DESIGN TOGETHERNESS

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ABSTRACT

While science typically approaches complexity through analysis, that is, by unpacking a complex whole into distinct and more manageable parts, the challenge of design is typically to do the opposite; to resolve often contradictory issues and bring together a meaningful whole. We think that there are more to forms of doing design together than our current terminology allows us to articulate. In particular, we want to explore if there are forms of design doing that open up for a kind of bringing together that is qualitatively different from collaboration, in the same way as the meaningful whole design deals with is something qualitatively different than a combination of parts coming out of an analysis. To learn more about doing design together in design education, we have done a series of experiments with multi-disciplinary teams. Analysing the results using Arendt's distinction between work and action, we suggest that there is a difference between collaborative design where people come together as *what* they are, and a kind of design togetherness where people come together as *who* they are. In conclusion, we argue that design education might need to revisit its artistic and methodological foundations with respect to participation.

Keywords: Industrial Design, Design Education, Design Explorations, Design Theory.

INTRODUCTION

It has often been argued that one of the key characteristics of design in the Nordic countries is that it is oriented towards the user, towards participation and even democracy (cf. Fallan 2012). In some cases, this image has also been the basis for branding, as in the case with IKEA and its slogan 'Democratic Design for everyone' (http://www.ikea.com/ms/en_JP/this-is-ikea/democratic-design/). Not the least because of our contemporary political situation, it is necessary to examine to what extent our ways of working indeed are democratic, to what extent and in what ways they do support participation (Ehn et al. 2014)

In what follows, we will inquiry into some potential differences between collaborative design and designing together. As a way to start exploring the implications of this distinction within the context of design education, we have engaged in an inquiry trying to reveal different ways of doing design together. While they do not address the bigger societal issues of participation and democracy, these experiments have worked for us as a way to look into design education, and how design students are trained to perform design and prepare themselves for professional practice. To better understand how industrial design education can be developed to prepare for new and more extensive forms of participation, as well as new kinds of social contracts between design and use, we want to find out more about how the role of designer with respect to the complexity, issues and situations of relating to others, is grounded in certain institutionalised forms of doing design.

BACKGROUND

There seems to be general agreement that the issues we face as we look towards our common futures are continuously increasing in complexity. Whether a concern for a more sustainable social and environmental development in a global world, of new technologies or societal infrastructures, the design issues we face are often staggeringly complex. Indeed, if we were to single out one factor that stands out as a driver of change in design practice, increasing complexity would be a strong

candidate. Looking back at the history of design, it was complexity that drove the first systematic research into and development of design methodology. For instance, when Horst Rittel was professor in design methodology at HfG Ulm (prior to his work together with Melvin Webber on 'wicked problems'), he and others were investigating how to deal with complexity using formal representations, statistics etc. as complements to more traditional means for designers to express complexity in for instance sketches. In 1958, Tomas Maldonado wrote that (Maldonado 1958, pp. 218f):

The methodical aspect, which we are here speaking of, and which in our opinion is of special importance, has in the past not only been neglected, but even discredited. Today, this attitude is, it seems to us, no longer appropriate. The technologized world and industrial society are so difficult to comprehend that we cannot do without new methods of working. It is no longer possible to gather information without knowing and drawing near to such disciplines that make it possible for us to accumulate the maximum possible amount of information. /.../ Because of these facts we have become convinced of the necessity of building a new dimension into our teaching plan, which we can call the methodological dimension. Even now, the students are already introduced to the fundamental teachings of mathematical logic.

A few years later, similar ideas would be at the fore of the 'design methods movement' that arose in the UK as a response to the need for more interdisciplinary and collaborative work in areas such as industrial systems and infrastructures, and how to make the best use of existing knowledge in the different stages of a development process (cf. Cross 1984).

A basic difference between science and design remains however, one that in many ways echoes the difference between analysis and synthesis. While science typically approaches complexity through analysis, that is, by unpacking a complex whole into smaller and more manageable parts, the task of design is typically to do the opposite: to resolve often contradictory issues and bring together a thing that is a meaningful whole. Looking again at our historical example above and Hfg Ulm, we thus do not only see an introduction of new tools, but also the articulation of a new idea of what the role of the designer then becomes. Maldonado again (Maldonado 1958, p. 10):

In each of these periods, the producer-consumer relationship differs, for in each one the product functions in a different way. As a result, the design cannot always have the same function or the same significance. In the first of the periods I have just recalled, the designer was the constructor, the inventor, the planner. Henry Ford himself was a great designer of this period. In the second period, the designer was the artist; it matters little whether his aesthetic was popular or purist. In the third period, he will be the coordinator. His responsibility will be to coordinate, in close collaboration with a large number of specialists, the most varied requirements of product fabrication and usage; his will be the final responsibility of maximum productivity in fabrication, and for maximum material and cultural consumer-satisfaction.

While the notion of designer-as-coordinator is distinctively different from designer-as-artist, the two also share important similarities: what is at stake is a meaningful whole (be that there is a difference between a 'whole' as the artistic expression of an artist, and a 'whole' that is the final expression of a coordinated multi-disciplinary effort). Thus, in the example of Maldonado at Ulm, in which industrial design was brought into very close contact with scientific operationalization both practically and ideologically, the basic concern was still how things are brought together, and not how problems are taken apart. This, we argue, is key to understanding how design deals with complexity, and why collaborative multi-disciplinary design evolved to cope with it.

Now, if design deals with complexity by means of bringing together rather than taking apart, what does that imply for the future of design practice? While design is already 'multi-disciplinary', the very term 'multi-disciplinary' echoes how complexity has been divided up into areas (ie. 'disciplines'), leaving traces of analysis taking things apart. Problem is that 'just putting them all back together again' is far from trivial, as it requires a different mind-set from the start.

We think that there is more to forms of doing design together than our current terminology allows us to articulate. In particular, we want to understand if there are forms of design doing that open up for a kind of bringing together that is qualitatively different from collaboration, in the same way as the meaningful whole design deals with is something qualitatively different than a combination of parts coming out of an analysis.

EDUCATING THE PROFESSIONAL DESIGNER

Design education, as conducted in Swedish higher education, is not only a matter of learning about design, but also about educating students in a way that makes them employable and attractive on the job market. This puts a certain emphasis on the competence and skills required to perform design, to practice design. At Umeå Institute of Design, design education is centred on the requirements of professional practice. Among other things, this motivates a basic orientation towards the learnings and achievements of the individual student, but where the final goal is an ability to effectively

Figure 1: First week of one of the team projects exposing a space rich with possibilities.

function in, and contribute to, collaborative projects. Thus, the foundational methodology for this kind of design practice is based on an explicit structure for how the design process unfolds, including systematic ways for handling when and how to invite others (e.g. stakeholders, potential users), when and how to incorporate new design methods, etc. Since the basic structure that remains more or less constant is adopted from (certain forms of) professional practice, the students are trained in a way of performing design that both they and their future employers can acknowledge from the start. Indeed, this basic methodological structure becomes so foundational, that one frequently hears it being referred to as '*the* design process'.

This foundational structure also brings a certain framework for how collaboration and participation can, and can not, happen. Structured as a process of divergence and convergence (Jones 1992), it provides a framework for inviting external expertise when needed, such as potential users in the 'user research' and 'user evaluation' stages, engineering support in the conceptualization stages, and so on. While this opens up the design process for other participants, it is nevertheless a bringing together of people and perspectives that is led and structured by the design team. Hence, collaboration here has its starting point in seeing design as a certain structure grounded in a kind of analytic approach (be that it incorporates flexible adaptations, developments and remodelling of methods), rather than from seeing design as something that happens as people come together, as something that grows from togetherness.

As we think about the future of design practice, and how design deals with complexity by bringing together, we think there is a need to revisit this basic design methodology with respect to issues of collaboration and participation. While it has proven to be remarkably effective, it also clearly implies certain frames for what doing design together can be within this kind of design practice. In our attempt to understand more about 'togetherness' in this context, we have conducted a series of project courses within design education aiming to expose different forms of togetherness that brings together the whole in design.

Figure 2: Entering one team studio during the first week.

EXPERIMENTS

Between 2008 and 2012, we conducted a series of experimental courses as part of the BFA programme in industrial design at Umeå Institute of Design. The purpose of these experiments was to challenge students' ways of working together in teams, and to have them explore forms of designing together.

We have conducted five such experimental courses in total, and each lasted for five weeks. They were set up as 'multi-disciplinary' projects with five separate teams working in parallel. Each team consisted of a mix of 6-8 students and included design students from different educational levels as well as students from other educational programmes such as physical- and occupational therapy and engineering. The work during the courses were documented both by the researchers and the participating students through visual and written material, video recordings, written individual reflections, as well as through the sketches, mock-ups, prototypes, etc. produced.

As our intention with these experimental courses was to explore how people come together doing design, we did not pay particular attention to the design output, nor to the details of how a certain concept or idea was put forward. Rather, the focus was on what forms of shared processes that emerged, and how the participants experienced their process. Thus, we focused on how their process unfolded in the studio, comparing our own observations with participants' reflections about what happened. In addition, the students were assigned to write individual reflections to be handed in each week, and a written meta-reflection to be handed in at the end of each project.

SETTING THE STAGE

The basic intention behind the set-up of these experimental courses was to frame them in such way the forms of collaboration typical to the foundational design process shortly introduced above were to be avoided, to instead give way for other forms of coming together. We framed the students' work around several aims and delimitations, expressed as external and internal structures, or 'guidelines'. We used external structures to frame and simulate a collaborative design practice in relation to external stakeholders. Thus, all projects set-ups still had the typical ingredients of an external

Figure 3: Another team studio, the second week, exposing participants and a variety of materiality and video recordings on accessible surfaces.

stakeholder, the requirement of working as a team, tight time frames, and a project brief. At the same time, we used a series of requirements regarding projects internal structure to relate the courses to issues in doing design together. These were expressed as three guidelines:

The first guideline was to start with an empty space. Instead of starting with a furnished studio, the teams began with an empty space without any predetermined components or structures. This was to elaborate on how a given space is a kind of materialisation of an existing practice, e.g. as in how a meeting or project room have been made to scaffold a certain way of working already from the start.

The second guideline was to push for openness, sharing and commitment as the golden rules of their work. The participants were asked to avoid conventional working structures such as to divide group work into different parts based on the team members' individual expertise. Further, to intensify openness and sharing, we also used substitution of participants between the teams in two of the five experiments. For instance, in one case one group of students changed teams every week. Stakeholder and user representatives changed between the teams continuously throughout the process in all the experiments.

The third guideline was to employ a "build-to-think" approach, and make intense use of design materials to create a shared process of making and thinking.

GENERAL FINDINGS

Below, we will first present our findings as a general description of how participants acted and the studio evolved during all events, mirrored by our on-sites observations, quotations from participants and pictures. Following, we will discuss two emerging 'trails': *a dialogue culture* and *a dialogue with materiality*, carving out characteristics as a way to understand collaboration and togetherness in design practice.

OVERVIEW

In general, much of what we observed was to be expected, such as how to open-up given design issues and drawing up planning-structures, discussions of how to approach the project as a shared interest and commitment, reinforcing a dialogue within the

Figure 4: One team during time of breakdown.

teams and exposing different interpretations how to perform a design project and this project in particular. However as the process proceeded from initial phases into research with user-studies and final presentation modes we observed how initial discussions evolved into another kind of dialogue, a visual kind of sharing, with outcomes written down and/or visualised and put up on the walls in their studio and continuously under revision.

DIALOGUE CULTURE

By observing participants we witnessed on the one hand, a somewhat increasing level of frustrations of not being involved in the making of the whole, rather in isolated activities. On the other hand, participants performed together sharing with others, through dialogue and materiality, grasping the whole as a complexity rather than means to an end. In other words participants struggled between sympathetic participation and selfish accomplishment. Comparing our observations with participants reflections exposed a general aspiration and desire for sharing through dialogue but also exploring materials in various ways e.g. twisting and reorganizing the materials, dragging threads and pencil-lines between documentation and intervention with physical material such as mock-ups and models. In reflections participants wrote that they appreciated the common dialogue that made them grasp ubiquitous complexity through an embodiment of a materiality. As one participant wrote (1:2009):

What I mean is accurate switching between calls between the eyes and dialogues on paper, post-its, tangible objects and so on. A healthy exchange for keeping everything consistently and transparently.

Nevertheless, as tensions occurred times of breakdowns arose and a growing willingness to instrumental repeat known project structures established a kind of top-down system. Hierarchical structures and some participants taking the role as temporal leader for their team inhibited dialogue and exploration of the materiality. It had an impact on how participants came together since hierarchy nourished feelings of not fully participating, lack of motivation to raise ones voice and stimulated a competitive mind set. We as observers notice that at times of breakdowns, a more conventional design process occurred and methods were more or less used as "business as usual" taken as the proven way of doing the job, the right way. Furthermore, participants voiced that

Figure 5: Team studio during the third week of a project. One participant acting-out with prototypes and others having a dialogue.

a conventional process also opened up for division into roles, meaning that if one was skilled in sketching it was that persons task to deliver visual material to the group. As one of the participants wrote (2:2008):

It can be a real trap and something that when it is bad can really cause problems for cooperation. I saw… crappy not engaged communication, and it was not fun to see. /.../ But in a team work - where everyone is involved in everything – one will not escape the fact that everyone must understand the reasoning, statements, questions, yes understand everything, to participate hundred percent. And since it is precisely participation that is the biggest ingredient - the premise - to be able to work together, so it's something you have to think about and relate to, always.

We observed an endeavour for a kind of dialogue culture growing out of talking and listening to each other, which we witness in how they organised themselves toward each other and the materiality in the studio.

DIALOGUE WITH MATERIALITY

As mentioned above the expression of their studios evolved simultaneously as their process proceeded, intervened with their on-going dialogue. Visual and tactile material exposed content but also participants opinions and suggestions as a material context, a kind of exhibition open for interaction. We observed that the materiality and the coming together was intervened on a more profound level how participants actively approach each other as the materiality propelled the dialogue and the exploration of the project. The material context became a means to support openness, integration and interaction rather than conventional doing, 'business as usual'. As one participant voiced (3:2011): "...and not be stuck in analysis paralysis."

Participants used the materiality as a kind of documentation-in-progress and iterated dialogue and materiality in loops. Details that were not given particular attention in the beginning could suddenly open up for new directions. Likewise, the instant and

Figure 6: Overview of some parts of several team studios.

visual tactile access of the material also became the hub that gathered and bonded participants that switched teams, external partners and users. As one participant voiced (4:2011): "As users tested our method (concept) there were many who could connect their experience of the method to what actually sat on the walls…They were able to quickly connect the exposed material to the experience that emerged to them during the tests of our method."

Hence, a shared materiality increased interaction during the whole extensions of a project time as a journey. A somewhat structured process became dissolved as material was iterated, and stimulated an urge to re-think and make new argumentative paths, empowering a dynamic structure for both process and planning.

ARTICULATING DESIGN TOGETHERNESS

The experiences and results reported above point to some real differences between what can be called collaboration versus togetherness. To explore such nuances and differences in doing design together further, however, we need new articulations, new concepts that can be used to describe design practices and how they differ from each other. In what follows, we will discuss some ideas about how this might be done based on Hannah Arendt's distinctions between 'work' and 'action' (Arendt 1958). It is important to remember, however, that the experiments reported above were not set up as ways for us to study design collaboration along the terms used in the analysis below. The experiments above were set up for the students to explore and experience forms of collaboration, and it is because of what then emerged that the current analysis came about. Indeed, this is a matter of trying to articulate what we have seen in practice, rather than experimentation intended to challenge something forth we might expect from theory.

The first distinction that might be worth revisiting, however, is whether a given design methodology, or process structure, works outside-in or from the inside-out. If we look at the design process discussed earlier, i.e. a process based on phases such as divergence, transformation and convergence (Jones 1992), it is clearly expressed from the outside-in. This is not to say it is articulated from the outside of design, or by an external observer, but rather that its structure is not something that the project itself evolves. The

foundational structure is something that is provided from the outside in the form of principles, rules, constraints, etc. that can be applied across a range of projects. If we instead turn towards the experiments described here, the accounts point to a way of explicating the structure of the design process from the inside-out. That is, the basic structure is not given from the outside but rather something that comes from evolving, rehearsing and performing the practice together. Obviously, these two kinds of doing design have quite different characteristics.

Professional design practice is ruled by efficiency and the ability to achieve a specified goal within given constraints. Thus, solid and proven ways of working, efficient methods and effective structures for collaboration are the most appreciated. Further, an approach's track record often constitutes the basis for arguments related to trustworthiness and reliability. This is precisely what makes design processes based on external structures, such as the divergent–convergent process integrating divergent knowledge into the process (Jones 1992) so dominant in professional design practices.

Now, if we start to unpack what it is that we do together when working in this way, we can see that the ways we (designers) come together are governed by an outside-in perspective, the reason for inclusion being that the person in question brings certain knowledge into the process. In a way, we become part of a kind of cause-effect-affect procedure, investigating both what is the cause of a situation (divergence) as well as understanding how to explore and improve it (transformation) in order to present a result (convergence). This has a certain flavour of designers as the means to an end, people being seen as a kind of resource available for the design process to make use of. This is not only rational in the sense of efficient development processes, it is also rational in the sense of technological rationality and the instrumentality that Martin Heidegger expressed as "A means is that whereby something is affected and thus attained" (Heidegger 1977, p. 6), and as (Heidegger 1977, p. 48):

All mere chasing after the future so as to work out a picture of it through calculation in order to extend what is present and half-thought into what, now veiled, is yet to come, itself still moves within the prevailing attitude belonging to technological, calculating representation.

Whereas such orientations may serve the purpose of rational effectiveness in industry, it is a much less satisfying account with respect to design's equally important orientation towards the human being and her relation to the world around, ethics as well as aesthetics. Considering what it is that we do according to this logic, it seems we are close to what Hanna Arendt described as the human condition of 'work' (1958). In work, people are ruled by systems, performing in isolation following certain rules and conventions in a predetermined manner. This is where we find craftsmen creating the artificial, performing means to an end in an efficient way. Even though people act together, there is no real togetherness. From work, we gain an idea of practice as fragmented and somewhat uncritical doing, to some extent design processes as puzzles with pieces of knowledge that fits together. As a result we obtain if not a linear process, then at least a kind of predetermined structure for collaboration, or as one participant wrote (5:2011): "that we stay within a paradigm."

In conducted projects there were times of breakdown, where participants acted according to their assigned roles, some taking on the role as leaders to pull the process back on track. Design materials were used as means to an end in a conventional manner, excluding participants that were not skilled or trained in sketching and prototyping. Here, the design process became a matter of work, of returning to known structures for how to make the most efficient use of people as a kind of resource (cf. Heidegger's 'Bestand´(1977)).

However, we also witnessed another kind of structure evolving in the teams. We could see cultures of dialogue emerging inside evolving material contexts. Such inside-out structures point towards another kind of designing together, where people expose themselves and their opinions. This seems to us point to a way of doing design that is closer to what Arendt (1958) calls 'action'. In action, Arendt argues, people use both language and action to come together as who they really are and not as what they are, referring to how we describe a person by performances and knowledge. Unlike work, action is based on humans in plurality, which Socrates believed originated from how we are always two-in-one and together with others (Arendt 2004). When people come together in plurality, a chain of actions will start to unfold as we take action and relate to each other as who we are, not what we are. Making, which Canovan refers to as "...is to ignore human plurality and coerce individuals in practice" (Canovan 1958, p xii). Hence, she suggest that human plurality requires that each human "is capable of new perspectives and new actions, and that they will not fit a tidy, predictable model..." (Canovan 1958, xii).

When we could see teams coming together as action, in a dialogue culture evolving through materiality, we could see how participants offered each other their opinions and various understandings of the material, but where this was not to argue, but to learn from and through each other in ways that propelled the design process forward. During breakdowns, on the other hand, when participants turned to collaborative work, they altered how they acted together, relying on a process

guided by outside-in rules and a mutual understanding about the design process, exposing sequential collaboration, splitting themselves into what they were rather than who they were, moving into roles based on knowledge and skills (such as sketching, prototyping and analysing the material). Coming together through 'work' seemed to hinder transfer of knowledge as a seamless intervening, emphasising a process mediated through methods and conventional doing, trying to exclude unwanted iterations, new beginnings and unpredictable actions.

Using Arendt's notions of action and work, we can see what doing design together might be in two different ways. One can be understood as working together, as collaboration: participants acting as what they are, somewhat separated from each other, based on methods lined up as phases in a structured design process. The other can be understood as a kind of design togetherness: an unfolding and unpredictable making where the material is iterated, transmuted and diffracted in a process originating with participants acting as who they are in dialogue with each other. Here, the qualitative 'whole' is not a coherent structure possible to describe from the outside, but a revealing of the in-between, of the glue that link materiality and participants together as a qualitative whole.

By this we argue that understanding doing design together as a condition of action and an embodiment of materiality, emphasize the break with collaboration as work, a knowledge-bringing together if we understand such a process as instrumental and ruled by an out-side in structure.

CONCLUDING REMARKS

If the technological rationality that forms the very logic of industrial production was equally effective as a foundation for industrial design methodology, then we now need to ask ourselves what happens as we move into a post-industrial condition for design. Since the post-industrial carries with it a different logic, it is very likely that also industrial design needs to evolve its methodological foundations. In light of such challenges, and the pressing issues related to how we act and live together, we argue that there is a need to revisit basic relations between participants and processes in design.

In particular, we want to inquire into different forms of doing design together and to investigate what direction design education might take in the future. In the courses discussed here, we found that students working together in a design project moved between two distinct kinds of doing design together: one bringing participants together in dialogue and embodiment of an materiality, the other bringing people together as resources with clear roles.

Trying to understand design doing as 'action', we found a kind of 'design togetherness', a dialogue and material culture that changed how we might understand doing design together, creating whole as 'we' rather than 'I' and 'they'.

While the academisation of design practice based on analytical and scientific perspectives seems to offer us effective tools for addressing complexity, these are inherently based on the taking apart of a complex whole – be it taking a complex togetherness apart as distinct roles, or a complex design issue into a set of more manageable 'problems' that can be 'solved'. Such tools and practices have their use, but in design there is a need for practices concerned with the bringing together of meaningful wholes. Previously, such wholes have often been described in terms of form or Gestalt, identified as objects, systems, services and similar 'things' – but 'things' have changed, and so has 'form'. As the industrial logic currently governing quite static patterns of production and consumption leave way for new social contracts between acts of design and of use, design practice will have to evolve in ways more substantial than any notion of a shift 'from product to process' can account for. We believe that a better understanding of togetherness will be crucial as we start articulating new artistic and methodological foundations for design.

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