On design as liberal art: The art of advancements
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My concern in this thesis has been quite specific and can be summarized in one question: “What is designing without a product and how can we begin to talk about it without restricting it to a mechanistic process of problem solving?”

Designing without a product has been expanding in the last decades to include more and more domains of our collective lives. Yet, we as researchers begin only now to grasp it. Jones (1980) introduced the notion of designing without a product to refer to a designing practiced ‘as a way of living’, ‘an end in itself’. It is concerned not with creating finite objects, but with ‘the design of all-things-together’ (Jones 1980). Studying this type of designing is highly relevant and actual, because unlike designing products which is the concern of professional draftsmen, engineers and industrial designers, designing without a product is everybody’s concern interested in changing their worlds for the better.

The value of studying this type of designing has been recognized by Buchanan too. In a recent interview given at the Kolding School of Design International Advisory Board (http://www.designskolenkolding.dk/index.php?id=3469, retrieved on 20 October 2013), Buchanan expressed his interest in what he called ‘the third order of design’ and in the emerging ‘fourth order of design’. In his words:

“I’m interested in what I call “the third order of design”. The first order of design is communication with symbols and images. The second order of design is design of artefacts as in engineering, architecture, and mass production. In the middle of the 20th century we realized that we can also design activities and processes. We work progressively more with these activities and services. That’s the third order of design. In the beginning we called it Human Computer Interaction. Now we work with any
kind of interaction – it’s about how people relate to other people. We can design those relationships or the things that support them. It’s this interaction I’m after.”

[…]

“To me the fourth order of design is the design of the environments and systems within which all the other orders of design exist. Understanding how these systems work, what core ideas hold them together, what ideas and values – that’s a fourth order problem. Both the third and the fourth order are emerging now very strongly.”

I argued that we, as researchers, begin only now to explore and understand designing without a product, the fourth order of design, because our account of what designing is has been so far dominated by the design as process paradigm. This paradigm puts forward a view of design as problem solving by initiating change in a finite product or system. It draws extensively on the ethos of science. It puts forward an etic account of the design world, instead of allowing designers to tell, from an emic perspective, what their world is made of. The design as process paradigm provides an understanding of the design world as stabilized, consisting of structured or ill-structured problems for which solutions can be developed by means of rational thought, calculations, creative insights or a combination thereof (Lawson 2006). Designers are portrayed as detached professionals, in most cases solving a problem brought to them by a client; are highly skilled in the ‘techniques of the artificial’ (Cross 2001) and learn about their design situations by cognitive means and processes (Dorst 2010). Design is conceptualized as a mechanical art (Shiner 2003), an applied art which is goal oriented, which follows strict procedures of work and whose outcome is stable, unambiguous, uncontested and meant to be used as intended by designers.

This paradigm has been insightful for our understanding of designing material products and other finite solutions, such as work schedules, transportation itineraries or static websites. Design as a mechanical art is an integral part of our lives and will continue to be for years to come, seen in the great work done by engineers, industrial designers and architects (Lawson 2004, 2006). However, there is an increasing trend where architects are concerned not only with designing beautiful houses and offices, but also with designing spaces for living and working that facilitate interactions and learning (Margolin 2007). Their work is no longer a matter of creating a product but of advancing collective life. When we try to understand this
latter type of designing, namely designing for interaction and learning, which is a designing without a product, we are somewhat empty-headed because we do not have (yet) a well-developed vocabulary to talk about it. Designing without a product is not a mechanical art, an applied, goal oriented art. It is a different type of art, which is an ‘end in itself’ (Jones 1980), an art of living with others both human and non-human. I argue, following Buchanan (1992) that it is a liberal art, and of a particular type. But I need to make a small detour before being able to say anything new about design as a liberal art.

**Deploying controversies in designing without a product**

Let me first address the second half of my concern in this thesis, on the ways in which we can talk about designing without a product. This concern has been at the center of my first two research questions: How to deploy the many controversies about design without restricting designing in advance to a specific domain (individual or structural)? And, how to render fully traceable the means allowing designers to stabilize these controversies?

I argued that in order to achieve this we need to adopt a methodology for studying design that does not take a stabilized world as a starting point and that does not prioritize either structure or agency. Drawing inspiration from Latour (2005), I proposed anActor Network Theory methodology for studying design. Ontologically, this methodology puts forward a view of the design world as *made by* a dynamic assemblage of people and the objects they live and work with. The design world is viewed as constantly negotiated, emerging and advancing out of the multiple interactions and performances of this heterogeneous assemblage. Through these negotiations, it is not only the designed which changes and is advanced. The designers and the practice of designing itself are transforming too.

Epistemologically, this methodology proposes a view of knowledge as co-created in practice, as integral to doing (Strati 2007, Gherardi 2009, 2010, 2012). Knowledge does not reside in individuals’ heads, nor is it a production factor which can be easily managed, stored and used strategically. Rather, knowledge is seen as “a collective, situated activity” (Gherardi 2012: 199). Knowing and learning is something people achieve together by engaging in collective action (Corradi et al. 2010, Nicolini 2011).
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As the design world is constantly negotiated and discussed, then our best place to start exploring the nature of designing without a product are those instances where things are still being drawn together, where knowledge is still being negotiated and co-created, and where controversies about what needs to be done and how are yet unsettled (Venturini 2010). If design is deploying controversies, then research should not shy away from deploying controversies, together with the designers. This is the only way to proceed if we are to shed away our own taken for granted assumptions about design as a mechanical art, a goal oriented process.

I argued that if we are to feed off design controversies observed in practice and learn about what designing without a product has become in the designers’ daily performances, we need to follow the designers themselves and see how they practice designing (Latour 2005, Gherardi 2010). We need to see how the designers themselves stabilize their design world, instead of stabilizing these controversies ourselves, by using a priori developed theories and conceptualizations of design (Latour 2005). I argued that we can render fully traceable how designers engage in stabilizing their design controversies by focusing on the moves they make in designing and their effects. In this thesis, I observed and analyzed the following moves:

- From a museum as a collection of historical objects that need to be preserved to a museum as a constitutive entanglement in which everything and everybody need to be taken into account in advancing the museum towards an online and offline meeting place. Designing is directed towards an all-encompassing transformation; the museum cannot become a sincere meeting place only by developing an online community while the museum stays the same. Designing becomes a matter of advancing constitutive entanglements.

- From historical, objective knowledge which is collected through research to taste making as a collective achievement among all those engaged in practice. Taste making becomes the means through which museum employees develop the identity of the museum as different from other museums in the Netherlands and the world; it is employed in practice as means for appraising and refining the practice. Designing becomes a matter of valuating, appreciating and sensible knowing by doing.
Conclusions: Beyond Design as Mechanical Art – Design as Liberal Art

- From a structured process of collaboration and designing by means of standard methods to partnering and employing methods-in-practice in designing together for interaction and collaboration. Design is distributed across an assemblage of people and the objects they live and work with. It is directed towards arranging the practice. Designing becomes a matter of engaging, trusting, staying close to the community and reacting to its needs; a designing over time.

- From writing proposals, strategies and agreements to design by drawing things together. Design is centered on matters of concern which need to be carefully attended to. It is directed towards making assemblages of people and things, or constitutive entanglements work. Designers are an integral part of these assemblages too. Designing becomes a matter of being in the world.

Foundations of design as a liberal art of advancements

Let me now address the first part of my concern in this study, on what is the nature of designing without a product. This concern has been at the center of my entire research. A third research question I posted in this study was: Through which procedures it is possible to reassemble designing without a product not as a mechanical art of solving design problems but as a liberal art of advancements?

I argued that Gherardi’s (2010) three readings of a practice are helpful in this task. A reading of practice from inside is concerned with identifying the elements composing a practice that make it recognizable as a practice to its practitioners and non-practitioners. This reading allowed me to examine the elements of the discipline of designing as problem solving and of the discipline of design as a liberal art, in terms of philosophical underpinnings, ontological perspectives, nature of design problems, task of designers, nature of design knowledge, design methodology, act of designing and evaluations and appraisal. The second reading of practice is conducted from the point of view of the activity being performed. I examined what the activity of designing consists of in designing as problem solving and in designing as a liberal art. I explored the nature of design knowledge in problem solving and in design as liberal art. The third reading of practice allowed me to explore the social effects of designing as it is
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performed in contemporary society. I focus on the first two readings in this section, and elaborate on the third reading in the last section.

From deploying the controversies observed in the Amsterdam Museum project, I obtained a different view on designing than the literature puts forward. Designing without a product is not a goal-oriented process, in which a detached designer solves problems by initiating change in a finite product or system. Rather, it is a matter of initiating advancements in wicked ‘constitutive entanglements’ (Orlikowski 2007), in assemblages of human and non-human actors, of which the designer and those concerned with the designed (‘the users’ in the design literature) are a part too (Maris et al. 2012). Designers engage not with singular, finite, agreed-upon matters of fact but with matters of concern which are multiple, ambiguous and debatable (Latour 2004). Designing without a product is performed by drawing things together, in which the designers’ concern is on how to make the emerging assemblage of people and things work. Design knowledge is a sensible knowing in practice, appraised and refined through taste making (Maris and Huizing 2012; see also Strati 2007 and Gherardi 2009). To design is no longer a way of mastering and controlling the world. It is a way of being in the world, a matter of engagement, empathy and care. As such, the designers’ concern is no longer of how to be good technicians or good researchers in user tests and parameters calculations; it is about how to be good participants in the world. Following Gherardi’s (2010) readings of practice, we begin to see the outlines of design as a liberal art, and of a particular type too.

Buchanan (1992, 1995, 2001) made the first steps towards thinking of design as a liberal art. He grounded his philosophical exploration in humanism, giving priority to human agency and individual thought in conceptualizing design as a liberal art. For Buchanan (1992), design as a liberal art is an integrative discipline of design thinking which brings together knowledge from diverse fields such as natural science, social science, behavioral science, fine arts and humanities to meet practical needs of our daily lives. Design is “an art of conceiving and planning all of the types of products that human beings are capable of making” (Buchanan 1995: 38). The range of products designers engage in conceiving and planning is increasing in the contemporary world and include objects of everyday use, built environments for living and working, organized services and means for communication (Buchanan 1992).
In exploring the nature of design as a liberal art, Buchanan (1995, 2001) drew on the principles of rhetoric. Rhetoric is considered to be one of the classical liberal arts, concerned with forethought in preparing public speeches, namely with the invention, judgment, disposition, delivery and expression of arguments. Drawing on insights from rhetoric, Buchanan (1995) conceptualized design as a liberal art of deliberation indispensable in all human activities, ranging from building theories to offer explanations and making policies to guide practical actions to creating objects for daily use and enjoyment. As an art of deliberation, designing produces arguments in the form of sketches, proposals, strategies and models which are used in understanding, practical action and production. For Buchanan (1995: 46):

“Design is the art of shaping arguments about the artificial or the man-made world, arguments which may be carried forward in the concrete activities of production in each of these areas, with objective results ultimately judged by individuals, groups and society.”

In departing from a view on design as a mechanical art towards a view on design as a liberal art, Buchanan’s (1992, 1995, 2001) ideas have been very insightful. Yet, I depart also from Buchanan’s view in three fundamental ways. First, I embed my examination in the philosophical underpinnings of post-humanism, made concrete in actor network theory (Latour 2005) and in sociomateriality approaches (Knorr Cetina and Bruegger 2002, Orlikowski 2007, Gherardi 2012). The principles of post-humanism reflect a view of humans as being constitutively entangled with the objects they live and work with and as such agency does not reside in humans only. Evidence from the Amsterdam Museum project indicates that agency in designing is distributed across an entire assemblage of human and non-human actors. For instance, a story posted online by a member of the public would enroll a curator to consider how s/he prepare an exhibition in which that story has a meaningful place.

Second, I extend Buchanan (1992, 1995, 2001) understanding of design as liberal art by drawing on Gherardi’s (2009, 2010, 2012) notions of collective knowing in practice and taste making. Evidence indicates as well that we cannot separate thinking from doing (Gherardi 2012), in the sense that thinking is as much a matter of individual, private thought as a matter of collective performance. To draw again on the metaphor of designers as choreographers: just like choreographers develop a new dance by dancing and engaging the entire assemble of
dancers and décor, so do designers develop a new design by designing and engaging the entire assemblage of people and objects they work with.

And third, I extend Buchanan’s focus on finite products (be they material objects, bundled services, intangible signs and software or systems for living) to include people’s ways of living, emergent designs and performances. Not only objects change in designing, but people and their ways of doing things change too. I draw on Jones’s (1980) view on designing as a way of living, and end in itself. This brings into the picture humans’ ways of living with things as central to designing, not as problems to be solved through ‘one shot’ operations, but as issues to be advanced one step at a time. We have seen how in designing emergent online communities, the museum employees and the web designers developed a new way of working together, more focused on partnering, caring and empathy than on strict contractual agreements. Through this partnering, both museum employees and web designers changed as they learned from each other about their different practices, museum practice and the web design practice.

Table 2 below offers an overview of the move I make from design as mechanical art to design as liberal art. It indicates how I build on Buchanan’s view in offering an understanding of design as a liberal art of advancements.

Table 2. Comparisons and points of departure from design as mechanical art to design as liberal art of advancements.

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<thead>
<tr>
<th></th>
<th>Design as Mechanical Art</th>
<th>Design as Liberal Art of Deliberations</th>
<th>Design as Liberal Art of Advancements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Philosophical underpinning</strong></td>
<td>Objectivism: the world is out there. The ingredients needed for change are in the object</td>
<td>Humanism: the designer has agency to change the world</td>
<td>Post-humanism: agency to change the world is distributed over an assemblage of people and things</td>
</tr>
<tr>
<td><strong>Ontological perspective: what the design world is made of</strong></td>
<td>Matters of fact: stable and understandable as facts of nature</td>
<td>Matters of choice: things that in designers’ minds may be other than they are</td>
<td>Matters of concern: things that are ontologically multiple, contested and open-ended</td>
</tr>
<tr>
<td>Nature of design problems</td>
<td>Structured or ill-structured: clear requirements and well defined conditions</td>
<td>Wicked problems: no definite conditions, confusing information and conflicting values</td>
<td>Wicked assemblages, issues: include diverse actors with different interests, boundaries impossible to set</td>
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<tr>
<td>Task of designers</td>
<td>Solving problems brought to them by others, by means of calculations and/or creative insights</td>
<td>Solving problems by means of ‘one shot’ operations</td>
<td>Advancing constitutive entanglements, of which they are a part, by implementing mechanisms that feed themselves</td>
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<tr>
<td>Nature of design knowledge</td>
<td>Scientific, abstracted in theories, principles and cognitive thought</td>
<td>Scientific, explored cognitively by designers through placements</td>
<td>Sensible knowledge, a knowing in practice acquired through the senses and collectively negotiated through taste making</td>
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<td></td>
<td></td>
<td></td>
<td>Creativity is a collective performance</td>
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<tr>
<td>Design methodology</td>
<td>Specialized techniques and methods, employed following a logical order, which bring about results</td>
<td>Systematic discipline of integrative thinking used to meet practical purposes</td>
<td>A shared imaginative living</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Methods-in-practice that focus on engagement, caring and empathy and which perform results</td>
</tr>
<tr>
<td>Act of designing</td>
<td>Design by drawing: making and changing representations of the world</td>
<td>Design by deliberation: shaping arguments about the human-made world</td>
<td>Design by drawing things together: design is deploying controversies about what needs to be done and how</td>
</tr>
<tr>
<td>Evaluation and appraisal</td>
<td>Evaluation done by designers related to the performance of a product, or the effectiveness of a solution</td>
<td>Evaluation done by individuals, groups or society, related to how well the product supports human action</td>
<td>Valuation/Appraisal performed in practice by all those engaged in designing or effected by the design, related to what makes the emergent assemblage work</td>
</tr>
</tbody>
</table>
Design as a liberal art of advancements is an art concerned with moving people and the things they live and work with forward. The move is not to a specific, agreed upon point in time and place under strict design requirements, but is seen as a journey taken together with all those concerned or affected by the design. It is an art of living, of being in the world that involves everybody and everything as equal partners in changing the world. It is an art interested in creating the circumstances that people and things can unfold in ever richer assemblages, in which people’s horizons can be extended so that things can develop differently and in which things’ horizons can be extended so that people can live differently. The Amsterdam Museum provided the example of such an assemblage that unfolds and moves forward. It is an assemblage in which museum employees and web designers learn to host and care for an evolving online and offline community and in which the museum’s practice is changing so that employees and the public can tell together the story of Amsterdam. Engaging in designing without a product is performing designing as a liberal art, as an art of advancements.

**Keeping things open**

Through a third reading of practice, Gherardi (2010) and Corradi *et al.* (2010) theorized about the social effects of performing a practice. In this reading, they asked the question: what does doing the practice do? In a similar vein I ask the question about designing: what does doing designing do?

Doing designing creates a new order in people’s lives with each other and with the objects they work and live with. When Apple designed the IPad, they did not only design a new type of computer, but they designed for a new way for people to interact with computers. When the Dutch government developed and implemented the new electronic patients’ dossier, they created a new way for doctors, patients and insurance companies to work together, a much more decentralized and they argue, more transparent way that would be beneficial for all parties involved. At the Amsterdam Museum, transforming the museum into an online and offline meeting place is designing for a new way for museum employees and the public to interact and communicate. It sets the stage for a much more democratic participation of the public into history making by means of storytelling about their city and the people that live there (cf. Simon 2010, Odding 2011).
Designing is an ordering practice. This argument is even more compelling when we observe in practice that designing is a matter of drawing things together and making them work. It is an ordering practice for the designers, as they engage in arranging their practice, appraising and refining it. And, it is an ordering practice for those affected by the design, as their life worlds are shaken up and reassembled in new assemblages.

“Every practice creates its context” Gherardi (2010: 506) argues, and so does design. It engages in what Bourdieu (1977) called ‘circuits of reproduction’. Design by problem solving creates a stabilized world, to which it responds by means of interventions in finite products and systems. Design as a liberal art destabilizes the world to reconsider its components. New assemblages drawn together in designing bring about new concerns, wishes and ambitions. A predefined order might never be achieved as the ordering process, that of drawing things together, is continuous. The intended and unintended consequences of designing are part and parcel of drawing things together and making them work, they are the new materials designers draw together in the next step of designing.

But designing is an ordering practice in a different way too. And here lies the political project of design as a liberal art. If in drawing things together, controversies about what needs to be done and how are constantly ignited, then deploying controversies is a political process (Beck 2002, Latour 2008). And this political process is visible everywhere from discussing the details of colors of community pages, to discussing the composition of exhibitions. And it is visible in the society in general too, as political debates are constantly carried out about what the role of museums should be in contemporary world. It is a political debate carried out among different types of museums (art, community, crafts, historical museums), between museums and the public and between museums, the public and the government. For instance, we have seen in this study how the local government required museums to become more socially responsible if they are to continue to receive public funds.

And it is not always a democratic process as some interests would always be voiced stronger than others. Some museums with more famous collections are stronger in claiming relevance and funds than museums focusing on local history of a city or neighborhood. Also, we have seen in the Amsterdam Museum project how the emergent nature of online communities dictated a new way of collaborating between museum employees and web designers: more partnering than working based on service level agreements. The public is asking for a stronger
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presence in museums, which dictates a new way of preparing exhibitions and a reconsideration of the role of museum objects in telling the story of Amsterdam. Deploying controversies is a matter of giving a public arena to all these political debates and interests (Latour 2008). It is in this public arena that what it means to live and work with objects is negotiated and defined.

But we as researchers, through the research we conduct and through the controversies we deploy in our texts, we are also participating in this political process. Through the concepts we develop and the theories we put forward, we are contributing to the debates on how to lead our lives with the things we work and live with. We are ordering the practice of designing too in our concepts and theories, while at the same time we are ordering our practice of researching.

Our task as researchers is to keep the political process open, to continue to deploy, together with the designers themselves, the design controversies we observe in practice, rather than stabilizing them in our concepts and theories. That is why, I argue, the ideas I put forward in this thesis, of design as liberal art of advancements, are to be seen as a temporary stabilization which needs to be carried on. These concepts are only the outline of a design as a liberal art and they need to be deployed further and in other contexts than that of the museum examined here. Only then can we, together with the designers, continue the political debates on how we could live and improve our lives with the objects that enrich our existence.