

Design as sensemaking: an autoethnography on the early phases of product development

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Abstract

This paper provides an autoethnographic account of my personal journey through the early phases of a design process in a product development project that took place in an SME company. I reflect on my story as a design manager of a small team of designers by using Karl Weick's theory of sensemaking and its properties as a methodological and theoretical perspective. The main themes of the paper are the identity construction of designers, pursuit of plausibility rather than accuracy, and producing part of the environment the designers face. I conclude with a definition of socio-historical practices that are the culmination of the everyday sensemaking efforts of a designer: construction of equality, discussion about a brief, incubation, drawing, presentation, construction of workspace, collective composition, claiming ownership of a concept, retention, handing over a concept, and storytelling.

Keywords: *Design process, professional organizations, sensemaking, autoethnography*

1 Introduction

I am costumed in my brown blazer, grey trousers and shirt with no tie – my better industrial designer outfit – when I enter the second floor conference room in the small office building of Edufix, a furniture manufacturing company. I had been invited to appear in front of management group meeting to present the situation in our recently started design project. I feel confident enough to talk about the project to the CEO and other managers without wittingly polishing the situation. We are all leaders here and, ultimately, in the same boat.

As designers, I and my team have a once-in-a-lifetime project ahead of us. Our task is to design a furniture collection for educational environment that utilizes the possibilities of new technology. The objective is to create “something new.” We have sufficient resources, an exceptionally long timetable, and an inspirational R&D environment with parallel research projects, and the use of the firm's small engineering department which includes a prototype workshop. Taking into account its status as an SME, the firm has invested heavily in this venture. Everybody is excited, at least we are. “I can't sleep at night when I think of all the things we will be able to do,” says junior designer Arthur of my team.

In the managerial meeting, I tell the managers what we have done so far, and what we plan to do in the near future: comprehend and master a design brief, collect information, and start collaboration with a technological university. Wishing to have an edge in my talk, I say

briefly that as far as our main task is concerned – the creation of new ideas and concepts – we have not achieved anything yet. Now I have the managers’ attention, and someone laughs. I explain that my team will soon be ready for the creative phase, and that on the next day we will start a three-day brainstorming session. “After tomorrow, raw ideas for new products will exist, more or less,” I say.

I reveal my doubts about ambiguity, uncertainty, and contradictions in the design brief. We do not even know what products we should design or what materials and technologies we could make use of in our concepts. I say that we just have to sort out the matters that are still open by beginning with something. I continue by making a wish that the management group would participate in the developing and evaluating of ideas with us. I want the managers to be involved in the design work. I draw an uprising spiral on the flap board to illustrate our upcoming process, and sales manager Michael names me Doctor Snuggles (after a character in an animated television series).

When I get back to our temporary quarters a few kilometers away, the team is waiting for my report on the meeting with the management. The designers are worried about the target group, who it is we design for, what is our primary user group. They show me a clip from the local newspaper of the day in which our project was defined in different ways. “Someone says one thing, another person says something else,” says designer Maria.

My team is distressed by the openness of our task and the conflicting messages. I try to calm them down by saying that uncertainty and ambiguity are part of this phase and we just have to live with those feelings and start producing ideas and design sketches, somehow. We keep talking about the project and end up whining over our cramped and shabby workspace, which is not very inspirational – it does not suit our image of a design studio for an innovative furniture venture.

2 Research questions

The stakes are high. We are expected to be able to produce a radical innovation: something that utilizes technology new to the firm, and requires the end users and customers to behave differently. Linear design process [1] does not help us forward now. Rational analytical thinking does not provide guidance here, and we finally start to realize that neither the management nor anybody else is able to answer our open questions. We keep discussing the anomalies of our design brief, and the obstacles that stand on our way. We are in a sensemaking situation of an unintelligible event, “What is the story here? What should I do now?” [2].

The autoethnographic study presented in this paper is trying to understand the early phases – the fuzzy front end – of a product development process. My research questions are, How do designers make sense of the design process? and How do designers create opportunities for other stakeholders in the organization, especially managers, to participate in the creative design process?

3 Collaboration in design process

Design researchers argue that the two main perspectives into industrial design activities and its research are rationalistic and reflective [3, 4]. Thus polarized, design can be produced either by a rational design hero, or by a reflective-constructivist *bricoleur* [5].

On the other hand, design activities can be viewed from either individual-centered or participatory perspective. In the latter, knowledge and design are created through relations between individuals, and the research emphasis is on social practices.

Rational design process models do not pay attention to the fact that it is people who design products with other people for other people – design is a social process. The prevailing view is that stakeholders should communicate, negotiate and compromise amongst themselves [6].

However, participatory design “movements” that propose that users should be able to have an influence on the products they use are based on the prevailing techno-rational world view. What it comes down to is an externally oriented product innovation perspective, the object of which are the users and markets of products and their needs [7]. Content know-how and process know-how are kept apart or, at the latest, become differentiated when the designer returns into the organization from the outside.

4 Sensemaking

The term sensemaking is used to describe the process in which people try to make sense of ambiguous situations [8]. Sensemaking is an attempt to create order and meaning out of events, issues and actions that are somehow surprising or confusing – thus, it is a process of social construction [9].

Karl Weick’s model of organizational sensemaking describes seven properties. Organizational sensemaking is 1) grounded in identity construction, 2) retrospective, 3) enactive of sensible environments, 4) social, 5) ongoing, 6) focused on and by extracted cues, and 7) driven by plausibility rather than accuracy [2].

I use these seven characteristics as a methodological tool, believing that they provide answers for where to look when I want to understand why a design activity or outcome has occurred.

5 Autoethnography

Dorst [11], Cooper & Junginger [12], Johansson & Woodilla [13] and Kimbell [14] require ethnographic research in order to understand how design is created by designers and various other stakeholders. Whereas an ethnographer goes to a remote place to study a culture strange to him, the autoethnographer studies the culture of which he is a member. In this paper I describe a study in which I explore my own practices as a design manager and group leader. Therefore, my study meets the requirements of Anderson’s [10] definition of *analytic autoethnography*, in which the researcher is 1) a full member of the research group, 2) visible as such a member in published texts, and 3) committed to developing theoretical understanding of broader social phenomena.

It may be difficult to get research data from the fuzzy front end of product development. In my autoethnographic research, I was there, doing design work myself and leading the design team, in a real R&D situation. Autoethnographic research is constructivist insofar as the researcher himself also changes during the process [15], it is action research for the individual [16]. My study changed the way I do design, and also how I think, talk, write and teach design.

6 Context

As the researcher is a pivotal element in autoethnography that “lets you use yourself to get the culture” [17], I will add here a brief description of my background.

After completing my MA in a design university, I set up a design consultancy with some of my fellow students. Rather than specializing in any particular industrial field, I established my professional identity and profile on concept design and visualizing. Mimicking my role models in design, I also embraced the identity of a writer and teacher.

After a few years of practicing design consultancy, I took a job as an assistant professor in a new industrial design department of a small university. In 2003, I took a leave of absence and joined an R&D project in Edufix, an SME, in order to simultaneously collect data for my PhD. Our principal task was to create a collection of “intelligent” products for a radical business concept in educational environment. Edufix is a furniture manufacturer, and the idea was to create growth through adding “smart” technology into the company’s products.

Edufix is a family enterprise where change of generation is underway. However, the founder of the firm is still active, especially in product development. There are about 300 employees, and most of the company’s products are exported. The company has a small, permanent product development department that comprises engineers, draughtsmen and prototype workshop mechanics. Our group of designers is, to some extent, a temporary “special team” enlisted in the project.

7 Collecting and interpreting data

An ethnographer who wants to study organizations may face problems in gaining access to and collecting data. Due to my double role as a design manager of our team and researcher of our practices, I had good access to both design and product development activities.

Neither my research question nor the research method I was planning to use existed before we entered the research situation. Both emerged as we went along, which is not uncommon in the ethnography of organizations [18]. A door opens and the researcher flashes in [19]. Thus, without an exact plan, I start collecting data. I write a diary, video meetings with the managers, and collect copies of sketches, drawings, PowerPoint presentations, e-mails, and memos. I photograph us working, our mock ups and prototype tests.

On the basis of my diary, I start writing a narrative of our first ten months of working with the projects: the route from the beginning to the moment when we proudly present our final collection of product concepts to the management of the firm. The narrative is my *first order analysis* [20] of events during the early phases of the design process: it reveals what actually happened. In my *second order analysis* [20] I try to derive an explanatory framework in order to present the story in a more theoretical perspective.

Reflection, analysis and interpretation through a theoretical framework (Weick’s sensemaking theory) transform my narrative into a culturally meaningful autoethnography. According to Chang [15], “data analysis and interpretation are often conducted concurrently and their activities are intertwined.” In short, analysis describes how things work, and interpretation “focuses on finding cultural meanings beyond the data” – involves making sense of the data. Meanings are formulated in a researcher’s mind [15]. What does all this mean?

First, I reflect my narrative through the seven properties of Weick’s theory (identity construction, etc.). How do designers read business efforts, management operations and their own activities? What is important? What is wanted and what kind of know-how is appreciated? When I study my own narrative I weigh each chapter so that it can be recognized

why I and my design group make sense of the situation the way we do. Simultaneously, I try to keep in mind the properties of sensemaking: the prevailing ways of thinking and doing, and our identity constructed in those ways (education, work practices) that guide us to seek certain types of cues that help us to make sense as we do, and therefore to produce the situation where we have to carry on acting.

Secondly, I try to clarify, classify and name the most important activities for sensemaking practices in design. These practices are the answer (see Figure 1) to my research questions: how do designers make sense of the design process, and how do designers create opportunities for other stakeholders to participate in the design process?

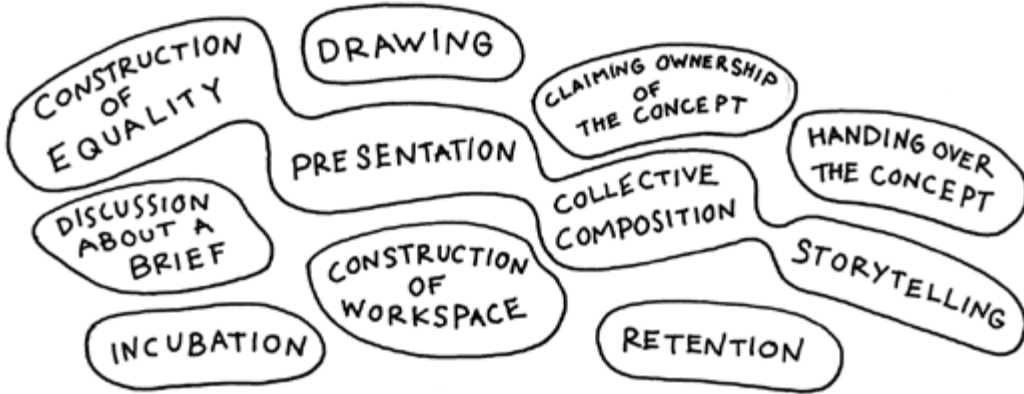


Figure 1 Design sensemaking practices in the early phases of product development.

7.1 Construction of equality

Wearing a blazer – my concession to the dress code – in the management meeting, I construct equality with the managers of the firm: I am a credible and co-operative actor in the field of business. The designers of my team are creating equality on their own behalf with engineers and researchers. It is difficult to imagine any creative action without even a temporary illusion of equality. We try to create a psychologically safe environment that “makes it possible to give tough feedback and have difficult conversations without the need to tiptoe around the truth” [21], and where we are not humiliated when we ask for help or information. Our attention is focused on those cues that support the construction of our equal identity: stakeholders who are willing to discuss the brief, the management’s attention to our sketches, access to the firm’s database, and even an opportunity to take the floor and present our project right after the management’s opening words in an internal company conference. Timecards, shabby workspaces far away from the headquarters, and the lack of “designed” environment are cues that whittle away our designers’ identity as equals.

7.2 Discussion on the brief

During the design process, my design team has several discussions with the management group on the brief, the division of labor between stakeholders, and the progress of the project. Mutual understanding concerning the task at hand is an ongoing social process. It is well known that designers go back and forth between problems and solutions during the design process [22]. These discussions also construct our identity: what is our job and position in this firm? A long term objective of the design profession is to get towards more strategic (read:

important) assignments, to be seen as a seminal source of innovation – we, too, want to be part of strategic discussions.

7.3 Incubation

In my narrative, the design team is anguished as they face the uncertainty and ambiguity of the brief. What products should we design, anyway? As a team leader I do little to lessen their anxiety. The team wants to roll up their sleeves and get to work, i.e. design concepts, but instead I let us suffer in this sticky situation. Obviously, I do not want us to become fixated on inappropriate solutions too early. There is a conflict between the official design process model and our not-so-comfortable loitering, which results in our anxiety. And now, we are doing practically nothing, or it may be seen so. Our identity is still fragile here, and we do not look very plausible now. On the other hand, artistic creation is not easy – if it were easy, there would not be much value to it.

Wallas [23] says that after the preparation phase of a creative process there is a period of temporary break called incubation. Usually incubation is described as a pleasant recess. In the hurried timetable of product development there is seldom a phase of convenient hanging back. We work hard for not to rush into hasty decisions under pressure, and hope that this torment gives us some intuitive understanding of the situation.

7.4 Drawing

Drawing is a designer's sensemaking method, but it is also a social process – drawings are made to be looked at. Sketches, 3D visualizations, mock ups, storyboards, etc., are not predictions, they are socially constructed stories that integrate predetermined events with critical uncertainties in order to encourage stakeholders to challenge their assumptions in a safe hypothetical environment [24]. Drawing and visual know-how are unique skills of designers in product development organizations, something that defines a designer's identity as an irreplaceable creative and artistic talent, distinguished from engineers and others. There is a certain universal legitimate industrial design way [e.g., see 25] to draw, which is encouraged in education and work practices.

Whenever a designer makes a sketch, he is producing part of the environment he faces, opening and closing gateways. He draws, looks at his drawing, thinks and tries again. He “can perform learning sequences in which he corrects his errors and takes account of previously unexpected results of his moves” [26]. Drawings are tools for future-oriented sensemaking [27] as well as plans, prototypes and other “fantasy documents” that aim to “convince audience they ought to believe what an organization says” [28].

7.5 Presentation

80 per cent of a designer's time goes to preparing various presentations [29]. Sketches and mock ups help designers to understand the “object world” [6] problem at hand, but their more important function is to operate as sensegiving tools in creating a mutual understanding that we should all unite our efforts in order to carry on to the proposed direction. If the other stakeholders cannot make sense of the designer's proposal, however brilliant it might be, there is no way it will survive in the social process of product development.

Plausibility is the most important feature of a designer's presentation. Not only must the drawing be believable, but the designer himself too. There is no accurate information available, only faith and trust in the future. Self-deception – fooling yourself – may help you to fool others better [30].

7.6 Construction of workspace

Many sensemaking properties are encapsulated in a designer's workspace: identity construction, socializing, plausibility, enactment – creating the environment we face – in quite a tangible way. In product development, we are put in a position where we have to negotiate some understanding for what we face and what a solution would look like [2]. We not only need to meet more often to discuss, but create and design something together in order to achieve a shared understanding. My design team did not accept our shabby workspace as given, but started to construct it into a “war room,” a studio where the whole design situation would be visible at a glance, and where it would be psychologically safe [21] to express feelings, thoughts and doubts. Safe not only for ourselves, but for all the stakeholders involved in product development.

7.7 Collective composition

If you have brainstormed hundreds of ideas – chaos – what will you do next? According to Weick et al. [31], the next steps are noticing, bracketing and labeling – soon the world is simplified.

With the term *collective composition* I mean different kind of collaborative design methods that designers are able to organize in an *intra-organizational* [32] environment in order to mutually make sense of the situation. There are hundreds of well-known co-design or participatory methods, but most of them lack the notion of our socio-historical mental models: stakeholders' noticing and bracketing is guided by mental models we have acquired during our work, training, and life experience [31]. Therefore, for example, top management – used to apply numeric or written information – may see now popular design thinking methods as a bit silly, even threatening, and not making any sense [33].

7.8 Claiming ownership of the concept

When the dynamics of design activity change from concept search to concept design, the designers of my team claim ownership of concepts, meaning that everyone has one or several concepts that are in their personal possession. An idea that cannot find an owner has no chance to survive – it will be forgotten. Weick [2] says that “people try hardest to build meaning around those actions to which their commitment is strongest. Commitment, in other words, focuses sensemaking on binding actions,” it is a means to get things done. The case is not that the idea or concept is better than the other concepts, and therefore it is successful and survives into the later phases of product development. The case is that the individual who owns the concept gets better ahead in the process [34]. A designer who claims the ownership of a good concept will thrive in the eyes of his superiors or clients, and more importantly, in the eyes of his colleagues [35]. Bosses and clients change, colleagues remain.

7.9 Retention

Legitimizing of a concept in order to pass it into the costly detail development and ramp up [1] phases is not any isolated or binding official decision, but a temporary moment of clarity in sensemaking process. When a situation is plausible, there are no more emergent cues demanding attention, the situation is socially stable, the support of the management seems secured, the concept is coherent with our identity, and the plot fits in the story, in other words, it all makes sense. The designers are ready to *retain* this new local and temporal order.

Retention refers to the last phase in Weick's sensemaking process [36], in which interpreted elements are being stored for future application. When a plausible story (concept) is retained,

it “becomes more substantial, because it is related to past experience, connected to significant identities, and used as a source of guidance for further action and interpretation” [31].

Ambiguity in the early phases of product development offers designers a chance to manipulate the retention of ideas and concepts. There are no right or wrong solutions, only better or worse ones. The management is dependent on the designers’ ability to produce and present alternatives for them so that they can make a decision to cut away unwanted alternatives [38]. Therefore, designers are able to manipulate the managers in terms of what the new product could eventually be like.

7.10 Handing over the concept

Whereas commitment to a concept was important in order for things to get done, handing over the concept is necessary for the designer so that he is able to carry on developing new concepts, i.e., to get back into more consequential creative work. Creating concepts is a designer’s core competence, and it is more fun, too.

As the designer gives up the concept and passes it on for detailed development done mostly by engineers, he constructs his identity as an important source of strategic innovation and makes a difference for the engineers. The designer is no longer under a burden of responsibility, but he has no power over the concept either. As soon as the ownership of the concept changes, there will be pressure for changes, because the engineers make sense of the situation in a different way than the designers did a moment earlier – an inevitable conflict in consensus follows.

7.11 Storytelling

Stories are a key method through which people make sense of events [2, 39]. In the last episode of my autoethnographic narrative, designer Maria tells a story in a meeting in which we hand over the concept for the managers, “In the beginning, there was a black hole, it took a lot of time. We interviewed teachers, researchers and managers, and were trying to map what it was they were looking for. We had idea sessions about what was fun when we were kids ourselves. We have made idea matrixes, brainstormed, trimmed, divided and compressed thoughts into the first sixty ideas which we presented as visual scenarios, as you remember. Those were squeezed into twenty ideas, of which we developed fifteen product concepts, and one extra bonus concept. Fifteen products is a lot!”

In my narrative, the designers tell the story of the whole process, from the beginning to the last meeting. The subject of telling, most of the time, is the design process: what happened earlier, and what will be done in the future. Products are rarely described in story form. These stories are about the meta-activities of design: process, tasks, allocation of work, roles, and the place of the designers in the organization structure. By telling the story we create and maintain our professional designer identity as well as revise and enhance our positive self-image as important actors.

8 Conclusions

Identity construction is central in a designer’s sensemaking process. Ultimately, it is the identities of the stakeholders that finally define the product. Ibarra & Petriglieri [40] talk about identity play, “Whereas *identity work* seeks the preservation of existing identities or compliance with externally imposed image requirements, we propose that *identity play* is concerned with inventing and reinventing oneself.” The designer must play with his identity – reinvent himself so as to accomplish inventing or designing a truly new product or service.

You either have to work to fit your identity to the product and the organization, or you construct the product and your identity simultaneously. Another important sensemaking property in the design process is plausibility. During the flow of the process, there is seldom accurate information available. The designer seeks plausibility for his idea or concept and for himself as well, so as both would succeed in the process. In order to maximize his opportunities in the long run, he must engage others in his positive illusion.

The designer partly creates the environment that he has to work in – the idea of enactment is well recognized in design [41]. For me, though, it was a shocking finding to become aware of how we unconsciously open and close doors of opportunities by our everyday actions. In fact, the framing of the design space has started years ago before the project is opened: there is no “clean slate” where to start designing, as we often willingly think.

Acknowledgement

The names of informants, the firm, and the line of industry are pseudonyms in this paper.

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