Reflexive Practice in Human Centred Design

Marc Steen

(This essay is prefaced by an abridged extract from the introduction to The Fragility of Human-Centred Design 1 Marc Steen's PhD thesis, in the form of fictional dialogues between the author, his colleagues and his research supervisors 2 – ed.)

INTERIOR, CONFERENCE ROOM, DAYTIME
A conference room at TNO, a research organization. The walls are light grey, the carpet is dark grey. Several people are sitting at tables arranged in a U-shaped rectangle: ERIK, VALERIE, JAN, ANGELIEN and MARC.

MARC: ⋯. Together with a number of colleagues, we try to apply human-centred design ⋯. The idea is to talk with users about their practices, needs and preferences, and to jointly envision, create and evaluate future products with them and for them. ⋯
Ideally, the findings from human-centred design efforts steer a project, but in practice they are often overruled by technological considerations, for example when we make a priori choices for or against a certain technology which then tend to steer the project, or by economic considerations, for example when solutions are evaluated in short-term financial terms which overrule other concerns. We may do field studies, interviews and workshops together with users to create a design that we expect people to like and use, but if the project's client or commissioning party wishes to do something else, he or she can just do that. Human-centred design is only one of the forces influencing the project, and often a weak one
....We call our approach participatory, as in participatory design, but how much user participation do we actually allow? I mean, if I set the agenda in a workshop with users then they participate only within my agenda, the chances are that I do not listen to what really matters to them. And how much empathy – as in empathic design, do I actually have with users? If, in an interview, I ask only questions within the scope of what I am interested in, and if I focus on the

interviewee's role as the user of one specific product, I will tend to neglect this person's other roles and experiences.

Those are the reasons why I became interested in studying the practice of human-centred design; to see how that practice differs from the theory and principles of human-centred design. My goal is to describe what researchers and designers do when they interact with users and within their project-team ··· My empirical study will be based on participant observation in projects in which I am involved: one with/for police officers and another with/for informal carers.

ERIK: ··· What I would like to see as a result of your research are recommendations for practice. For example: if you follow approach X in your project, then this will happen. And if you follow approach Y, then something else will happen. ···

MARC: ··· I did consider formulating hypotheses and evaluating them empirically, but I decided not to do that. I will not be doing experiments or evaluations. I will 'simply' try to describe human-centred design practices in one project. I am putting quotation marks around 'simply' to indicate that 'merely' describing interactions between people and decision-making processes can be enough of a challenge. My goal is to provide descriptions, rather than prescriptions. ···

VALERIE: ··· I would encourage you to not think about applications too soon. Instead, I would suggest that you define what you wish to contribute to the field of Science and Technology Studies. You are going to study empirically what researchers and designers do ··· I suggest that you take several concepts from STS and then formulate a research question ···

MARC: I appreciate your suggestion. In my research proposal I refer to two concepts from STS. One relates to 'configuring' the user (from Woolgar2) which is about how researchers or designers articulate – sometimes explicitly but more often implicitly – an image of a user and then design a product for that person. Another is 'scripts' (from Akrich [3]), which is about how researchers or designers incorporate their ideas about what a user looks like and does – or more precisely, what they think a user should be like and should do – into the product they are developing·······.

JAN: ···. . One of the things that I like in your proposal is your observation that researchers and designers very often take themselves as examples when they envision users and what users will do with their products. They create fictional

personas and storylines that look just like them, with highly-educated, reasonably well-off people of around 30 years old. You rarely see storylines featuring 60 year-old ladies, for example.

MARC: That's right. I once made a small collection of personas and storylines and it occurred to me that the main characters are 20 to 30 year-old men who rush from meeting to meeting, hop in and out of taxis and airplanes, and bark orders into their mobile phones. This set me thinking. Do these people represent users, or are they models for the researchers and designers themselves? ⋯ I see these practices as instances of configuring or scripting users.

ANGELIEN: ⋯ I would like to see some kind of evaluation by users of the products that you design. What do they think about what you created for them? Ask the police officers and informal carers to talk about whether they recognize themselves in your conclusions and whether they appreciate the products that you create for them.

MARC: ⋯ Well, in many projects I am interested in users and in their perspectives, needs and preferences, but in the context of this thesis my primary objective is to study what researchers and designers do.

Several COLLEAGUES and FELLOW PROJECT-TEAM MEMBERS open the door. They look surprised and ask, almost in unison: You are not interested in users?

MARC: No, I'm afraid not. In the project I'm studying we are interested in what users do. But in this study of the project, I am primarily interested in what researchers and designers do, including how they interact with users, how they speak and write about users, and how they represent users in their decision-making at project meetings. Users only appear in so far as researchers and designers interact with them and talk and write about them. ⋯ I did consider the option of interviewing the police officers and the informal carers whom we interviewed or did workshops together with in order to learn about their perspectives. But I decided not to do this because it would suggest that I follow a positivist approach – as if there is a 'real' reality out there that I can study objectively – and I don't want to follow such a paradigm. Instead, I chose to follow a social constructionist approach.

INTERIOR, SMALL OFFICE, DAYTIME

One year later. A small office at Delft University of Technology. Large, colourful posters are on the walls, piles of books are lying around. Three people enter the room, carrying plastic cups with coffee, and sit themselves down: HUGO, JAN and MARC.

JAN: So, now we have our coffee. How are you, Marc?

MARC: Fine. I would like to talk with you about my research.

JAN: Right. Well, if you'd like to go straight to business, that's fine with me. I've read your texts, but somehow I am still missing what you are interested in. I mean, could you say simply and straightforwardly what you are curious about?

MARC: Well, I am critical of the way we practise human-centred design. I would like to provide an account of human-centred design practice in a single project. My goal is to open the 'black box' of human-centred design and to show what normally remains hidden. ….

… I borrow concepts such as other and self and openness and closure from Levinas and Derrida in order to look at such practices in a different way. I believe that researchers and designers who try to conduct human-centred design are already moving between other and self and between openness and closure, but that they are not very aware and not very explicit or articulate about these moves. Practitioners rarely discuss these movements or take them into account when they organize and conduct their projects. A human-centred design project is often organized as if it is an engineering project or a scientific study: as a linear project through which one proceeds via analytic procedures. …

HUGO: You say you wish to write about self-other relationships. But in the texts you have written so far, you never talk about self-other. You write about project goals and the professional roles of project team members. You never write about people's identities or about how they establish and negotiate their identities and their relationships with each other. Another thing that strikes me is this: the users are never there! You talk about them, but they are never actually present.

MARC: … Are you criticizing the way in which I organize and conduct the project? That we don't allow users to participate? Or are you criticizing how I am conducting my study? Is it that I don't pay proper attention to self-other? Or that I

don't write properly about self-other? Or do we have a different conceptualization of what human-centred design is about? That would be in line with my main argument, namely that human-centred design practice can be puzzlingly different from human-centred design principles, and that researchers and designers indeed find it difficult to give users a voice or role in their projects.

HUGO: ··· you don't write about self-other. For example, if you were writing about self-other, then you would be writing about your own role, about your relations to others, and about how you position yourself towards the people you work with. You would need to write reflexively! ···.

JAN: What I noticed in our previous conversations is that, when you speak with us, you can sometimes be open and personal and, for example, speak reflexively about how you feel, what you are interested in, what you find important, what kind of frictions you experience. But somehow it seems to me that, as soon as you start to write, the warmth disappears and ice cubes are added to your words, so to speak. Your writing seems so much colder than the way you sometimes speak.

MARC: I do recognize what you say and I don't feel happy about that. I wish I was able to write about what I think and feel in the same way that I can sometimes speak about what I think and feel. Levinas wrote about the difference between the 'Saying' – what one is able to say and what can sometimes happen between people – and the 'Said', the written text about what happened between people. What I write is always a reduction, a 'residue' of what happened between people, between other and self.

HUGO: If you mention Levinas, then you must realize that for Levinas your relationship to the other is not a matter of choice. The other and the relation between other and self are ontological. You cannot choose. You write about the possibility to do human-centred design, the choice to give the other a role in your project. But for Levinas, the other is already there. You cannot choose. The whole assumption behind human-centred design and the way the other is approached seems to be very superficial and very instrumental. Now that would be interesting to write about.

MARC: I think I understand what you say ... I agree with you that I cannot choose to do human-centred design ethically or not; when one does human-centred design, one finds oneself in ethical relations to others. However, I think that I can

and must make decisions about how I want to try to act in these relationships. Levinas wrote about the other who puts me in a position of responsibility – I have to respond – and about how this responsibility enables me and forces me to choose how to act; this responsibility constitutes my freedom.
HUGO: Well, sort of.4

This essay explores the idea that, for human-centred design (HCD), the concept of reflective practice needs to be complemented or enriched by reflexive practice. It will be argued that designers not only need to reflect on the conversation that they have with the design situation's objects and materials, but that they also need reflexivity: they need to reflect on the conversations with other participants in the HCD process, for example, users or co-workers, and on their own, active involvement in these conversations.

1. Introduction

The notion of reflective practice was introduced by Donald Schön as a way to discuss the role of knowledge in professionals' practices; his goal was to develop an 'epistemology of practice'.5 Schön observed that many professionals are able to productively combine doing and thinking: they engage in 'a kind of knowing' that 'is inherent in intelligent action' ('knowing-in-action')6; they 'think about what [they] are doing' ('reflecting-in-action')7; and they reflect on the range and variety of their experiences in order to 'make new sense of the situations of uncertainty or uniqueness' and to 'cope with the troublesome "divergent" situations of practices' ('reflecting-in-practice').8

Schön envisioned reflective practice as a 'conversation with the situation' in which, for example, a designer engages in a conversation with the objects and materials of a situation, and reflects on that conversation. He provided the example an architect designing a building that will sit on a hill; this architect reflects on the slopes of the hill and deliberates different problems that this situation poses and simultaneously explores different possible solutions.

I will explore the idea that, for human-centred design (HCD) reflective practice needs to be complemented or enriched—but not to be replaced—by reflexive practice. The term HCD is used here to refer to a range of approaches such as participatory design[9], ethnography[10], empathic design[11] or co-design.[12] Although different people use the term differently, HCD can be characterized using four principles: 1) actively involving potential users for a clear understanding of their behaviour, needs and preferences; 2) finding an appropriate allocating of functions between people and technology; 3) organizing iterations of research, design and evaluation; and 4) organizing multi-disciplinary team work.[13]

In HCD, diverse participants—designers, researchers, potential users and others—communicate and cooperate in order to jointly learn and jointly create. In such a process, HCD practitioners not only need to engage in conversations with the situation's objects and materials and need to reflect on these conversations; they also need to engage in multiple conversations with diverse participants and need to reflect on their own, active involvement in these conversations. I would characterize reflexivity as an approach in which one reflects on situations in which one is actively involved and on one's own, active involvement in these situations.

In what follows, I provide an account of how I encountered reflexivity while studying HCD projects in which I was actively involved (section 2). Next, I explore ways in which one could engage with reflexivity as a practitioner by discussing several situations in which I found myself while working in these projects (section 3). I then discuss several fields of social science in which reflexivity occurs as part of the research process and explore ways in which similar forms of reflexivity can be related to one's practices (section 4). Finally, I propose ways for HCD practitioners to engage with reflexivity and briefly discuss the ethics of reflexive practice (section 5).

2. Combining practitioner and analyst roles

While working in HCD projects for some years, I have noticed that we do not always live up to the principles of HCD. For example, we find it hard to give users active and creative roles, to give agency to them in our projects. Or we stay within our own comfort zones and stick to our own plans and ideas, rather than letting others influence our projects. We tend to want to be in control. In order to better understand such differences between practices and principles, I studied two HCD projects as participant observer.[14] My primary roles in these projects were practitioner roles: I worked as a designer, e.g., when I made sketches for the applications' interaction design; as a researcher, e.g., when I interviewed police officers as part of our research; and as a manager of parts of these projects, e.g., when I organized project-team meetings. The role of studying the projects was secondary, although this role developed over the project's course.

In these projects, two different teams of researchers and designers from several organizations cooperated with each other and with two user groups in order to develop telecom applications for these user groups. One team developed a telecom application in cooperation with police officers, specifically, community police officers and emergency police officers that work on the streets. The other team developed a telecom application in cooperation with people who provide 'primary' informal care to people who suffer from dementia and who live at home, often their spouses. The projects were based on two ideas: on a content-level the goal was to develop a telecom application that would help people to communicate and cooperate better; and on a process-level we chose to follow a HCD approach and to cooperate with potential users.

During the process of working in these projects and simultaneously studying them, my approach shifted from action, to description, to reflexivity. These shifts have been described by Easterby-Smith et al. to discuss different research approaches, in terms of: 1) a horizontal axis that contrasts positivist approaches, in which researchers start with the idea that they are able to study phenomena external to them, and social constructionist approaches, in which researchers start with the idea that they participate in the phenomena that they study; and 2) a vertical axis that contrasts detached and involved roles that that can be adopted during the process of conducting research.[15]

I started my study from a position of action. Coming from an engineering background, I had the tendency to improve things—be it products, services or practices. I wished to apply HCD methods, in order to create products or services that better match people's needs and to improve our HCD practices—and maybe also further improve HCD methods. Such an approach would typically be based on a positivist idea of studying external phenomena and would require an involved researcher role. I could, for example, choose to organize experiments within our HCD project-teams and manipulate the projects' conditions in order to experiment. However, I soon realized that such an approach would not work for me because I would have to treat my fellow project-team members as lab rats, which I would find hard to combine with cooperating with them in the projects.

Next, I attempted to create a distance between working in the projects and studying the projects by moving towards description. I adopted the role of a detached researcher and followed a social constructionist approach. I recorded and transcribed several project-team meetings and discussed the transcripts with fellow PhD students and supervisors. In these transcripts, I had disguised my identity by changing my name into 'Alex', like I had changed all project-team members' names. However, my fellow students and supervisors quickly guessed that 'Alex' was me. The transcripts showed cases of miscommunication within the project-team, which prompted them to ask me questions about the projects and my roles in these projects. They remarked how little we understood of the police officers and how they experience their work, and how little we allowed the informal carers to participate actively and creatively in our project. I agreed with their remarks. These were precisely the points I wished to make. But I wanted to formulate this critique from an outsider's perspective, as an analyst. Instead, they treated me as an insider, as a practitioner. Responding to their questions, I found myself switching awkwardly between defending my roles in these projects, and critiquing these projects, including my own roles in them. Their questioning about combining practitioner and analyst roles drove me towards reflexivity.

I was an active researcher in these projects as well as in the study of them. I had to adopt a social constructionist approach and an involved researcher role, which

can be understood as a move towards reflexivity.[16] Reflexivity became an attempt to become responsible and accountable for my roles inside and outside the projects, and to combine practice and analysis productively. Additionally, I wished to move back and forth between action and reflexivity: from reflexivity to action, for example, to discuss my research findings with colleagues, and from action to reflexivity, to explore how reflexivity can help HCD practitioners to improve their practices.

3. Examples of reflexivity

In order to further explore the idea of reflexive practice, I will present and discuss several examples of situations in which I found myself while working in the two HCD projects. In these situations people asked me questions, or looked at me for answers, to which I found it hard to respond, which made me feel awkward. I will explore how I could have engaged with reflexivity in these situations, and what could have happened.

I will provide two illustrative examples: one from the police project, with a focus on what happened between the project-team and potential users; and one from the informal care project, with a focus on what happened between project-team members. I used these two foci because HCD is not only about organizing user involvement and understanding users' practices, but also about organizing an iterative process and multidisciplinary teamwork.[17]

3.1 A police officer talks back

In the police project we organized a series of four workshops in which we cooperated with several groups of police officers, in order to conduct research and to develop and evaluate a telecom application, in an iterative process. Between the first and second workshop we conducted rapid ethnography[18] with project-team members joining one or several police officers during one working day, in order to better understand police work. We summarized our findings from these observations in the form of storylines[19] creating descriptions of 'A police officer's working day' based on several project-team members' field notes.

My colleague Mandy and I arrived at the police station for the second workshop. We planned to discuss the storylines with the police officers, in order to jointly identify problems for which we would develop an ICT solution. When we presented ourselves at the reception desk, we were called into the police sergeant's office. He said he was going to have to cancel the workshop. He felt irritated because he had not heard anything about the workshop with 'his' police officers until that specific morning. I felt unsettled when he announced that he intended to cancel 'our' workshop. I also felt embarrassed for not having properly communicated my intentions with the police. After some discussion, the sergeant agreed that the workshop could proceed, but only under the condition that he could also participate. In the workshop, shortly after our introduction, the sergeant picked up a copy of the storylines and said that he was displeased with these 'children's stories', referring to, for example, the descriptions of policemen drinking coffee. I felt relieved that we had not included in the storylines the remark by one police officer about their 'advanced car navigation system', with which he referred to a pile of paper maps stashed in the police car's dashboard.

This was the first time that I received such direct feedback from a 'user'. It made me think about the legitimacy of rapid ethnography and writing storylines. In retrospect, I can see that the sergeant was concerned about his role to enable police officers do their work; he did not want them to waste time in workshops or feature in unfavourable stories. He was clear about his role and concerns. In contrast, I was not very clear about my role and concerns; about why we were doing the project, why this would matter to the police and how I would like to cooperate.

Some months later, it occurred to me that engaging with reflexivity could have changed my interaction with the sergeant. Rather than seeing the sergeant's announcement not to cooperate and his exercising of power only as obstacles to our project on a content-level, I could have tried to relate what happened on a process-level, in the here-and-now of the encounter between the sergeant and me, to what we were trying to do on a

content-level within the project. We had the ambition to develop a telecom application that was intended to help police officers share 'implicit' information and change their current ways of communicating and cooperating so as to work in a more bottom-up manner. Our ambition challenged current cooperation processes and existing power structures within the police organization.

It occurred to me that I could have discussed with the sergeant what happened between the two of us (mutual irritations about cooperation and power, supposedly on a process-level) in relation to the project's ambition (to change cooperation and to challenge power within the police, supposedly on a content-level), which could have benefitted the project, both on a content-level and on a process-level. It could have helped us to discuss and understand how cooperation and power work within the police, which could subsequently have helped us to develop a telecom application that would actually help police officers to improve their ways of working.

3.2 Attempts to improve cooperation

In the informal care project, different project-team members followed different approaches. Some project-team members studied the needs of people who suffer from dementia and the needs of their informal carers by conducting a literature study and a questionnaire-based survey with hundreds of people with dementia and their 'primary' informal carers (such couples were called dyads). They worked within a 'psychology tradition' and aimed to produce a representative overview of those people's needs. Parallel to that, other project-team members conducted relatively informal, explorative interviews and three co-design interviews involving three dyads. They worked in a 'design tradition' and their aim was to find information and inspiration to feed into the creative and iterative process of understanding other people's needs and designing a telecom application for them, together with them.

The combination of psychology and design traditions caused friction within the team. It was difficult to appreciate different project-team members' approaches and findings, and to combine these constructively. For example, when Rachel (who followed a design approach), announced the

plan to conduct the co-design interviews, Pauline (who was conducting the survey) recommended that project-team members first study the literature and their survey results, and conduct additional interviews only if specific data were lacking. As a manager of a part of the project, I felt the responsibility to improve cooperation within the project-team. On several occasions I attempted to do that by making explicit the differences in people's approaches, hoping that this would help them to cooperate. However, these attempts sometimes caused even more friction.

Rachel's attempt to improve cooperation was more effective. She sent an e-mail to Pauline one afternoon (in response to Pauline's critical questions) in which she explained that she had read the survey results and acknowledged that these 'contain valuable information'. In addition, she explained her wish to conduct additional interviews, 'to speak with informal carers myself', not so much to discover new information, but to have some first-hand experiences with those people's situation and needs. After Rachel's intervention, the team members started to talk with each other about the results of their respective research efforts and, on that basis, began discussing ideas for a new telecom application. I think that Rachel's intervention to promote cooperation was effective because she communicated her own concerns and also communicated to Pauline that she understood her concerns. In contrast, I had not discussed my own concerns, such as my concern to improve cooperation, and I had not asked the others about their feelings about cooperation and their ideas on trying to improve cooperation.

In retrospect, I think that if I had engaged with reflexivity this could have benefitted the project. I could have tried to relate what happened between the project-team members (on a process-level), to what we were trying to do for the informal carers (on a content-level). Within the team, we found it difficult to cooperate while we were developing a telecom application that would help people to cooperate! The application we were working on would enable 'primary' informal carers, who sometimes provide informal care on a 24/7 basis, to share tasks with others, in order to alleviate their burden.

I could have asked what hindered or promoted cooperation between us, in the here-and-now of the project-team, and how that could relate to our understanding of what might hinder or promote cooperation between informal carers. I could have tried to relate what happened within the project-team (on a process-level) to the design of the telecom application (on a content-level).

4. Reflexivity in social science

In order to contextualize reflexivity and to discuss different forms of reflexivity, I will briefly discuss different forms of reflexivity that occur in several fields of social science: autoethnography, ethnomethodology and Science and Technology Studies.

Reflexivity can be considered necessary when one studies situations in which one actively participates. In such cases, researchers can see their participation as a shortcoming, as a bug, and apply reflexivity to cope with their involvement: as a way to provide clarity about their own roles in the situations they study and in the research process. Alternatively, one can see reflexivity not as a bug, but as a feature, and engage with, or even celebrate, reflexivity.[20] For example, Woolgar, argued that engagement with reflexivity can be 'thoroughly regenerative'.[21]

Malcolm Ashmore argued that reflexivity occurs in all social science: 'if [social science] is about humans and their social arrangements then it is (also) about those humans in those social arrangements who are responsible for the production of social science'.[22] Ashmore also noted that 'uses of "reflexive" and "reflexivity"e in social science discourse tend to be subject to unsystematic variation'[23] and remarked that, looking at their etymology, they would mean something like 'to bend again' or 'to bend back'.[24] One can associate this with the meaning of the grammatical term reflexive: 'a reflexive word or form of a word shows that the action of the verb affects the person who performs the action', as in 'He cut himself'.[25]

Based on this, reflexivity can be described as: something that can occur when a method or a procedure or a tool that I would normally apply to somebody else, bends back and is applied to me.

4.1 Ethnography

Traditionally, ethnographers go into the field to study other people's practices and cultures. Practically, they did that by writing about these other people (which is the meaning of 'ethno-graphy'). This traditional approach changed after the 'crisis of representation'[26] that is, the realization that writing about others is problematic because one always brings one's own preoccupations, which profoundly influences one's perception, interpretation and writing. Therefore, ethnographers would currently also write reflexively about their own thoughts and feelings during the research process and, for example, conduct autoethnography: 'an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural'.[27] This approach can be 'amazingly difficult': 'The self-questioning autoethnography demands, is extremely difficult. So is confronting things about yourself that are less than flattering. [···] It's hard not to feel your life is being critiqued as well as your work'.[28]

In my case, I attempted to study both the HCD projects ('the cultural') and my involvement in these projects ('the personal') and I found myself reflecting on and writing about 'multiple layers'—about what we had done in the projects and what happened between the people involved, including myself; about what I had tried to do and what I could have done differently; and about alternative ways to organize the projects.

4.2 Ethnomethodology

A related tradition in which reflexivity occurs is ethnomethodology.[29] Ethnomethodologists are interested in how people create and experience social reality through their interactions, and typically observe people and their practices (so-called procedures). They pay special attention to people's interactions and conversations, through which they negotiate and establish relations (their accounting practices). Reflexivity occurs when she realizes that her procedures

for developing knowledge are intertwined with the procedures of the people she studies. She can, for example, try-out a procedure in order to blend-in with the people she is studying. Or she can introduce procedures that conflict with the current procedures of the people she studies and then observe what happens (a breaching experiment). In such cases, she will have to provide a reflexive account, not only of the social situations that she studies, but also of her participation in these situations and of her interactions with the other participants.

I encountered this form of reflexivity because my procedures for studying the projects (observing and interacting with project-team members, and writing texts about them), were intertwined with the procedures which we followed in our projects (observing and interacting with potential users, and writing texts about them), for example, in workshops in which both project-team members and potential users participated. Moreover, I had to pay attention to various people's accounting practices: to how project-team members and users talked about the projects; and to how project-team members talked about my study of the projects. And I had to provide reflexive accounts of my roles in the projects and of my roles in studying these projects—often in a response to questions about these multiple roles.

4.3 Science and Technology Studies

A similar form of reflexivity can occur in Science and Technology Studies (STS, earlier known as sociology of scientific knowledge or social study of science). Researchers in this field attempt to open the 'black box' of science and technology.[30] They study people's practices of creating or using science or technology, rather than focus on the outcomes of such practices, as is commonly done in science. Reflexivity occurs if the domain that is being studied and the approach via which it is studied are very similar. This happened, for example, in the case of Ashmore: as a sociologist, he studied other sociologists, who studied other scientist's practices. Ashmore argued that 'in the study of science (and knowledge practices generally) the student cannot avoid being inside and outside at the same time'.[31] One has to combine participant and analyst roles, and cannot avoid reflexivity.

This form of reflexivity occurred also in my case. In the projects, we studied police officers' and informal carers' current practices (research approach) and envisioned alternative practices for them (design approach). And in my study of these projects, I followed a very similar approach; I studied our current HCD practices (research approach) and envisioned HCD alternative practices for us (design approach). I followed a research and design approach to study current research and design practices, and to explore alternative research and design practices.

5. Reflexive practice and ethics

Reflexivity is often associated with researchers who study situations in which they actively participate. This is also how I first encountered reflexivity: in my study of HCD projects in which I actively participated. Looking back, I think that I could have more fully engaged with reflexivity. I could have embraced reflexivity, as a way to reflect on the multiple conversations with diverse participants in the HCD process and on my own, active involvement in these conversations. This could have helped us to improve our HCD practices.

In the cases discussed above, we (designers) thought that they (users) experience problems with communication and cooperation, and that we can solve these for them by designing products for them. However, since we struggled ourselves with these very same problems (communication and cooperation), they could have told us interesting things about communication and cooperation. Maybe not only on a content-level, related to the product we were working on, but also on a process-level, related to the dynamics within our project-team. That would turn the tables; I am used to them having problems and us having solutions.

A recurring theme in the cases (above) is that other people questioned my ways of working or my different roles on different levels, which often made me feel awkward. A police sergeant asked me what I was doing in his police station and

questioned my plan to do a workshop with his police officers. Project-team members looked to me for a plan to improve cooperation, which made me feel responsible (I had to respond and do something). Their questions put me into question, and drove me out of my comfort zone and towards reflexivity. This is similar to what Karl Weick called 'real-time reflexivity'[32] where one is engaged in a situation and then the engagement is interrupted, so that the situation feels awkward, that is, 'unready-to-hand', and afterwards one can look back at the situation in order to come to grips with it, that is, to make it 'present-at-hand'. Writing this essay is a way for me to come to grips with situations that I found awkward and to explore what I could have done differently.[0]

This form of reflexivity occurs—if it occurs—between people, between other and self, in the here-and-now of an encounter, and it is enabled by the other putting into question the self. By using the words other and self in this manner, I am relating reflexivity to the ideas on ethics of French philosopher Emmanuel Levinas. In a similar way, Carl Rhodes recently discussed 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'.[33]

Levinas believed that ethics—and indeed all philosophy—is based on the encounter between other and self. He argued that people have an almost inevitable tendency to interact with other people, with the other, by putting what one sees and hears of the other into one's own frame of thinking, into one's self, so that the other is forced to fit within the self, which destroys the otherness of the other.[34] Levinas drew attention to the violence inherent in this tendency and explored ways counter it. For example, he envisioned that an encounter between other and self in which the other asks me questions, in which the other puts me into question, can provide a space in which the self can welcome the other: 'the putting into question of the self is precisely a welcome to the absolutely other'.[35] In the example of the encounter between the police sergeant and me, I could have attempted to respect his otherness and to welcome him as other. I do not know, of course, what would have happened then, but I speculate that this might

have enabled us to 'learn something that we didn't know we needed to know'.[36]

Although reflexivity sometimes made me feel awkward, or even embarrassed, I would nevertheless advocate reflexive practice as a way for designers to reflect on their practices and improve them. This would be especially needed in HCD, in which designers participate in multiple processes of communication and cooperation with diverse people. In HCD, the process of design thinking—a process of 'finding as well as solving problems'[37] a process in which 'the problem and solution co-evolve'[38] is opened-up to become a process in which diverse people, such as potential users or fellow project-team members, participate in design thinking. In such situations, engaging with reflexivity would help HCD practitioners to reflect on these multiple conversations with others and on their own, active roles in these conversations, and to become more sensitive and responsive to others.

Reflexivity would help HCD practitioners to move out of their comfort zones and to interact in the here-and-now with other people. They can become more responsible, because reflexivity can help them to listen to and respond to other people's questions, and be more accountable, because reflexivity can help them to provide accounts of their own roles in response to these questions. Reflexive practice would help HCD practitioners to be more open towards users and co-workers so that they can better realize the potential of HCD of facilitating joint learning and joint creation.

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