

abstract. Interaction design is just as much about social interaction and molding of organizational values, as it is about deciding particular layouts of interfaces.

Before continuing, we need to define what we mean by the most central terms we use in this paper design:

Design values. By design values we refer to values that stakeholders have, and they guide prioritization and selection, which leads to inherited values in the designed product [3].

Design qualities. By design qualities we denote characteristics of the design solution. To highlight that interaction design concerns how people experience interactive systems during usage, the terms interaction design qualities, experiential qualities, and use-qualities are sometimes used [1, 4-6].

Design quality. We rely on Volker's [7, pp. 307–308] definition for the concept of design quality: “an overall value judgement of an individual stakeholder that is based on the interaction between the person and an (representation of an) object [and it] is always accompanied by an affective response and an assessment about the level of quality or value of a product”.

There are different ways to conceptualize what the core values and qualities are in interaction design. The following section will give a background to our perspective on the field.

Background

Previous research in the area of qualities and values in interaction design has largely been conceptual, i.e. focusing on quality and value models rather than on unfolding design processes [8]. Although several methods for exploring design values and qualities have been suggested, earlier research has seldom focused on how designers (as a collective) utilize and communicate values in design. However, in an earlier study aiming to put quality models to test, a list of value and quality perspectives for interaction design was developed [4]:

The practical perspective. The interactive system is seen as a tool for mediating instrumental action and attention directed at a material object. For example, a photo editor is primarily a tool used to manipulate a pixel-based image. The photo editor itself is not in focus of attention, but the image is. At least as long as everything goes well, but when something goes wrong, the editor itself is focused instead.

The communicational perspective. The interactive system is seen as a sign or medium, mediating social or communicative action and attention directed at other people. For example, a user may directly upload photos from a photo editor to a website for others to view and comment on. Having an elegant and personal website for one's photos can be meaningful for oneself and signal one's personality and group belonging to others.

The organizational perspective. The interactive system is seen as a business component mediating social or societal action directed at a community of people, its division of labor and its rules. The community of people can either be internal or external to the organization. For example, with the advent of the photo editor on personal computers the working and business conditions for professional photographers and others who develop and process photos was dramatically changed. The development of online photo printing changed their conditions again.

The aesthetic perspective. The interactive system is seen as an objectified form, mediating action and attention directed at the user's own experience of the interactive system. This goes beyond appearance to include the overall experience of using, for instance a photo editor. It also includes the non-instrumental playful activities people engage in, with photos for example.

The technical perspective. The interactive system is seen as an objectified structure, mediating action and attention directed at the construction or material of the interactive system. For example, when a filter in a photo editor produces an unexpected effect, the attention may turn towards how the photo editor in itself works; and when a user do not find a specific function, he or she, focus particularly on navigating the structure of the user interface.

The ethical perspective. The interactive system is seen as objectified concept, mediating action and attention directed at ethical concerns. This includes political issues such as power relations, normative structures, but also more moral concerns such as how a particular design affect the habits and interaction patterns of people.

If we turn from the conceptual models to the empirical research, the focus has been on conceptions interaction designers have of values and design quality. How they really use these conceptions has not been investigated. The conceptions they have of design quality basically have to do with assessing peoples' and business' ways of working in relation to their motives and purposes. Design quality is, for interaction designers, also about assessing ways of interacting with form and behavior of interactive systems, and the qualities of experiencing that form and behavior. Furthermore it has to do with the qualities of using functions and contents of the interactive systems. Considerations also need to be made in relation to the conditions and contexts of technologies and organizations. [9]

There are basically two approaches to defining design qualities [5]. The first is top-down, as in usability engineering, where you start with general qualities like effectiveness, efficiency, and satisfaction and break down quality criteria in the form of specific usability goals, as for example a specific time to complete a task. The other approach is to work bottom-up, much in the same way as envisioned in early work on contextual usability [10]. Here one instead starts with the values that stakeholders have and the motivations that drive them. With the values as a basis design qualities for the future design are developed. From these more specific criteria can be decided.

A top-down approach can also be mixed with a bottom-up approach. This means that the order in which values, qualities and criteria are traversed and developed is not pre-established [5]. However, we do not know how interaction designers actually work. This leads us to the research question for this paper.

Research Question

The research question is how interaction designers, as a collective and in an unfolding design process, concretize values and qualities in meetings with clients.

Method

By way of video recordings, we have analyzed how values were communicated between pairs of designers and pairs of client representatives in two interaction design workshops with different participants in each workshop. The clients representatives worked at the Swedish Enforcement Authority, and were involved in a project focusing on developing a design-oriented IT procurement organization. The workshops were part of a series of workshop with the aim of getting different competencies to work collaboratively to define problems, specify possible solutions, and make use of methods put forth by interaction designers to capture problems and important design qualities. The same workshops have previously been analyzed from other perspectives [2, 11].

Prior to the workshops the client representatives and the interaction designers were given documents describing parts of the client's future work processes, and a brief for an interactive system for supporting the handling of applications for debt restructuring. Debt restructuring is a process to help Swedish citizens in serious financial problems to avoid personal bankruptcy. This was the first time the designers and clients met.

Field notes were taken during the workshops and video was recorded. Materials produced during the workshops were also saved for later use and analysis. Video transcription was analyzed from a dialogical and conversation analysis-inspired perspective using a transcription key similar to Jefferson's [12]. The key is described in Table 1. The focus has been on unfolding dialogical relations and division of labor.

Results and Analysis

The two meetings between designers and clients could be divided into three phases. First, there was an 'orientation phase' during which the participants got to know the task and each other. In this stage of design, there were many discussions about general ideals and design values. Then, there was the actual 'design phase', where the participants discussed and made proposals for specific interactive systems. Thirdly, we had the 'end phase', which was the stage where they rounded-up what had been done, and discussed forthcoming events.

The following sections will show that the two groups shared general ideas and values as common ground, and that they actually had a similar design work despite apparent differences in the use of communicative means. We will start with the differences.

Differences in Design Tools and Communicative Means

Values were concretized in multi-modal interaction among participants. Several kinds of communicative means (e.g. talk, gestures, whiteboards, sticky notes) were used to animate shifting values and design visions.

Symbol	Meaning
Xxx	Emphasis (part of utterance)
XXX	Increased emphasis or voice volume
°xxx°	Decreased voice volume
>xxx<	Increased speech tempo
>>xxx<<	Additionally increased speech tempo
<xxx>	Decreased speech tempo
.h	Inhalation
xxx	Smile voice (or while smiling)
#xxx#	Significantly Lower pitch
§xxx§	Mumbling voice
xxx-	Cut off word or utterance
xxx:::	Lengthening or fading utterance
[xxx]	Overlapping talk
(xxx)	Uncertain or inaudible speech
(.)	Micro pause below 0.25 seconds
(..)	Pause around 0.5 seconds
((xxx))	Transcriber's comment

Table 1 – Transcription key.

In the first workshop, we observed how the designers asked the clients' for expected end-use and needs of the clients' clients (indebted people and creditors). Many questions concerned more or less abstract or fictive events (although they may seem concrete), as for example "how would you react in that situation" and "what is the best practice in that situation". Questions such as these are important to know the answer to, but they are impossible to answer completely truly. The designers wrote down new suggestions in their protocols, and put sticky notes on the table to sort out the various design ideas.



Figure 1 – Communicative means and design tools in Workshop 1.

In the second workshop, a quite different way to co-operate unfolded. Here, the design team was more driven by the tools available. At first they used a laptop to sketch the initial structures, but quite soon they got up and went to the whiteboard. A more open interaction followed. They went back and forth between design suggestions and evaluation with the clients and they used different means in different stages of the workshops. Figure 1 depicts the main communicative means used in the two workshops.

Common Socio-Technical Practices and Values

If we had stopped the analysis at this point, we could have concluded that the different communicative means afforded different kinds of co-operation. However, they shared tools such as pen and papers, computer software, and common values about the end-result. They also shared responsibilities of overall system efficiency and knowledge about technical structures. It was therefore not that surprising to see, in both workshops, that one designer (D1) was the most verbal one (the leader if you will). Then there was the supporting designer (D2), or the one who made most of design notes. On the other side, there was one more active or verbal client (C1), who made most contributions to the overall design process, and a more supporting client (C2), who had the role of technical consultant.



Figure 2 – Communicative means and design tools in Workshop 2.

This very early and seemingly given division of labor did not change during the workshops. On the contrary, it became even more apparent in the design phase. There was, however, a few minutes of interdisciplinary conversations during the first minutes or so and during coffee breaks.

In the first workshop, we could see that the design conversation focused on making decisions on constraints and objectives, rather than development of design ideas.

In the second workshop, we could see how the designers continued to guide the clients and use them as informants. Although they did shift communicative means, from notes and laptops to whiteboard, the objects of design were not really shared between designers and clients. They created instead a kind of front-stage where they could perform their design for the clients. In addition to the sketching in front of the whiteboard, the division of labor was

enacted via talk, gestures and writing. Consider the following talk excerpt as an example of how a strict division of labor was not just a visual effect, but inherent in the way they talked to each other. Before the excerpt, D1 and D2 had placed themselves in front of the board, in a relatively open position, and partly turned to their audience (C1 and C2).

Excerpt: Whiteboard as design tool and communicative device



Figure 2 – Beginning of excerpt.

1. D2: >but can- um play with the thought at least<
 2. D1: [a while
 3. C1: y
 4. C2: >yeah but<] it's true
 5. C1: it seems pretty silly that you shou um be guided by such a thing
 6. D1: yeah yeah yeah
 7. C1: compared to getting- something really Good and work with- you know
 8. D2: a::: exactly- >cause its §their§ tool- that §(sit with)§ all day<
 9. C2: a (.) nah so I dont see that as a limitation
 10. D2: nah
- ((..))
11. D1: and we dont have to specify the Pixel size [°(exactly)°
 12. D2: *Nah*
 13. C1: ((laughs))
 14. D1: *at- at this [stage its not*
 15. C2: ((laughs))
 16. C1: ((laughs))
 17. D2: ((laughs))
 18. D1: we re Play:ing that we can fit ((points at the board)) TH:at in
 19. D2: Yeah (.) (as long as) we can fit All in in some way ((waves arms))
 20. D1: a:
 21. D2: .h (.) >yeah: but then we can actually start< detailing- feels like- we know that they are connected- in some way ((points)) (.) you can open several documents (.) know that its this view:(.) and then its tha:t ((looks at D1)) summery view (.) and then its this Schitt °then (shown) there° ((moves the hand over the board))
 22. D1: yeah That- is not That
 23. D2: Yes
 24. D1: Thats thumbnail of That ((points))

25. D2: Yes

((..))

26. D1: *With more tabs you can fit into the thumbnai(l)* ((smiles))

27. D2: *Yes he (.) [Many more* ((laughs))

28. D1: ((laughs))] >right<- but i draw those into this document

29. D2: yes

30. D1: here

31. D1: yes

32. D1: °so°

((they continue to draw and erase))



Figure 3 – End of excerpt.

As seen in the excerpt, the designers did not really display their design rationale, and they did not invite the clients to define design values. The clients, in turn, did not give away all about the current practices. This indicated that the collaboration was not that strong. The designers rather proposed a general design scheme and let the customers react *to some selected aspects* of that design.

Top-Down and Bottom-Up Work

The video analysis indicated that values were concretized top-down, i.e. from general conceptions and the design brief given, while also explored bottom-up.

All participants did talk about ‘electronic solutions’, in the general sense, but the designers talked about how they put a category at the ‘wrong’ place. They thus assessed their own ongoing performance. The customers rather decided what was worthwhile re-designing or re-thinking to the next phase.

Overall, there was an interdisciplinary conversation about design values that were already pre-established, but not yet understood. It was a conversation about things like about ‘correctness’, ‘division of labor’, ‘openness’, ‘electronic systems’ etc.

There was no given phase for values or evaluations in the workshops. Instead, each workshop started with the already pre-established ideas and values. Another pre-established aspect was

the working order that was there already from the very beginning of the workshops. Generally speaking, there was one verbal designer who took the role as design coordinator, another designer who took the role of designing by drawing or writing. Then there was one customer in each workshop who acted as the main representative, and another one who acted as technical consultant.

The design phase was not collaboration in the strong sense. The designers decided what was going to be designed and the clients set the constraints. The participants also proposed and developed their own future participation in forthcoming stages of design (e.g. ideation, prototyping, and user-tests). What they all had in common and displayed for each other was a trust in that there would be some kind of IT-system in the future, and that interaction design would be one of many steps towards organizational change.

Conclusions

What does it mean when we say that they approached the design values and qualities in a top-down fashion? Well, it does not mean that they started with a clear set of perspectives on design values and qualities, as the ones provided by Arvola [4] or Boztepe [8]. They started with loosely defined but shared conceptions of values and qualities for the IT-system, similar to the set of identified by Arvola (2010a). They also had the brief as a starting point. They used this common ground to jointly explore what the general conceptions meant for the current design situation. In this way the work can be characterized as top-down, but it was not top-down in an engineering style of work, using hierarchical breakdown of a clear definition, as depicted by Holmlid [5]. It was grounded in the specifics of this particular situation [10]. That is, design values and qualities were concretized as the workshops progressed, and as the top-down preconceived ideas met the bottom-up conversation between designers and clients. These empirical results thus qualify Holmid's [5] line of reasoning where he argues that the order of how values, qualities and criteria are traversed and developed need not be pre-established.

We have also seen that the communicative means, tools and methods the designers used did not have any large impact on how values and qualities were made concrete. What was important was that people really started talking. It was the conversations they had that mattered. The representations the designers developed were conversation pieces and they did not speak for themselves. It was the conversation the participants had that animated the representations with the kind of insights that the designers needed to gear in and connect with the clients.

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