Human-centred design (HCD) is used to refer to a design approach that is based on four principles (ISO 1999; Author 2011): the active involvement of (prospective or potential) users throughout the process; the search for an appropriate balance of functions between people and technology; the organization of an iterative process of research, design and evaluation; and the organization of multi-disciplinary teamwork².

Co-design is used to refer to 'collective creativity as it is applied across the whole span of a design process' (Sanders and Stappers 2008)³. One might argue that all design is co-design, since design practices are always social practices (Bucciarelli 1994). The term co-design, however, is typically used to refer to relatively new forms of cooperation, for example across organizations (Chesbrough 2003) or with customers (Edvardsson et al. 2006).

Participatory design (PD) is used to refer to the 'Scandinavian' approach to information systems design (Bjerknes, Ehn, and Kyng 1989; Bjerknes and Bratteteig 1995; Ehn 1990; Greenbaum and Kyng 1991; Kyng and Mathiassen 1997), with its roots in projects in the 1970s and 1980s in which researchers and developers cooperated with workers to promote workplace democracy and workers' empowerment, so that 'the people destined to *use* the system play a critical role in *designing* it' (Schuler and Namioka 1993, xi).

These three approaches have in common the context of information and communication technology (ICT) development in which they emerged and in which they are currently practised. These approaches are used in the high tech industry in order to counter risks of technology push—of developing products or services that people cannot or do not want to use, which often occurs in the ICT industry.

² The term *human-centred design* is used rather than *user-centred design* because the latter tends to focus on a person only in her role as a user: 'The problem with usability based approaches is that they encourage a limited view of the person using the product. This is—by implication if not by intention—dehumanizing' (Jordan 2002, 12; cf. Buchanan 2001).

³ The term *co-design* is used here, rather than the broader term *co-creation*, which refers to 'any act of collective creativity, i.e., creativity that is shared by two or more people' (Sanders and Stappers 2008).

Design approaches that start with people's experiences, and which involve users in the design process, are needed because an inadequate understanding of people's needs and preferences is a key factor in the failure of innovations (Cooper 1999; Van der Panne, Van Beers, and Kleinknecht 2003). Companies and other organisations therefore embrace various approaches to cooperate with users. Such approaches are not unproblematic, however, and diverse caveats have been voiced: people may be unaware of their needs, unable to express their needs or unwilling to share their needs with an interviewer (van Kleef, van Trijp, and Luning 2005); designers can become prejudiced about users' needs when they involve them too frequently (Van der Panne, Van Beers, and Kleinknecht 2003); over-emphasising the findings from a small number of users can result in an over-customised product that will interest only a few (Stewart and Williams 2005); and paying too much attention to what users say may erode the role of the designer, whose vision and creativity are key for the design process (Hekkert and Van Dijk 2011).

These concerns are valid and should indeed be taken into account when organizing human-centred design, co-design or participatory design. 'Early involvement of users appears to be promising', remarked Kujala (2003), 'on the condition that user involvement methods are developed further and the roles of users and designers are carefully considered'. Her remark has been the cue for my studies of design practices.

Participant observation

My approach to study several specific design practices can be positioned in the tradition of laboratory studies (Latour and Woolgar 1986; Knorr Cetina 1995; Rip 2000; Woolgar 1991). My role can be described as *participant observation*—or maybe also as *observant participation* because of my intimate involvement in the practices studied (cf. Woolgar 1988; Ashmore 1989; Ellis and Bochner 2000). My primary role was to work in these projects, as a project-team member, in research, design and coordination roles. My secondary role was to study these projects. This combination of practice and analysis can be traced back to Bijker's (1993) advocacy for practitioners to reflect on their practices: to start from practices, to embark on an 'academic detour' and then to 'turn to practice' to make the research findings practically applicable.

In the three following sections, I draw from three ethical traditions to discuss specific design practices and different aspects of these practices: I discuss HCD by drawing from ethics-alterity and by focusing on face-to-face *encounters* between diverse people

(in the FRUX project); I discuss co-design by drawing from pragmatist ethics and by focusing on organizing *processes* of collaborative problem-setting and solution-finding (in the TA2 project); and I discuss PD by drawing from virtue ethics and focusing on the *virtues* that are needed in PD (in the WeCare project). The design practices studied in these projects are similar in that they were concerned with developing and evaluating ICT products and services, and that they involved cooperation between project-team members and (potential) users, for example in observations and interviews, creative workshops, user tests and user trials⁴.

The reason for choosing these three ethical traditions or perspectives is that they are typically concerned with specific and social practices, which seems to be appropriate for studying design *processes*, which are also specific and social, rather than drawing from deontological or consequentialist ethics, which can tend to focus on finding or applying general rules based on one's moral duties or on the consequences of one's actions respectively. Moreover, those approaches would typically focus on the inputs (duties) or outputs (consequence) of design processes, whereas I am currently interested in the processes themselves.

Interestingly, my approach to study these design practices can be characterized as a *designerly* approach (Cross 2006; Lawson 2006; Van der Lugt and Stappers 2006; Stappers 2007) in that I looked at current (design) practices, found them problematic, and imagined alternative situations (design) practices.

Ethics-of-alterity: Human-centred design as a fragile encounter

I looked at human-centred design (HCD) through the lens of *ethics-of-alterity*⁵. This term is used to refer to a type of ethics that takes the other and the relationships between other and self, as a starting point, with Emmanuel Levinas (1906-1995) and Jacques Derrida (1930-2004) as key proponents. Levinas wrote extensively about the encounter between other and self, and Derrida about *différance* and otherness⁶. In their *ethics-of-alterity* one always finds oneself within other-self relations, that is, within ethical relations.

⁴ See www.freeband.nl (FRUX), www.ta2-project.eu (TA2) and www.wecare-project.eu (WeCare).

⁵ This term was proposed by Simon Critchley to refer to the philosophies of Levinas and Derrida (email conversation, 16 February 2012) (cf. Critchley 1999).

⁶ For a discussion of Levinas's use of 'autre/Autre' ('other') and 'autrui/Autrui' ('Other'), see Critchley 1999, 8. For a discussion of Derrida's use of 'différance', see Derrida 1991, 59-79.

In a HCD project, people attempt to communicate and cooperate—which Levinas and Derrida would conceive of as encounters between other and self and as ethical situations. Let me attempt to deconstruct (cf. Derrida 1991) two key assumptions of HCD as a way to bring the ethical qualities of HCD to the fore, based on readings of Levinas and Derrida (see Author 2008 and 2012a for an application of this perspective to the FRUX project).

A key assumption in HCD is that project-team members can jointly learn new things—that they can gather and develop knowledge, for example, about prospective users and their needs and preferences. It can be hard, however, for project-team members, to be *open* towards *others* and to learn new things, for example, when they interact with prospective users in interviews or workshops. Throughout his oeuvre, Levinas was concerned with the difficulties of encounters between people and with the violence that so often occurs in these encounters. He argued that people tend to *not* see the *other* as *other*, but as an object, and to reduce the other to concepts that one is already familiar with: ‘The foreign being ... becomes a theme and an object. ... It falls into the network of a priori ideas, which I bring to bear, as to capture it’ (Levinas 1987, 48, 50). He characterized this tendency as the making of a grasping gesture. One pulls the other into one’s own way of thinking: ‘knowledge remains linked to ... the grasp’ (Levinas 1996, 152). Levinas described the *self*, ‘the I of knowledge’, as a ‘melting pot where every Other is transmuted into the Same’ (Levinas 1996, 13). In an attempt to develop knowledge, the *self* grasps the *other*, which makes it very difficult to learn anything new. HCD practitioners cannot escape this tendency. Their interests and ambitions, their knowledge and ideas—their *selves*—get in the way of their attempts to be open towards others. In workshops with prospective users, for example, project-team members tend to focus on topics that are comfortably close to their own ambitions to develop products or services, and they tend to ignore topics that are relevant for the others. In order to counter this tendency, Levinas envisioned an attempt to escape the gesture of grasping via a form of desire that is not aimed at satisfying the self and is respectful of the otherness of the other: ‘This desire without satisfaction hence takes cognizance of the alterity of the other’ (Levinas 1987, 56).

Another key assumption in HCD is that the people involved can organize iterative phases of divergence, towards openness, and of convergence, towards closure. Project-team members not only need to be open towards others, they also need to draw conclusions and to deliver results. And the making of decisions is critical for the latter,

to create closure and to make progress. Derrida remarked that genuine decisions are ‘exceptional’ decisions: ‘a decision that does not make an exception, that does nothing but repeat or apply the rule, would not be a decision’ (Derrida 2001, 29). One cannot make a genuine decision by merely applying knowledge or simply following rules: ‘It is when it is not possible to *know* what must be done, when knowledge is not and cannot be determining that a decision is possible as such. Otherwise, the decision is an application: one knows what has to be done, it’s clear, there is no more decision possible; what one has here is an effect, an application, a programming’ (Derrida 1995, 147-8). Furthermore, Derrida observed that people often attempt to *program* innovation and argued that this can lead to ‘the invention of the same’ (Derrida 1989, 46, 55). Because of this tendency to *program* innovation, one tends to stay within one’s own comfort zone, which makes it hard to create anything genuinely new. Again, HCD practitioners cannot escape this tendency towards closure. Their skills and methods, for example, their interview checklists or standard questionnaires, help them to move towards closure, to make decisions—to *program* innovation. In order to attempt to find a balance between openness and closure, Derrida advocated welcoming the other: ‘To invent would then be to “know” how to say “come” and to answer the “come” of the other’ (Derrida 1989, 56). This would be an active form of passivity because it requires an effort to not make the other into a theme within one’s own program.

There are different methods to organize HCD, to move between others and self, and between openness and closure. One can imagine different methods, ranging from methods that facilitate the move of researchers/designers towards users and their experiences, to methods that facilitate the move of users towards researchers/designers and their practices, and ranging from methods that focus on ‘what is’, on understanding current/problematic situations, to methods that focus on ‘what could be’, on envisioning alternative/desirable situations (Author 2011; Sanders and Stappers 2008).

We can see HCD as an fragile *encounter* between people, involving attempts to develop knowledge and an associated tendency to *grasp* the other, and attempts to make decisions and an associated tendency to *program* innovation.

Pragmatist ethics: Co-design a process of joint inquiry and imagination

I turned to philosophical pragmatism to discuss the process of co-design. Pragmatism emerged in the USA in the late 19th century, with key figures such as William James, C.S. Peirce and John Dewey. Below, I will focus on texts by Dewey (1859-1952)

because his perspective seems to be relevant indeed to a discussion of technology, engineering and design (Hickman 1990; Emison 2004; Melles 2008; Dalsgaard 2009). A key theme in his work was the productive combination of practice and theory, and his advocacy for an ‘empirical method’ of moving back and forth between practices (‘primary experiences’) and reflections (‘secondary experiences’) (Dewey 1965, 36). In contrast to mainstream views on science as a search for universal knowledge, Dewey contended that knowledge is always provisional, ‘particular’ and ‘contingent’, rather than ‘universal’ and ‘necessary’ (Dewey 1920, 78). Another key theme in Dewey’s work was his meliorism: ‘the belief that the specific conditions which exist at one moment, be they comparatively bad or comparatively good, in any event may be bettered’ (Dewey 1920, 178). He advocated cooperation and empowerment to bring about positive change. His focus on practical experiences and his focus on promoting positive change converged in his ideas concerning inquiry (Hickman 1998). People can engage in a process of joint inquiry in order to understand their current situations, to imagine more desirable situations, and to cooperate in their realization. Dewey envisioned a process of moving from a situation of perplexity to towards some sort of resolution: ‘Inquiry is the controlled or directed transformation of an indeterminate situation into ... a unified whole’ (Dewey 1938, 104-105).

Interestingly, co-design follows a similar process; it involves collaborative design thinking (Dorst 2011), that is, a process of collaborative problem-setting and collaborative solution-finding. The ‘design process involves finding as well as solving problems’ (Lawson 2006, 125) and the ‘problem and solution co-evolve’ (Cross 2006, 80) during a design process. A co-design process can thus be understood—using Dewey’s vocabulary—as a process of joint inquiry and imagination (see Author 2013 and Author et al. 2013 for an application of this perspective to the TA2 project).

Dewey saw inquiry and imagination as processes with ethical qualities. Moral experiences were Dewey’s starting point and empowering people to cope with moral questions was his primary goal: ‘For Dewey, social and political philosophy—and not metaphysics or epistemology—is First Philosophy’ (Stuhr 1998, 85). Likewise, I would like to understand co-design as a process of ‘moral inquiry’, which proceeds ‘by dialogue, visualization, imagining of motor responses, and imagining how others might react to a deed done’ (Hildebrand 2008, 77; cf. Lloyd 2008).

Dewey conceptualized this process of inquiry and imagination as consisting of five phases (Dewey 1938, 101-119), which are ideally organized as an iterative process.

Below, phases 1 and 2 (problem exploration and definition), phase 3 (combining perception and conception) and phases 4 and 5 (trying out and evaluating possible solutions) are briefly discussed in relation to co-design:

Problem exploration and definition. At first, people experience a specific and concrete situation as problematic, without yet knowing what is precisely problematic about it. Dewey stressed that personal and subjective experiences are critical for the start of an inquiry process, to make the situation ‘questionable’. Expressing and sharing these experiences are critical: ‘inquiry is not a purely logical process—feeling is a useful and orienting presence throughout each phase’ (Hildebrand 2008, 57). A provisional problem definition is formulated, which can later be restated and refined. The ethics of co-design occur when participants express and share their experiences and empathize with others—when they engage with questions such as: *What do I find problematic about this situation?* or *In what direction should we look for possible solutions?*—questions which Dewey would have found ethical.

Perception of the problem and conception of possible solutions. In an iterative process, the problem and possible solutions are simultaneously explored and developed: ‘Observations of facts and suggested meanings or ideas arise and develop in correspondence with each other’ (Dewey 1938, 109). Dewey proposed that problems are best explored using *perception*, one’s capacities to see, hear, touch, smell and taste, and that solutions are best developed using *conception*, one’s capacities to imagine and envision alternative situations. The ethics of co-design occur when participants use their capacities for perception, for example when they engage with visuals that are related to the problem (Sleeswijk Visser 2009), or when they use their capacities for conception, for example when they engage in joint creativity (Sanders 2000). Ideally, this involves ‘moral imagination’ or ‘dramatic rehearsal’ (Fesmire 2003, 55-91), so that co-design participants can imagine or rehearse current/problematic situations or alternative/desirable situations and ask ethical questions, such as: *How does this problematic situation feel like?* or *How would this solution be better than the current situation?*

Trying-out and evaluating solutions. Ideally, the people involved in a co-design process can explore and (re)define the project’s scope and boundaries and critically and creatively discuss the project’s means and ends, and their relationships. This can help to generate innovative ideas and solutions, for example by re-framing the project (making

it bigger or smaller) or by focusing on ends, rather than on means⁷. Moreover, they need to carefully negotiate and constructively cooperate in order to bring the project to successful completion. They need to express and discuss their respective roles and interests, and find ways to combine these creatively and productively, so that they can deal with even ‘deep-seated and fundamental value conflicts’ (Keulartz, Schermer, Korthals, and Swierstra 2004) and develop solutions that work for all of them. The ethics of co-design occur when the people involved try-out different solutions, critically discuss the project’s scope and boundaries, and negotiate their different roles and interests. This would help them to explore questions such as: *What should be our project’s scope?* or *What solution will work for me, and for the others?*

We can understand co-design as a process of *joint inquiry and imagination*, a process with ethical qualities, in which people use ‘the power of intelligence to imagine a future which is the projection of the desirable in the present, and to invent the instrumentalities of its realization’ (Dewey 1917, 69).

Virtue Ethics: Participatory design and the virtues of cooperation, curiosity, creativity and empowerment

For my discussion of participatory design (PD), I drew from virtue ethics, one of the oldest ethical traditions in Western culture, dating back to Aristotle. Virtue ethics focuses on the practicing and cultivating of virtues, and aims to enable people to flourish (*eudaimonia*). Virtue ethics is teleological in that it starts with an ultimate goal (*telos*): the goal for people to flourish—to live the good life. Virtues are ‘dispositions not only to act in particular ways, but also to feel in particular ways. To act virtuously ... is to act from inclination formed by the cultivation of virtues’ (MacIntyre 2007, 149).

In virtue ethics, one aims at finding an appropriate *middle* between deficiency and excess, given the specific circumstances. For example, the virtue of courage would be an appropriate middle between cowardice and recklessness, and would play out differently for different people in different circumstances. Finding this middle ‘requires therefore a capacity to judge and to do the right thing in the right place at the right time

⁷ In the high tech industry, there is a tendency to privilege means over ends—or, as Thackara (2006, 189) observed: ‘We’ve constructed ourselves an industrial system that is brilliant on means, but pretty hopeless when it comes to ends’.

in the right way' (MacIntyre 2007, 150). It must be noted that finding this middle is concerned with striving for excellence (*arete*) (not with mediocrity or moderation), and with cultivating well-formed types of natural desires (MacIntyre 2007, 160) (not with countering desires). This resonates in the word *virtuoso*, which refers to a person who does something very well. One can learn to think, feel and act virtuously by trying-out virtuous behaviours or by looking at people who behave virtuously.

I would like to propose that *cooperation, curiosity, creativity and empowerment* can be understood as important virtues that are needed in PD. This proposal is based on a reading of key PD literature. In addition, and in the spirit of virtue ethics—which is concerned with specific people in concrete situations (Pritchard 1998)—I will illustrate these virtues with practical examples from one PD project (see Author 2012b for details of an application of this perspective to the WeCare project).

Cooperation is at the core of PD (Kensing and Blomberg 1998; Bjerknes and Bratteteig 1995; Bratteteig and Stolterman 1997). A PD virtuoso will promote cooperation, with care, patience and attention for group dynamics, which will enable people to engage in *cooperative curiosity* and *cooperative creativity* (see below). She aims for a middle between the *deficiency of neglecting* the subtleties of group dynamics and cooperation, and the *excess of controlling* people and forcing them to cooperate in a top-down manner. This virtue is critical for all people in a PD project and especially for those in management or leadership roles. The project manager of the WeCare project, Sharon, could serve as an example to illustrate of the virtue of promoting cooperation. In her role of project manager, she has been organizing many project-team meetings. On several occasions, she organized relatively long lunch breaks during these meetings, including walks outside. She encouraged project-team members to take time for socializing and relaxation. This seems obvious. However, it is often forgotten in projects, for example, when a lot of work needs to be done. Sharon understood that especially in such cases, one needs to invest in nurturing mutual understanding and trust, in order to promote cooperation.

The virtue of cooperative curiosity is a disposition of being open and receptive towards other people and their experiences, and towards one's own experiences and learning. Typical methods to promote curiosity in PD are mutual learning (Bødker et al. 1987; Bjerknes and Bratteteig 1987) or ethnography (Blomberg et al. 1993; Button 2000). A curiosity *virtuoso* aims for a complex middle between the deficiency of too little sensitivity to other people's or one's own experiences, and the excess of too much

receptiveness to other people's or one's own experiences. On several occasions, project-team member Jannie has acted as a curiosity virtuoso, explaining to her fellow project-team members that the words one uses to talk about prospective users determine one thinks and feels about them. When we say, for example, 'Older people find it hard to use computers', we create stereotypes. In order to counter that tendency, Jannie organized meetings between project-team members and prospective users, which helped to promote empathy and cooperative curiosity.

The virtue of cooperative creativity is a disposition of jointly generating ideas, combining ideas of different people, and of practically realizing ('making real') products or services. Typical methods to promote creativity in PD are Future Workshops—in which people jointly engage in Critique (of the current situation), Fantasy (about more desirable alternatives), and Implementation (and short-term actions) (Kensing and Madsen 1991)—or cooperative prototyping (Bødker, Ehn, Kammersgaard, Kyng, and Sundblad 1987; Ehn and Kyng 1991). A creativity *virtuoso* manages to find a middle between the deficiency of too little attention for other people's or one's own ideas, and a middle between the excess of too much realization of other people's or one's own ideas. Stefan's way of staying calm and promoting dialogue in the project is an example of this virtue. Stefan has been responsible for coordinating technology development. When there was a conflict between project-team members about the technology (not delivered on schedule and not meeting 'user requirements'), he stayed calm and invited other project-team members to talk constructively with each in order to find creative solutions for this situation. Stefan promoted dialogue and cooperative creativity.

A PD virtuoso also needs the virtue of empowerment, to share power with others and to empower others. She can do that by aiming for a middle between the deficiency of being passive and hesitant (e.g., hoping that people will cope without help), and the excess of being patronizing and directive (e.g., hoping that people will prosper if they follow your advice). In the PD tradition, the *tool perspective* has been key to empower workers: 'The idea is that new computer-based tools should be designed as an extension of the traditional practical understanding of tools and materials used within a given craft or profession' (Ehn 1993, 57). The tool perspective respects people's tacit knowledge and skills, and enables them to contribute actively and creatively to the development of tools which they will be using. The virtue of empowerment can be illustrated with an example of Thackara (1999), at that time project manager of the Presence project, which

aimed to develop user-friendly Internet services for older people (similar to the WeCare project). This is what he wrote about the project-team members' first encounter with their target group:

Someone said, "There are a lot of older people out there; let's see if we can find some and help them by giving them this Internet stuff in an easy-to-use format". So we went and found some older people and told them how we had come to help them with the Internet, and they said, "Piss off! ... We don't need your patronising help, you designers. If you've come here to help us, you're wasting your time; we don't want to be helped, thanks just the same. Yet we do have some interesting observations to make about our daily lives, about our lifestyles, about our communication, and about all of their attendant dysfunctions. If you could kindly change your attitude and help us explore how we will live, then perhaps we can do something together"

Rather than creating a product and then bringing it to 'users', an empowerment virtuoso aims to promote cooperation en to share power with 'users', empowering them to become active participants and creative contributors (rather than passive receivers—which is why there are quotes around 'users'), so that they can jointly create tools that people want to use and are able to use.

In sum, PD is concerned with enabling prospective users to participate in research, design and evaluation, and those involved need to foster the virtues of cooperation, curiosity, creativity and empowerment.

Reflexivity

In addition, I would like to propose that people who participate in contemporary design practices need to make explicit the ethical qualities of their practices. The ethical qualities are there anyway and are influencing the social process of design anyway. Sometimes negatively, for example, when participants experience misunderstandings, frictions or conflicts. And sometimes positively, for example when participants experience the joys of meeting others, cooperation, learning and creating.

In both cases, it would be productive when participants can cope with these inherent ethics more explicitly and consciously. Moreover, I would like to propose that they can do that by embracing reflexivity. The term *reflexivity* is used here to refer to a type of reflection on practices in which one is actively involved and on one's own involvement

in these practices (cf. Weick 2002; Author 2011)⁸. The function of such reflexivity would be to enable design practitioners to reflect critically and creatively on their own practices and to enable them to alter their practices in directions that they see as more desirable—to re-design their design practices, one might say.

Similarly, Stovall saw reflexivity, or ‘professional self-awareness’ (2011, 110), as ‘a sort of master virtue that fosters the reflective deliberation necessary for a professional to pursue their work in an aspirational frame of mind’ (2011, 125). Reflexivity involves ‘exposing or questioning our ways of doing’ (Hibbert, Coupland, and MacIntosh 2010). It ‘turns the settled into the unsettled’, ‘induces pauses and reflections’ and has the potential ‘for turning tensions into opportunities, contradictions into resources, and problems into riches’ (Orr and Bennett 2009). Reflexivity is about ‘examining critically the assumptions underlying our actions [and] the impact of those actions’, which can help to ‘develop more collaborative, responsive, and ethical ways of managing organizations (Cunliffe 2004). Moreover, there can be ‘team reflexivity’, in which project-team members jointly ‘reflect upon and modify their functioning’ (Widmer, Schippers, and West 2009).

Through reflexivity, one can become more aware of one’s moves between other and self, and between openness and closure, for example in face-to-face meetings (ethics-of-alterity), of the ethical qualities of communication and cooperation processes, for example in project management (pragmatist ethics), and of one’s own dispositions to think, feel and act in specific ways, for example in interactions with others (virtue ethics).

Now, how could one promote such reflexivity amongst design practitioners? Probably not by simply asking them to be reflexive. Rather, one could try to promote reflexivity by promoting questioning. Rhodes (2009), for example, proposed an ‘ethical response to reflexivity ... that asks questions rather than provides answers; that refuses the hubris of generalizations; that provokes thinking rather than provides answers; that generates possibilities rather than prescriptions; that seeks openness rather than closure’. Ideally, design practitioners can engage in dialogic conversations, which provide room for empathy, which promote a subjunctive mood and which allow for some amount of

⁸ Such a type of reflexivity, in which practitioners reflect on their own practices and their involvement in these practices, may be (somewhat) different from a type of reflexivity in which researchers need to engage when they are involved in the practices that they study (Ashmore 1989, Woolgar 1988, Ellis and Bochner 2000). Discussing such differences, however, is beyond the current argument’s scope.

indirection (Sennett 2012, 14-24). They could, for example, ask questions like the following:

What is happening here and now? How am I moving between other and self, between openness and closure? What do I think? What do I feel? How are we using our capabilities for perception and for conception? How are we defining the problem? What type of solutions are we looking for? How is cooperation? Am I promoting curiosity or creativity? Are we sharing power? What could we do differently?

Engaging with such questions would design practitioners to understand their practices' potential for creative cooperation, so that they can jointly develop products and services that people are able and willing to use, so that they indeed serve people. Reflexivity—an awareness of one's *praxis* and one's involvement—can thus be drive for positive growth, for developing and improving one's *praxis*.

A positive drive

Finally, I would like to propose that design has a positive drive—or more precisely: that design *often* has a positive drive, or that design *can* have a positive drive. Design practitioners often have positive motivations to bring about positive change—to learn, to create and to contribute. They aim to move from understanding and evaluating 'what is' towards envisioning and realizing 'what could be' (Author 2011). They aim to be open towards others and to serve others with their knowledge, ideas, methods and skills. They organize communication and cooperation in order to move from problematic situations towards more desirable ones. And they aim to practice cooperation, curiosity and creativity. Moreover, they develop tools for other people, with the goal to empower these other people. This paragraph focused on the positive side of design.

Nelson and Stolterman (2003) similarly wrote about design as 'the first tradition': people have always been designers. They proposed that design brings together people's strivings for the real, the true and the ideal, and is, at its core, about serving others. There are, obviously, also other ways to understand design. Papanek (1991, ix), for example, proposed that 'There are professions more harmful than industrial design, but only a very few of them', referring to the contribution of design to producing products that people do not really need—products which, moreover, consume materials and energy and cause pollution and waste.

As a participant in design practices, I tend to want to combine negative and positive perspectives—similar to Thackara's premise: 'If we can design our way into

difficulty,’—with which he refers to building ‘a technology-focused society’ with its diverse technology-related problems—‘we can design our way out’ (Thackara 2006, 1).

Conclusions

Above, I have explored the ethical qualities of contemporary design processes, using different ethical perspectives.

Through the lens of ethics-of-alterity, I looked at encounters between diverse people in human-centred design and at the ethical qualities of these encounters—the moves they make between other and self, and between openness and closure. These ethics occur in face-to-face encounters, for example, in project meetings or workshops with users. Levinas and Derrida drew attention to our tendency to *grasp* the other (in developing knowledge) and to *program* innovation (in making decisions), and suggested ways to counter these tendencies: to be open towards *others* (desire) and to welcome *otherness* (passivity).

Using a pragmatist perspective, I looked at the ethical qualities of co-design, which was characterized as collaborative design thinking, as consisting of iterative and intertwined processes of problem-setting and solution-finding. Dewey’s ideas about joint inquiry and imagination brought to the fore the ethical qualities of perception, empathy and articulating a problem, and of conception, creativity and developing solutions. These ethics occur, for example, on a project management scale, over the course of a project’s phases, and in meetings and workshops.

Drawing from the tradition of virtue ethics and from key texts in the tradition of participatory design (PD), I argued that the virtues of promoting cooperation, cooperative curiosity, cooperative creativity and empowerment are needed in PD practitioners. Those that are involved in PD projects need to find appropriate means for each of these virtues—depending on each specific and concrete situation. That way, they can practice and cultivate these virtues, so that they can become PD virtuosos. This perspective is directly related to individual people’s thoughts, feelings and actions.

My attempt has been to develop a ‘middle range’ theory (Wyatt 2007) of the ethical qualities that are inherent in contemporary design practices, in order to contribute to a further understanding of the relationship between design and ethics. My findings can be integrated and summarized as follows—see Table 1:

Table 1. Ethical qualities that are inherent in contemporary design practices

<i>Design practice</i>	<i>Human-centred design</i>	<i>Co-design</i>	<i>Participatory design</i>
<i>Ethical perspective</i>	<i>Ethics-of-alterity</i>	<i>Pragmatist ethics</i>	<i>Virtue ethics,</i>
<i>Aspect of design practice</i>	<i>Face-to-face encounters and meetings</i>	<i>Project management and meetings</i>	<i>Individual people's feeling, thought, actions</i>
<i>Cooperation as the basis</i>	Encounters between other and self	Process of collaborative design thinking	Cultivating the virtue of cooperation
<i>An inward-directed move</i>	Develop knowledge: attempt to be open to the other	Joint inquiry: perception, empathy and problem-setting	Cooperative curiosity: openness, empathy and joint learning
<i>An outward-directed move</i>	Make decisions: attempt to balance openness and closure	Joint imagination: conception, creativity and solution-finding	Cooperative creativity: developing, realizing and trying-out ideas
<i>Reflexivity</i>	Awareness of moving between other and self, and openness and closure	Awareness of ethical qualities of communication and cooperation	Awareness of one's thoughts, feelings and actions, in each specific situation
<i>A positive drive</i>	Openness to others, welcome to otherness	Bringing-about positive change and empowerment	Empowerment, sharing power and agency with others

- Contemporary design practices are based on cooperation: on encounters between diverse people, for example, cooperation between people with different backgrounds and with (potential) users; on organizing processes of collaborative design thinking, communication and cooperation; and on cultivating the virtue of cooperation.
- There is an inward-directed move, from other people and from the world outside towards one's inner world: when people develop knowledge (attempt to be open to the other); when they use their capacities for perception and empathy to understand the problem; and when they engage in cooperative curiosity and joint learning.
- And there is an outward-directed move, from one's inner world towards other people and towards the world outside: when people make decisions (attempt to balance openness and closure); when they use their capacities for conception and creativity to imagine solutions; and when they engage in cooperative creativity and try-out ideas.
- Through reflexivity, design practitioners can become more aware of their practices and their own involvement in these: of the ways in which they moves between other

and self, and between openness and closure; of the ethical qualities of communication and cooperation; and of their own thoughts, feelings and actions.

- Design practices typically have a positive drive: the people involved aim to be open to others and to welcome otherness; to bring about positive change and to empower other people; and to share their power and agency with others.

The role of design has always been to shape technologies, products and services, and its potential has always been to do that with positive intentions, to serve people and society (Nelson and Stolterman 2003). Looking at the current needs of our societies, which range from health and education to safety and sustainability, I would like to propose, with many others, that design can play a role in helping to solve society's problems, to empower people to live more fulfilled lives and to promote wellbeing (Buchanan 2001, Margolin and Margolin 2002, Nieuwsma 2004, Oosterlaken 2009, Van de Poel 2012).

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